

Acute kidney injury: prevention, detection and management

**Consultation on draft guideline - Stakeholder comments table
03.10.2019 – 31.10.2019**

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| British Association for Paediatric Nephrology | Guideline | 9 | 11 | <p>One member of the BAPN commented that the guideline should contain a statement about the lack of evidence available to make a recommendation for the prevention of AKI in children receiving iodinated contrast agents, or that there should be a call for further research into this.</p> <p>I note the scope on page 1 says that the 2019 update reviewed the evidence for adults with regard to iodinated contrast agents, it may therefore be that the evidence for children was not reviewed – if this is the case then it could be explicitly stated for clarity.</p> | <p>Thank you. The update did not review the evidence for preventing contrast induced AKI in children or young people as it was outside of the scope for this update.</p> |
| British Society for Heart Failure | Guideline | General | General | <p>Whilst acknowledging the guideline is directed towards generalists it is disappointing that there is no attempt made to disentangle what the cause of AKI is. This will in many cases help direct appropriate treatment. Not all acute changes in renal function represent acute kidney injury. Many patients with heart failure suffer changes in fluid status or undergo drug changes with resultant change in renal function and this actually reflects changes in haemodynamics as opposed to tubular injury. There are sections from 2013 that would have benefited from change. For example, the use of the term 'nephrotoxic' (Page 5, lines 18-20) when referring to ACEi or ARB is incorrect. Many national societies including the Renal Association and British Society for Heart Failure have</p> | <p>Thank you. The scope of this update was to investigate the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. The aetiology of AKI was outside of the scope of this update.</p> <p>The committee agreed that nephrotoxic was an inappropriate word and have replaced this with "drugs that can cause or exacerbate kidney injury".</p> |

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| | | | | been working cohesively in an attempt to dispel this dangerous myth. | |
| British Society for Heart Failure | Guideline | 1 | General | In the first paragraph it is mentioned "This will improve early recognition and treatment, and reduce the risk of complications and death in people with acute kidney injury." We are not convinced that there are robust data to back such a strong statement up. The hope is that intervention may improve outcome for some patients and not harm others. This should be made clearer and toned down. | Thank you. The full data underlying all of the recommendations in the guideline are available on the NICE website. The committee agreed to modify the wording slightly by removing the words "and death". The paragraph in question relates to the whole guideline and not just the updated recommendations. |
| British Society for Heart Failure | Guideline | 17 | 1 - 4 | A number have studies have shown no benefit in the use of oral N-acetyl cysteine in attempts to prevent contrast-induced acute kidney injury. E.g. PRESERVE trial group N=4993 patients NEJM 2018;378(7):603-614. It seems futile to repeat such a study. | Thank you. The main purpose of this research recommendation is to compare the relative effectiveness of different oral fluids in preventing CI-AKI. The inclusion of NAC reflects the poor quality of the evidence in the network meta-analysis. While the evidence showed no benefit of NAC, the committee were not certain enough (based on the quality of the evidence) that it had no benefit to exclude it from the research recommendation. |
| Fresenius Medical Care | General | General | General | Fresenius Medical Care has registered as a stakeholder for this consultation and can confirm that we have reviewed the draft documents and have no further comments to make. | Thank you. |

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| Kidney Care UK | Guideline | General | General | <p>We suggest that signposting to and provision of information for patients and families about acute kidney injury (and how to avoid it happening again, if possible), should be added. Examples are literature produced jointly by the NHS England Think Kidneys Programme, the RCGP or the RCPCH and Kidney Care UK, such as https://www.kidneycareuk.org/about-kidney-health/conditions/acute-kidney-injury-aki/</p> <p>The interest in and need for patient information is seen by the charity every day.</p> | <p>Thank you. Recommendations about information and support for patients and carers are in section 1.6 of the guideline, which was out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults.</p> |
| Kidney Care UK | Guideline | General | General | <p>In the section about future care can there be a statement about medications, specifically if ACE/ARBs have been suspended? A plan when to restart them if appropriate should be discussed with the patients and family as well as noted in discharge documentation.</p> | <p>Thank you. The committee did not consider evidence relating to ACE/ARBs and future care as this was outside the scope of this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults.</p> |
| Kidney Care UK | Guideline | 4 | 7 | <p>We note that 'symptoms or signs of nephritis (such as oedema or haematuria)' is included for paediatric investigation but not for adult. We suggest that, as a known sign of a potential problem, it is included for both groups.</p> | <p>Thank you. Recommendation 1.1.1 is outside the scope of this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults.</p> |
| Kidney Care UK | Guideline | 6 | 20 | <p>We ask the committee to consider adding patients on dialysis in this list separately to people with an eGFR</p> | <p>Thank you. Recommendation 1.1.6 is outside of the scope for this update. This update only investigates</p> |

