PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title page
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Abstract (Objective, Methods, Results, Conclusions)
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Introduction, paragraphs 3–4
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Introduction, final paragraph
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Methods, Inclusion and Exclusion Criteria
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Methods, Search Strategy (PubMed, Medline, Embase, Cochrane Library, IEEE Xplore; searched to March 31, 2026)
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Methods, Search Strategy; Supplementary Table 2
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Methods, Search Strategy (two-stage independent screening by two authors; discrepancies resolved by a third author)
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Methods, Data Extraction (two independent reviewers; discrepancies resolved by third reviewer; authors contacted for missing data)
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Methods, Data Extraction (diagnostic performance data: TP, FP, TN, FN, sensitivity, specificity, accuracy,

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			AUC)
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Methods, Data Extraction (study characteristics, lesion/imaging characteristics, AI model characteristics)
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Methods, Quality Assessment (QUADAS-2; four domains: patient selection, index test, reference standard, flow and timing)
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Methods, Statistical Analysis (sensitivity, specificity, DOR, LR+, LR−, FPR, AUC; all with 95% CI)
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Methods, Statistical Analysis; Methods, Inclusion and Exclusion Criteria
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Methods, Statistical Analysis (TP/FP/TN/FN extracted or calculated from reported data; authors contacted for missing values)
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Results, Figures 2–3 (forest plots); Figure 4 (SROC curves); Tables 3–4
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Methods, Statistical Analysis (bivariate and univariate random-effects models; SROC; I^2 and χ^2; Meta-DiSc 2.0; Python version 3.12)
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Methods, Statistical Analysis (prespecified subgroup analyses by

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			lesion type, imaging modality, study design; meta-regression)
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Methods, Statistical Analysis (leave-one-out sensitivity analysis)
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Methods, Statistical Analysis (Egger's test, Begg's test, Deeks' funnel plot asymmetry test, trim-and-fill method)
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Methods, Quality Assessment (QUADAS-2 for study-level risk of bias; no GRADE assessment performed)
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Results, Figure 1 (PRISMA flowchart); Results, General Information (15 studies, 24 datasets, 19,578 records)
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Results, Figure 1 (PRISMA flowchart; exclusion reasons shown)
Study characteristics	17	Cite each included study and present its characteristics.	Results, Table 1 (baseline characteristics of 15 included studies)
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Results, Table 2; Results, QUADAS-2 Quality Assessment
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Results, Figures 2B–C and 3A–B (forest plots of sensitivity and specificity with 95% CI for each study)

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Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Results, QUADAS-2 Quality Assessment; Results, General Information
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Results, Table 3 (pooled estimates); Results, Overall diagnostic efficacy; Figures 2D, 4A (SROC)
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Results, Subgroup Analysis Results; Table 4; Figures 4B–F
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Results, Leave-One-Out Sensitivity Analysis (sensitivity range 0.913–0.934; specificity range 0.931–0.943); Supplementary Table 3
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Results, Publication Bias Assessment; Figure 5 (Egger p=0.833, Begg p=0.641, Deeks p=0.053, trim-and-fill)
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Results, QUADAS-2 Quality Assessment (study-level risk of bias reported; formal GRADE not performed)
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Discussion, paragraphs 1–2
	23b	Discuss any limitations of the evidence included in the review.	Discussion, paragraphs 4–7 (limitations of included evidence: heterogeneity, selection bias, geographic

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			concentration, static-image vs real-time gap)
	23c	Discuss any limitations of the review processes used.	Discussion, paragraph 7 (heterogeneity, risk of bias, geographic concentration, temporal trend analysis)
	23d	Discuss implications of the results for practice, policy, and future research.	Discussion, paragraph 3; Conclusion
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Methods, first paragraph (PROSPERO ID: CRD420261349387)
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods, first paragraph (registered on PROSPERO; Supplementary Table)
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable (no amendments made)
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	This work was supported by the Noncommunicable Chronic Diseases–National Science and Technology Major Project (Grant No. 2025ZD0545303), the CAMS Innovation Fund for Medical Sciences (CIFMS) (Grant No. 2025-I2M-XH-XX-047), and the National High-Level Hospital Clinical Research Funding Program (Grant No. 2025-LYZX-R-B04). The funders had no role in the study design; data collection,

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			analysis, or interpretation; manuscript preparation; or the decision to submit the manuscript for publication.
Competing interests	26	Declare any competing interests of review authors.	Conflicts of Interest section (before References): The authors declare that they have no conflicts of interest.
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Data Availability Statement (before References): Data available from the corresponding author upon reasonable request.