NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline

Acute kidney injury (update)

Draft for consultation, August 2024

This is an update to NICE guideline NG148 (published December 2019). We have:

- reviewed the evidence for assessing risk factors for acute kidney injury in adults having iodine-based contrast media
- made new recommendations
- deleted recommendations.

Who is it for?

- Healthcare professionals
- Commissioners and providers
- People with or at risk of acute kidney injury and their families and carers.

What does it include?

- the new recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the 2024 recommendations and how they might affect practice.
- the guideline context for the updated recommendations.

Information about how the guideline was developed is on the guideline's webpage. This includes the evidence reviews, the scope, details of the committee and any declarations of interest.

New and updated recommendations

We have reviewed the evidence on assessing risk factors for acute kidney injury in adults having iodine-based contrast media. You are invited to comment on the new and updated recommendations. These are marked as **[2024]**

You are also invited to comment on recommendations that we propose to delete from the 2019 guideline.

Sections of the guideline that have had no changes at all have been temporarily removed for this consultation and will be re-instated when the final guideline is published. See the current version of the guideline.

See update information for a full explanation of what is being updated.

Full details of the evidence and the committee's discussion on the 2024 recommendations are in the evidence reviews.

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Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

Health professionals should follow our general guidelines for people delivering care:

- Patient experience in adult NHS services
- Babies, children and young people's experience of healthcare
- Shared decision making
- Medicines adherence
- Medicines optimisation
- Decision making and mental capacity

1.1 Assessing risk of acute kidney injury

Assessing risk factors in adults having iodine-based contrast media

1.1.1 Discuss with the person, and their family members and carers if appropriate, the risks of developing acute kidney injury associated with using iodine-based contrast media. Follow the recommendations in the NICE guideline on shared decision making. **[2024]**

Emergency department and urgent inpatient settings

1.1.2 Do not delay the use of iodine-based contrast media in an emergency if the risk of delaying the contrast media is likely to be clinically significant. **[2024]**

Outpatient, non-urgent inpatient and community settings

1.1.3 Before requesting a non-urgent iodine-based contrast media CT-scan, assess whether the person has pre-existing kidney disease. **[2024]**

1.1.4 Use an estimated glomerular filtration rate (eGFR) measurement from the past 6 months, if available, to support decision making about the use of iodine-based contrast media. If the person is acutely unwell or has been clinically unstable since their last eGFR test, consider using a more recent eGFR. **[2024]**

1.1.5 If no eGFR is available from the past 6 months, ask the person, or their family members and carers if appropriate, the following screening questions:

- do they have kidney disease or a kidney transplant?
- have they seen or are waiting to see a kidney specialist, or a kidney surgeon or urologist? **[2024]**

1.1.6 If the screening questions indicate a history of kidney disease, consider an eGFR test to support decision making. **[2024]**

1.1.7 If the screening questions do not indicate a history of kidney disease and the person is clinically stable, consider proceeding with iodine-based contrast media CT-scan.

1.1.8 Be aware that increased risk of acute kidney injury is associated with an eGFR less than 30 ml/min/1.73 m^2. **[2024]**

For a short explanation of why the committee made these recommendations and how they might affect practice, see the rationale and impact section on assessing risk factors in adults having iodine-based contrast media.

Full details of the evidence and the committee's discussion are in evidence review: risk prediction tools and eGFR for the prediction of iodine-based contrast media-associated acute kidney injury.

Recommendations for research

The guideline committee has made the following recommendation for research.

Key recommendations for research

1 Risk factor-based screening tool for adults having iodine-based contrast media

What validated risk assessment tools could be used to predict the occurrence of contrast-induced acute kidney injury following the administration of intravenous iodine-based contrast media? **[2024]**

For a short explanation of why the committee made this recommendation for research, see the rationale and impact section on assessing risk factors in adults having iodine-based contrast media.

Full details of the evidence and the committee's discussion are in evidence review: risk prediction tools and eGFR for the prediction of iodine-based contrast media-associated acute kidney injury.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice.

Assessing risk factors in adults having iodine-based contrast media

Recommendations 1.1.1 to 1.1.8

Why the committee made the recommendations

The evidence for the accuracy of risk assessment tools or questionnaires to predict an acute kidney injury after administration of iodine-based contrast media was lacking in both quantity and quality. The majority of the risk prediction tools were included in a small number of studies, with low numbers of participants and a younger population than would usually be seen in practice, so limiting the certainty of

their accuracy. Therefore, the committee made recommendations based on their knowledge and expertise. They also made a research recommendation on what validated risk assessment tools should be used to predict contrast-associated acute kidney injury following intravenous iodine-based contrast media.

The evidence for the prognostic accuracy of eGFR for iodine-based contrast media-associated acute kidney injury showed that a lower eGFR is associated with an increased risk of acute kidney injury. No evidence was found comparing an eGFR threshold of 30 ml/min/1.73 m^2 with the currently recommended threshold of 40 ml/min/1.73 m^2. However, the committee agreed that an increased risk is associated with an eGFR less than 30 ml/min/1.73 m^2, and this is currently used to indicate poor kidney function.