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| | | | | less than 40. Time to next dialysis is a consideration in current practice, especially for those who do not pass urine and in whom therefore the contrast will remain until the next dialysis treatment. | the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| Kidney Care UK | Guideline | 9 | 20 | This list includes kidney transplants but not those with other transplants, such as liver or lung, in whom there is also a high risk of AKI. We suggest the committee considers amending the text to 'any transplanted organ' or similar. | Thank you. The committee did not review the evidence for risk factors and therefore the list given is a short list of examples rather than an exhaustive list. |
| Kidney Care UK | Guideline | 10 | 7 | We agree with the recommendation of using clinical decision support systems as an aid but not as a replacement for clinical judgement. | Thank you. |
| Kidney Care UK | Guideline | 17 | 15 | We note the committee discussion on oral vs intravenous fluid and the recommendation on a research study into the best type of oral fluid. In the interim is there an opportunity to suggest which fluids are not recommended, such as colas or beer? | Thank you. The committee did not find any evidence that any particular oral fluids were more or less effective than any others, but it was clear that this is an important question, hence the research recommendation. |
| Kidney Care UK | Guideline | 18 | 11 | With reference to this statement: 'The committee agreed that it was important to discuss the person's care with a nephrology team before offering iodinated contrast agent to adults on renal replacement therapy, including people with kidney transplant', who is the person that should have the discussion with nephrology? Is it the radiologist? | Thank you. Any clinician offering an iodinated contrast agent should discuss the persons care with the nephrology team in these circumstances. This is likely to be the radiologist in most cases. We have clarified this in the 'rationale and impact' section of the guideline |

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| Kidney Care UK | Guideline | 18 | 18 | While the committee has noted the potential for lower NHS resource usage by the use of oral rather than intravenous fluids and therefore a reduction in the need to admit patients to administer fluid before a procedure, was there a consideration for the additional cost of consultations with nephrology colleagues before every scan? | Thank you. The guideline does not recommend consultations with nephrology before every scan. In fact, in recommendation 1.2.10, the need to consult with nephrology teams has been reduced – see table 1 on p.21 of the draft guideline. |
| NHS England | Guideline | 4 | 4 - 22 | Rec 1.1.1: Most Primary Care digital summaries do not allow for highlighting in colour or bold text and potential AKI risk factors could be missed if for example marked pressure on time. | Thank you. Recommendation 1.1.1 is outside the scope of this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| NHS England | Guideline | 5 | 6 - 29 | <p>Rec 1.1.2: Most GPs receive test results via a digital platform. For logistical reasons (including continuity of care), results on occasion may not be processed for 24-48hrs with a proviso that urgent/critical are escalated by telephone if above/below an agreed threshold. There is a cohort of patients who have a creatinine rise that does not meet the threshold for escalation by telephone but could nevertheless be at risk of AKI.</p> <p>What would help users overcome any challenges?</p> <p>Example 1. Suppliers of primary care software could be encouraged to develop tools for automated</p> | Thank you. Recommendation 1.1.2 was out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |

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| | | | | extraction and flagging up of AKI risk factors in real time. Example 2. Some pathology services are using software that will interpret creatinine results in (e.g. previous results) and identify potential AKI regardless of whether an isolated result would meet the threshold for urgent escalation to requesting clinician | |
| Renal Association | Guideline | 4 | 17 | Consider an alternative term to 'nephrotoxic'. Some of the drugs listed (e.g. ACE inhibitors, angiotensin receptor blockers) exert haemodynamic effects, that may exacerbate reductions in glomerular filtration rate, but in no way are these drugs toxic to the kidney. The problem with the nomenclature is that patients are often prescribed ACE inhibitors or angiotensin receptor blockers for diabetic or proteinuric kidney disease, and this can result in confusion. | Thank you. The committee agreed that nephrotoxic was an inappropriate word and have replaced this with "drugs that can cause or exacerbate kidney injury". |
| Renal Association | Guideline | 5 | 18 | Consider an alternative term to 'nephrotoxic'. Some of the drugs listed (e.g. ACE inhibitors, angiotensin receptor blockers) exert haemodynamic effects, that may exacerbate reductions in glomerular filtration rate, but in no way are these drugs toxic to the kidney. The problem with the nomenclature is that patients are often prescribed ACE inhibitors or angiotensin receptor blockers for diabetic or proteinuric kidney disease, and this can result in confusion. | Thank you. The committee agreed that nephrotoxic was an inappropriate word and have replaced this with "drugs that can cause or exacerbate kidney injury". |

