A.2 Review protocol for eGFR

ID	Field	Content
0.	PROSPERO registration number	
1.	Review title	Can estimated glomerular filtration rate (eGFR) predict iodine-based contrast media-associated acute kidney injury (AKI)?
2.	Review question	What is the prognostic accuracy of eGFR for iodine-based contrast media-associated AKI?
3.	Objective	To determine the prognostic accuracy and optimal threshold of eGFR for predicting iodine-based contrast media-associated AKI
4.	Searches	The following databases (from inception) will be searched: • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE

		• Epistemonikos Searches will be restricted by: • Date limitations –from searches for original guideline (2013) • English language studies • Human studies • Prognostic studies The searches may be re-run 6 weeks before the final committee meeting and further studies retrieved for inclusion if relevant. The full search strategies will be published in the final review. Medline search strategy to be quality assured using the PRESS evidence-based checklist (see methods chapter for full details). Key papers: Obed, M., Gabriel, M. M., Dumann, E., Vollmer Barbosa, C., Weißenborn, K., & Schmidt, B. M. W. (2022). Risk of acute kidney injury after contrast-enhanced computerized tomography: a systematic review and meta-analysis of 21 propensity score-matched cohort studies. *European radiology*, *32*(12), 8432–8442. https://doi.org/10.1007/s00330-022-08916-y Bell, S., James, M. T., Farmer, C. K. T., Tan, Z., de Souza, N., & Witham, M. D. (2020). Development and external validation of an acute kidney injury risk score for use in the general population. Clinical kidney journal, 13(3), 402–412. https://doi.org/10.1093/ckj/sfaa072
5.	Condition or domain being studied	iodine-based contrast media-associated acute kidney injury

6.	Population	Adults receiving iodine-based contrast media Strata: • Intravenous vs intra-arterial media administration Key confounding variables: (excluded unless all accounted for) • Diabetes (previous diagnosis) • Heart failure (ICD-10 code I50) • Age Additional confounder: (included if not accounted for, but recorded) • Hypertension Exclusion: • High osmolar contrast media
7.	Prognostic factor	Estimated glomerular filtration rate (eGFR) • Cut-offs pooled depending on stage of chronic kidney disease indicated: o 45-60 (stage 3a) o 44-30 (stage 3b) o 29-15 (stage 4) o <15 (stage 5) Recorded within 3 months of contrast-media administration
8.	Outcomes	Occurrence of an event following intravenous administration of iodine-based contrast media.

		• Study defined AKI • Mortality • Dialysis Timeframe: • Within 7 days
9.	Types of study to be included	• Prognostic cohort studies • Case control studies • Systematic reviews of prognostic cohort studies Prognostic: studies will only be included if all of the key confounders have been accounted for in a multivariate analysis. In the absence of multivariate analysis, studies that account for key confounders with univariate analysis or matched groups will be considered.
10.	Other exclusion criteria	Non-English language studies. Conference abstracts will be excluded as it is expected there will be sufficient full text published studies available.
11.	Context	
12.	Primary outcomes (critical outcomes)	Risk of mortality, dialysis, or an AKI occurring: • Adjusted relative risk (RR) • Adjusted odds ratio (OR) • Adjusted hazard ratio (HR)
13.	Data extraction (selection and coding)	EndNote will be used for reference management, sifting, citations and bibliographies. All references identified by the searches and from other sources will be uploaded into EPPI reviewer and de-duplicated.

		10% of the abstracts will be reviewed by two reviewers, with any disagreements resolved by discussion or, if necessary, a third independent reviewer. The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4). 10% of all evidence reviews are quality assured by a senior research fellow. This includes checking: • papers were included /excluded appropriately • a sample of the data extractions • correct methods are used to synthesise data • a sample of the risk of bias assessments Disagreements between the review authors over the risk of bias in particular studies will be resolved by discussion, with involvement of a third review author where necessary.
14.	Risk of bias (quality) assessment	Risk of bias will be assessed using the QUIPS checklists as described in Developing NICE guidelines: the manual.
15.	Strategy for data synthesis	Heterogeneity between the studies in effect measures will be assessed using the I^2 statistic and visually inspected. An I^2 value greater than 50% will be considered indicative of substantial heterogeneity. Sensitivity analyses will be conducted based on pre-specified subgroups using stratified meta-analysis to explore the heterogeneity in effect estimates. If this does not explain the heterogeneity, the results will be presented pooled using random-effects. GRADEpro will be used to assess the quality of evidence for each outcome, taking into account individual study quality and the meta-analysis results. The 4 main quality elements (risk of bias, indirectness, inconsistency and imprecision) will be appraised for each outcome. Publication bias will be considered with the

		guideline committee, and if suspected will be tested for when there are more than 5 studies for that outcome. The risk of bias across all available evidence was evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group http://www.gradeworkinggroup.org/ Where meta-analysis is not possible, data will be presented and quality assessed individually per outcome.	
16.	Analysis of sub-groups		
17.	Type and method of review	☐	Intervention
		☐	Diagnostic
		☒	Prognostic
		☐	Qualitative
		☐	Epidemiologic
		☐	Service Delivery
		☐	Other (please specify)
18.	Language	English	
19.	Country	England	
20.	Anticipated or actual start date		
21.	Anticipated completion date		

22.	Stage of review at time of this submission	Review stage	Started	Completed
		Preliminary searches	☐	☐
		Piloting of the study selection process	☐	☐
		Formal screening of search results against eligibility criteria	☐	☐
		Data extraction	☐	☐
		Risk of bias (quality) assessment	☐	☐
		Data analysis	☐	☐
23.	Named contact	5a. Named contact Guideline Development Team NGC 5b. Organisational affiliation of the review National Institute for Health and Care Excellence (NICE)		
24.	Review team members	From NICE: Guideline lead: Gill Ritchie Systematic reviewer: Toby Sands Health economist: Syed Mohiuddin, Yuanyuan Zhang Information specialist: Elizabeth Barrett Project Manager: Kate Ashmore		
25.	Funding sources/sponsor	Development of this systematic review is being funded by NICE.		

26.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.
27.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: https://www.nice.org.uk/guidance/ng148
28.	Other registration details	
29.	Reference/URL for published protocol	
30.	Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: • notifying registered stakeholders of publication • publicising the guideline through NICE's newsletter and alerts • issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.
31.	Keywords	
32.	Details of existing review of same topic by same authors	

33.	Current review status	☐	Ongoing
		☐	Completed but not published
		☐	Completed and published
		☐	Completed, published and being updated
		☐	Discontinued
34.	Additional information		
35.	Details of final publication	www.nice.org.uk	