In current practice, a person is required to have an eGFR test in the 3 months before undergoing contrast media CT scanning. This often results in delayed scans and increases the burden on patients and clinicians to conduct blood tests that may not be needed. In non-emergency settings, the committee agreed that if an eGFR test from within the past 6 months is available, this should be used to support decisions on contrast media scans. Using an eGFR from the previous 6 months as a reference would be an acceptable reflection of a person's eGFR at the time of Iodine-based contrast media use if the person had been clinically stable since the last test. If a recent eGFR is not available, screening questions could be used to assess risk. By including initial questions on pre-existing kidney disease, a large proportion of people would not need blood tests. This is a simple assessment, and if the responses indicate a history of kidney disease, this should prompt clinicians to consider requesting an eGFR test.

The committee noted that people known to have kidney disease would usually have an eGFR result from the past 6 months, because people with a long-term chronic illness are more likely to have regular blood tests to monitor their condition. If a person is acutely unwell at the time of contrast use, an up-to-date blood test would be expected as part of normal practice.

In life-threatening or emergency situations, risk prediction tools should not be applied, and iodine-based contrast media should be administered without delay, if the risk of delaying is likely to be clinically significant.

How the recommendations might affect practice

The recommendations in this update are likely to reduce the volume of eGFR testing, with a set of screening questions removing the need for an eGFR test in people who have a low risk of kidney disease. The recommendation to use an eGFR value from the past 6 months will further reduce the need for testing, resulting in fewer scans being cancelled at short notice.

The committee noted that in practice, clinicians currently use a threshold of 30 ml/min/1.73 m^2, despite NICE having recommended 40 ml/min/1.73 m^2. Therefore, the new threshold of 30 ml/min/1.73 m^2 is not expected to cause a significant change in practice and may further reduce the need for scan cancellations where clinicians had previously followed NICE guidance. Because only people with the greatest risk would need an eGFR test, this new threshold would be cost saving to the NHS because of the reduction in eGFR testing.

Return to recommendations

Context

The focus of the 2024 guideline update is to update the recommendations on assessing risk factors for acute kidney injury in adults having iodine-based contrast media.

The surveillance review reported that the recommendation to measure eGFR in all adults with risk factors for acute kidney injury before a contrast scan may lead to unnecessary cancellation of CT scans. In addition, concerns about the risk of iodine-based contrast media have decreased since the recommendations were originally developed. Not all people need eGFR testing before having a scan, but it should be restricted to those at greatest risk. There is also a view that the current eGFR risk threshold is too high. Some recent evidence has shown that contrast media may only pose a risk for people with an eGFR of 30 ml/min/1.73 m^2 or less. The NICE recommendations were developed in 2013, and since then, several external

guidelines have moved away from a 'test all' position to a risk stratification policy. This allows a more personalised consideration of the risks of iodine-contrast media versus the benefits from the scan.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic page on acute kidney injury.

For details of the guideline committee see the committee member list.

Update information

October 2024

This is an update of NICE guideline NG148 (published December 2019).

We have reviewed the evidence on assessing risk factors for acute kidney injury in adults having iodine-based contrast media.

Recommendations are marked **[2024]** if the evidence has been reviewed.

Recommendations that have been deleted

We propose to delete recommendations from the 2023 guideline. Table 1 sets out these recommendations and includes details of replacement recommendations. If there is no replacement recommendation, an explanation for the proposed deletion is given.

See also the previous NICE guideline and supporting documents.

Table 1 Recommendations that have been deleted

Recommendation in 2023 guideline	Comment
Before offering iodine-based contrast media to adults, assess their risk of acute kidney injury but do not delay emergency imaging. Be aware that increased risk is associated with: • chronic kidney disease (adults with an eGFR less than 40 ml/min/1.73 m^2 are at particular risk)	Replaced by: Do not delay the use of iodine-based contrast media in an emergency if the risk of delaying the contrast media is likely to be clinically significant. (1.1.2) Before requesting a non-urgent iodine-based contrast media CT-scan, assess

• diabetes but only with chronic kidney disease (adults with an eGFR less than 40 ml/min/1.73 m^2 are at particular risk) • heart failure • renal transplant • age 75 years or over • hypovolaemia • increasing volume of contrast agent • intra-arterial administration of contrast medium with first-pass renal exposure. For adults needing non-emergency imaging who are assessed as being at increased risk of kidney injury, investigate for chronic kidney disease before offering iodine-based contrast media: measure eGFR or check an eGFR result obtained within the past 3 months. (1.1.6)	whether the person has pre-existing kidney disease. (1.1.3) Use an eGFR measurement from the past 6 months, if available, to support decision making about the use of iodine-based contrast media. If the person is acutely unwell or has been clinically unstable since their last eGFR test, consider using a more recent eGFR. (1.1.4) If no eGFR is available from the past 6 months, ask the person, or their family members and carers if appropriate, the following screening questions: • do they have kidney disease or a kidney transplant? • have they seen or are waiting to see a kidney specialist, or a kidney surgeon or urologist? (1.1.5) If the screening questions indicate a history of kidney disease, consider an eGFR test to support decision making. (1.1.6) If the screening questions do not indicate a history of kidney disease and the person is clinically stable, consider proceeding with iodine-based contrast media CT-scan. (1.1.7) Be aware that increased risk of acute kidney injury is associated with an eGFR less than 30 ml/min/1.73 m^2. (1.1.8)
Include the risks of developing acute kidney injury in the routine discussion of risks and benefits of the imaging procedure. Follow the recommendations in the NICE guideline on shared decision making. (1.1.7)	Discuss with the person, and their family members and carers if appropriate, the risks of developing acute kidney injury associated with using iodine-based contrast media. Follow the recommendations in the NICE guideline on shared decision making. (1.1.1)