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| Renal Association | Guideline | 9 | 16 | I would suggest that the text 'for inpatients' is highlighted in some way (bold text or underlined). This is a really important point, and it the purpose for the revised guidelines. Ensuring that this change in position comes across will make a positive impact on clinical pathways. It doesn't stand out clearly enough in the current document. | Thank you. We have reworded the recommendation to make the reference to inpatients more noticeable |
| Renal Association | Guideline | 9 | 20 | The statement 'large volume of contrast' is unclear, as there is no definition as to what volume (in ml) constitutes a 'large volume' | Thank you. The committee agreed to be more specific about this and have defined a large volume as being higher than the standard diagnostic dose. |
| Renal Association | Guideline | 9 | 21 | At present, the recommendation reads as if every patient who is receiving intra-arterial contrast should be considered for intravenous fluid administration. Is this the intention? | Thank you. As you note above, this recommendation is specifically for inpatients. The recommendation has been reworded to make this clearer. It has also been clarified that the risk from intra-arterial contrast is more specifically for first pass intra-arterial contrast. |
| Renal Association | Guideline | 11 | 11 | I suggest adding 'albuminuria' to the statement 'Monitor serum creatinine after an episode of acute kidney injury', so that it becomes 'Monitor serum creatinine and urinary albumin to creatinine ratio (ACR) after an episode of acute kidney injury'. There is good evidence that albuminuria is common (20-30%) after AKI, and is an important determinant of cardiovascular risk and risk of CKD progression. | Thank you. Recommendation 1.3.2 is out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |

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| Renal Association | Guideline | 16 | 10 | The table of CKD stages is out of date. See https://kdigo.org/wp-content/uploads/2017/02/KDIGO_2012_CKD_GL.pdf | Thank you. The definitions and stages of CKD are the same in both the version in the guideline and the version provided in your link.. |
| Renal Association | Guideline | 17 | 17 | The PRESERVE trial showed clearly that sodium bicarbonate had no benefit over normal saline. Saline is cheaper and easier to get on general wards, this would favour the use of normal saline in most cases. This point could be made more strongly, as there isn't really a place for the use of bicarbonate for the prevention of CI-AKI anymore. | Thank you. The network meta-analysis and health economic evidence considered by the committee showed that these two fluids were almost equivalent, and both performed better than other IV fluids. Therefore, the committee recommended either fluid. |
| Royal College of Paediatrics and Child Health | General | General | General | The reviewer is happy with the guideline. | Thank you. |
| Royal College of Paediatrics and Child Health | Guideline | 12 | 4 - 7 | Rec 1.4.5: It is agreed that an ultrasound should be performed within six hours of assessment. | Thank you. |
| Royal College of Paediatrics and Child Health | Guideline | 12 | 8 - 11 | Rec 1.4.6: It is agreed that an ultrasound should be performed within 24 hours of assessment. | Thank you. |
| Royal College of Paediatrics and Child Health | Guideline | 12 | 22 - 24 | Rec 1.5.2: The reviewer agrees with this recommendation, although notes that the timescale may be problematic in CYP due to a shortage of paediatric interventional radiologists. | Thank you. Recommendation 1.5.2 is out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing |

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| | | | | | contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| Royal College of Physicians | General | General | General | The RCP is grateful for the opportunity to respond to the above consultation. We would like to endorse the response submitted by the Renal Association. | Thank you. |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | General | General | <p>The guideline could perhaps be enhanced by including a statement about the lack of benefit of timing of contrast administration with haemodialysis sessions as this is a commonly encountered scenario in clinical practice that leads to delays in contrast administration in patients on regular haemodialysis.</p> <p>Many clinicians and radiologists are under the impression that patients on haemodialysis should have a haemodialysis session immediately after administration of iodinated contrast agents. We are not aware that evidence supports this.</p> | Thank you. Evidence for the timing of contrast administration was explored in early network meta-analyses but was not found to relate to the effectiveness of the different hydration agents and therefore it was not prioritised by the committee, who agreed it was more useful to focus on the agents themselves. |
| Royal College of Physicians and Surgeons of Glasgow | General | General | General | The Royal College of Physicians and Surgeons of Glasgow, although based in Glasgow, represents Fellows and Members throughout the United Kingdom. While NICE has a remit for England, many of the recommendations are applicable to all devolved nations including Scotland. They should be considered by the relevant Ministers of the devolved governments. The College welcomes this Guideline | Thank you for your support. |

