Aim

- To prevent acute kidney injury (AKI) by identifying and discussing the risk of developing AKI with people at higher risk. In particular the risk associated with conditions leading to dehydration (for example, diarrhoea and vomiting) and certain medicines.

Why

AKI is a clinical syndrome that is common, harmful and avoidable. AKI, irrespective of severity, increases the risk of chronic kidney disease and further episodes of acute 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.
- About 65% of acute kidney injury starts in the community.

NHS England, in partnership with the UK Renal Registry, has launched a 3-year programme – Think Kidneys – with the aim of preventing avoidable harm from AKI. In addition, NHS Highlands have launched a sick day rules card. This includes information on medicines that should be temporarily stopped during illness that can cause dehydration. Thames Valley in collaboration with local renal consultants, GPs and pharmacists have adopted this initiative across the region.

How

- Healthcare professionals should identify patients at higher risk of AKI. At risk patients should be informed that during an illness that causes dehydration, certain medicines (overleaf) can either increase the risk of dehydration or lead to potentially serious side effects of the medicine.
- Based on an individual risk assessment, healthcare professionals should provide advice on temporary cessation of medicines for patients deemed at high risk of AKI.
- The advice should be supported with a Medicines Sick Day Rules card (below).
- The cards are intended to be used as part of a consultation with a patient or carer and not placed on open display in waiting rooms.
- Patients should also be counselled on the importance of maintaining good fluid intake (at least 6—8 mugs or glasses of fluid per day) when unwell.
- Patients should be informed that medicines should be restarted once they are better (24 - 48hrs after resuming eating and drinking normally).
- Episodes of AKI should be read coded and should include the cause.

Medicines Sick Day Rules Cards

<table>
<thead>
<tr>
<th>Medicine to stop on sick days</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE inhibitors: medicine names ending in ‘pril’</td>
</tr>
<tr>
<td>ARBS: medicine names ending in ‘sartan’</td>
</tr>
<tr>
<td>NSAIDS: anti-inflammatory pain killers</td>
</tr>
<tr>
<td>Diuretics: sometimes called ‘water pills’</td>
</tr>
<tr>
<td>Metformin: a medicine for diabetes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medicine Sick Day Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you are unwell with any of the following:</td>
</tr>
<tr>
<td>- Vomiting or diarrhoea (unless only minor)</td>
</tr>
<tr>
<td>- Fivers, sweats and shaking</td>
</tr>
<tr>
<td>Then STOP taking the medicines listed overleaf</td>
</tr>
<tr>
<td>Restart when you are well (after 24-48 hours of eating and drinking normally)</td>
</tr>
<tr>
<td>If you are in any doubt, contact your Pharmacist, GP or nurse</td>
</tr>
</tbody>
</table>
Risk factors for AKI
The most common risk factors for AKI for a patient are:
- Chronic kidney disease
- Age—patients aged 65 years or over
- Heart failure
- Atherosclerotic peripheral vascular disease
- Diabetes Mellitus
- Liver disease
- Previous history of AKI
- Neurological or cognitive impairment or disability, which may mean limited access to fluids because of reliance on a parent or carer

AKI may be triggered by:
- Sepsis or infections
- Hypovolaemia—dehydration, bleeding
- Hypotension—for example after a serious heart attack
- Use of medicines with nephrotoxic potential (such as NSAIDs, ACE inhibitors, ARBs and diuretics) within the past week, especially if hypovolaemic. The Think Kidneys website includes a medicines optimisation toolkit for AKI with a list of high-risk drugs and appropriate related actions

High risk medicines
The list of medicines on the card is not exhaustive but are highlighted because:
- Diuretics can cause dehydration or make dehydration more likely in an ill patient
- ACE inhibitors, ARBs and NSAIDs; in a dehydrated patient these medicines may impair kidney function which could lead to kidney failure
- Metformin: dehydration increases the risk of lactic acidosis, in high risk patients

Obtaining the cards
- A supply of Medicines Sick Day Rules cards can be ordered by any Buckinghamshire GP practice or hospital site
- If you would like a supply of the cards, contact the Medicines Management Team; bucks.mmt@nhs.net.

References
- Think Kidneys website: www.thinkkidneys.nhs.uk/
- Sick day rules in kidney disease. Drugs and Therapeutics Bulletin 2015;4:317
- Acute kidney injury. Centre for Pharmacy Postgraduate Education. September 2015
- Medicines and Dehydration Briefing for Professionals on the Medicine Sick Day Rules card http://www.scottishpatientsafetyprogramme.scot.nhs.uk/Media/Docs/Primary%20Care/Medicines%20Sick%20Day%20Rules%20cards/M5DRHealthProfessionalsleaflet.pdf

Author: Seema Gadhia, Medicines Optimisation Pharmacist, Medicines Management Team
Approved: Medicines Management JET (Electronically 2 March 2016)
Review date: March 2019