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| | | | | in an important area. It is generally supportive of this guideline. | |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 9 | 12 | It would be useful to have an example of an oral regimen or a range of oral hydration regimes as a guide (eg 500ml---1000mls pre/post) somewhere in the guideline - even in the rationale section. | <p>Thank you. A reference to this is made in the rationale and impact section of the guideline and the topic is discussed in more depth in the committee discussion section of the evidence review. The committee was unable to identify a specific oral hydration regime that was most effective and was additionally aware that people's ability to orally hydrate varies substantially from person to person. and therefore they agreed it was not appropriate to make a specific recommendation about regimen</p> <p>The committee did make a research recommendation about identifying the most effective oral fluid regimen.</p> |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 9 | 15 | One of our reviewers felt that statements in an evidence-based guideline where an intervention is 'considered' are unhelpful. Clinicians turn to a guideline because they are already considering interventions. A guideline should either recommend an intervention or state that it is not known if the intervention is helpful in these circumstances. In the 'rationale' section the authors state that "Based on the evidence, the committee decided that intravenous volume expansion should be used only for adults at particularly high risk and that oral hydration should be encouraged in all other adults at increased risk of | <p>Thank you. The use of 'consider' in NICE recommendations is well established and is used to convey a level of uncertainty around the evidence. When the evidence conveys a level of certainty, NICE recommendations use an active verb "Offer" or similar. When the level of certainty in the evidence is lower but is still likely to be of benefit the recommendation is framed with the word "Consider". For more detail refer to the NICE manual https://www.nice.org.uk/process/pmg20/chapter/writing-the-guideline#wording-the-recommendations</p> |

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| | | | | <p>contrast-induced acute kidney injury.” That is a more definitive statement than the formal guideline if combined with their definition of ‘high risk’ (with the exception of all renal transplant recipients- see below).</p> <p>Our reviewer was not aware of evidence that patients with a functioning renal transplant are more susceptible to contrast-associated AKI or the negative consequences of contrast associated AKI than patients with the same level of native kidney function. The reviewer was not convinced therefore that admission of patients with a renal transplant with eGFR >30mL/min for intravenous fluid is a justifiable recommendation.</p> | <p>The guideline does not recommend that patients with a functioning transplant should be admitted for IV fluids. It recommends considering IV fluid expansion for inpatients with a renal transplant. The wording of this recommendation has been changed and this should make it clearer.</p> |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 9 | 20 | <p>It would be useful to add an example of a test where large volume of contrast is required or a reference to where to find information about volumes of contrast in different tests.</p> | <p>Thank you. The committee agreed to be more specific about this and have defined a large volume as being higher than the standard diagnostic dose.</p> |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 10 | 1 | <p>The guidance should be more explicit about what should be the content of the recommended discussion. There are no studies of which our reviewer is aware that show that this intervention improves important patient outcomes and there are potential unintended consequences.</p> <p>The discussion is presumed in relation to preservation of residual renal function and avoidance</p> | <p>Thank you. The committee discussed this. The previous recommendation recommended discussions with the nephrology team in several contexts and has been reduced in the current update to people on RRT. This is intended to reduce the burden of unnecessary discussion with renal teams. The committee did not specify the content of the discussion as this would vary from patient to patient.</p> |

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| | | | | <p>of extracellular fluid overload. Neither of these is a particular concern in patients with a kidney transplant and good renal function receiving iodinated contrast agents.</p> <p>Only avoidance of extracellular fluid overload is of concern for patients on haemodialysis or peritoneal dialysis who are anuric.</p> <p>There is potential therefore that the explicit recommendation for discussion with a nephrologist for all patients on renal replacement therapy could lead to delays in treatment (e.g. emergency coronary artery stenting in a patient with a transplant that functions well) or opportunity cost.</p> <p>It could be argued that it is more important that clinicians discuss proposed iodinated contrast administration for a patient with advanced renal failure not yet on renal replacement therapy with nephrologists than for patients already on renal replacement therapy as there is a risk of precipitating the need for emergency dialysis or of delaying a procedure unnecessarily.</p> <p>At the end of the document the authors state that "Important information on ensuring that emergency imaging is not delayed by risk assessment was moved from the end of the recommendation to the</p> | <p>Recommendation 1.1.6 makes clear that emergency imaging/procedures should not be delayed by risk assessment. However, the committee agreed this was important and have reiterated it in recommendation 1.2.10 as you suggest.</p> |

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| | | | | <p>main body of the recommendation. This was done to make the information more prominent and ensure that it would not be missed.”</p> <p>Our reviewer does not believe that this statement is prominent enough in the main body (He had to search for the text string ‘delay’ to find it under recommendation 1.1.6 to ensure that emergency imaging is not delayed if the recommendations regarding discussion with nephrologist are left in the guideline.</p> | |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 17 | 23 | It should be noted that a lot of the evidence for prevention is based on patients with eGFR>30ml/min e.g. the AMACING trial excluded patients with eGFR<30mls. It is therefore not possible to extrapolate from this evidence (that oral fluids are similar to iv fluids in prevention) to patients with eGFR<30mls. | Thank you. The committee discussed this at length and agreed that people with eGFR <30 were at particularly high risk if they were acutely ill (and therefore would be given IV volume expansion as set out in rec 1.2.8) but agreed that if the person was not an inpatient and is able to maintain adequate hydration then encouraging oral hydration is likely to be as effective as IV volume expansion at preventing CI-AKI. |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 18 | 10 | It would also be good to get more information/research on categorising the risks of intravenous versus intra-arterial contrast. | Thank you. The relative risks of IV vs. intraarterial contrast are outside of the scope of this update, which specifically considered the effectiveness of fluids at preventing CI-AKI. |

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| Royal College of Physicians and Surgeons of Glasgow | Guideline | 18 | 21 | In the discussion about how the recommendations might affect practice, it states that this guideline may result in a lower resource use for outpatients. This would need an evaluation of how many patients are currently admitted for IV fluids with eGFR<40mls/min to allow comparison with change of practice. | Thank you. The committee discussed resource use and was content that reducing the number of people admitted for IV volume expansion must lead to lower resource use. |
| Royal College of Physicians and Surgeons of Glasgow | Guideline | 21 | Table 1 | The guideline categorises risk by inpatient v outpatient and other risk factors ie GFR in determining using oral v intravenous fluids. There is a patient group who fall into the 'outpatient' and therefore for oral fluids but who may have a low GFR and are getting intra-arterial contrast e.g. Patients for a coronary angiogram. Should this group have a separate recommendation? | Thank you. The committee discussed different ways that they might frame these recommendations and agreed that fundamentally the benefit of IV fluids for volume expansion is in people who are unable to maintain their hydration adequately. Overall the committee agreed that if a person were not an inpatient or acutely ill then it could be assumed that they were able to maintain their own hydration and therefore would not benefit from IV volume expansion. |
| Royal College of Physicians and Surgeons of Glasgow | Evidence reviews | 11 | Table 2 | Information on inclusion +/- or exclusion GFR in these studies would be useful for comparison, i.e. how many of them are in patients with GFR<30mls/min? | Thank you. This detail is included in the evidence tables in the appendices of the evidence review. |
| Royal College of Physicians of Edinburgh | Guideline | 5 | 5 | The College recognises that this recommendation is 'shaded grey' so this feedback form implies that comments will not be considered. Nevertheless, the College has concerns that this recommendation to measure renal function in any patient >65years with an 'acute illness' is too vague | Thank you. The committee discussed this and agreed. This recommendation is not part of the update and cannot be changed but it has been passed on to the NICE surveillance team for consideration in future updates. |

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| | | | | and puts an expectation on primary care that is not deliverable/realistic or appropriate in many cases. Such a guideline also potentially contradicts other NICE guidance to deliver appropriate person-centred care that fits in with caring with elderly patients who may well have multi-morbidity and where over-investigation should be avoided. Indeed, use of an age-adapted definition (CJSAN Oct 2019) of CKD will also result in a much lower CKD prevalence, particularly for elderly individuals. There is no reason to consider such older individuals as living with a disease that requires investigations. | |
| Royal College of Physicians of Edinburgh | Guideline | 6 | 23 - 30 | This part is also shaded grey. Current diuretic therapy has been omitted as a factor for increased risk of AKI in adults receiving contrast media. | Thank you. Recommendation 1.1.6 is out of scope for this update.. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| Royal College of Physicians of Edinburgh | Guideline | 9 | 24 - 26 | This part is also shaded grey. The recommendation to consider temporarily stopping Ace inhibitors, ARBs should also include a recommendation to consider stopping diuretic therapy. | Thank you. Recommendation 1.2.9 is out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| Royal College of Physicians of Edinburgh | Guideline | 10 | 1 - 3 | The College feels that the statement is too restrictive to renal replacement therapy. It implies that nephrologists do not have a role in giving general | Thank you. The committee discussed this but was clear that the guideline would not prevent advice of the kind you suggest. |

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Acute kidney injury: prevention, detection and management

**Consultation on draft guideline - Stakeholder comments table
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| | | | | advice to colleagues. Nephrologists are receptive to junior and senior colleagues in other specialties and would be happy to give advice concerning patients at high or very high risk of contrast induced AKI. We believe that the statement should lean towards having a low threshold for seeking advice. | |
| Royal College of Physicians of Edinburgh | Guideline | 10 | 21 - 23 | 'Recommendation to "consider" temporarily stopping ACE inhibitor, ARB etc. The College believes the recommendation should be stronger here e.g. "recommendation to stop" in the settings described and review once complete recovery has occurred. | Thank you. Recommendation 1.2.14 is out of scope for this update. This update only investigates the comparative clinical and cost effectiveness of N-acetylcysteine (NAC) and/or fluids in preventing contrast induced acute kidney injury (CI-AKI) in at risk adults. |
| Royal College of Physicians of Edinburgh | Guideline | 16 | 15 | The College agrees however those patients with low eGFR likely to benefit most from hydration are not likely to be enrolled into a study in view of perceived risk. Indeed, ethically this may present a challenge. | Thank you. The committee discussed this exact problem and it is reflected in more detail within the committee discussion section of the evidence review. In spite of this, the committee felt it would be useful to explore whether risk could be stratified by eGFR when the eGFR did not contra-indicate iodine based contrast media. |
| Royal College of Physicians of Edinburgh | EIA | General | General | The College agrees with these statements. Correction of eGFR for some ethnic groups is understood, however it would be helpful to have a definitive statement covering all ethnic backgrounds. | Thank you, however that is beyond the remit of this update. |
| The Royal College of Radiologists | Guideline | General | General | Why was there no radiologist involved in a document that has a significant focus the use of contrast media for imaging? | Thank you. A consultant radiologist was co-opted to the committee for all discussions about CI-AKI. A full list of committee members can be found on the |

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| | | | | | guideline webpage - https://www.nice.org.uk/guidance/indevelopment/gid-ng10117/documents |
| The Royal College of Radiologists | Guideline | General | General | In many places the term 'iodinated contrast agents' is used - in general in the contrast community the term 'iodinated contrast' is not liked and 'iodine based contrast' is preferred since without the iodine the compound has no useful contrast properties. Also, for iodine based compounds the term media is preferred to 'agents' since the iodine makes the contrast compound opaque due to scatter and absorption of the x-ray beam as it passes through the medium. The term 'contrast agent' is better reserved for those compounds used for enhancement in MRI where they act as 'agents of change' in the local magnetic field environment. Hence, we believe that the document should refer to 'iodine based contrast media' throughout. | Thank you. The committee discussed this and agreed to change this as you suggest. |
| The Royal College of Radiologists | Guideline | 9 - 10 | 1-3, 12-26 | Again, this somewhat conflicts with the advice of the RANZCR guidance currently promoted by the RCR in that: a) the RANZCR guidance states 'Oral periprocedural hydration cannot be recommended as a substitute for the intravenous administration route based on lack of demonstrated efficacy.' | Thank you. The committee discussed this but, given that the RANZCR guidance is based on the old NICE guideline, and the current guideline is based on newer and more complete evidence they were confident in the new guideline recommendations. |

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| | | | | <p>b) the use of sodium bicarbonate solution is not recommended in RANZCR guidance (they say it is overly complex with poor evidence of greater efficacy than saline alone)</p> <p>c) the RANZCR guidance does not address modification of other drug therapies - i.e. cessation of ACEIs or ARBs.</p> | |
| The Royal College of Radiologists | Guideline | 9 | 15 - 23 | States that intra-arterial administration is higher risk than intravenous, this is correct. However, there is evidence that intra-arterial administration above the renal arteries with direct first pass of contrast to the kidneys is significantly higher risk than those procedures where intra-arterial administration is confined to below the renal arteries where there is equivalence to intravenous administration. | Thank you. The recommendation has been modified to make clear that 'first pass' is the main risk. |

**None of the stakeholders who comments on this clinical guideline have declared any links to the tobacco industry.*

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