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Radiologists' and Radiographers' Perspectives on Artificial Intelligence Integration in Diagnostic Imaging: Perceived Benefits, Challenges, and Workflow Impact

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ABSTRACT: Background. Artificial Intelligence in Diagnostic Imaging: Perceptions and Implications AI is making the move from trial and research into everyday use in diagnostic imaging, though it is radiologists and radiographers who are still key to its success.

Objective. To analyses the available evidence published from 2021 to 2025 about the perceptions of these two professions (Society of Anesthesiology and Society of Pulmonology) about the advantages, inconveniences and impact of Artificial Intelligence on the workflow.

Methods. We performed a systematic narrative evidence synthesis following purposive searches in Pub Med. This synthesis included nineteen professional perspective studies (with around 7,600 respondents) and five contextual studies. Quantitative evidence was extracted into tables and figures, and qualitative evidence were thematically synthesized.

Results. Attitudes towards AI were mainly positive with a median of 79.5% (range 74.2–98.0%) radiologists acknowledging AI as positive or welcoming in 8 surveys. Radiologists anticipated a reduction in interpretative errors (73.0%) and improved work organization (67.9%). Workflows evidenced potential benefits; such as a randomized trial reporting time saving in screen reading time of 44.3% with AI-assisted mammography reading, and 88.8% of oncology specialists in a survey reported time saved through auto-contouring. The most frequently reported barriers were lack of education on AI (8% of European radiographers had received AI training before registration vs 98.7% of UK radiology

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trainees who wanted AI training), lack of accountability, damage to reputation (60.3%), de-skilling, increased workload and local validation requirements. Radiographers were largely in favor of AI to ensure quality, optimize dose, and improve image quality, and against using AI for patient-facing roles and final interpretations. Conversely, radiologists emphasized interpretative responsibility.

Conclusions. The results indicate that professionals are willing to adopt AI as an auxiliary tool but are concerned about its potential as a substitute. To confidently introduce AI into practice, profession-specific training and validation strategies, clarity about responsibility, and early involvement of both professional groups in designing workflow processes will probably be required.

1. INTRODUCTION

AI is changing the way diagnostic images are collected, read, and reported. New data from the recent Swedish MASAI trial demonstrates that can identify cancers at the same rates as traditional double reading, but with 44.3% fewer screen readings (Lång et al., 2023). But how well a tool performs technically doesn't tell us how well it will actually impact patient care in practice; how well we accept, trust, learn to use, and incorporate it into our daily workflows will determine whether we use it effectively or ineffectively or not at all.

There are two specialist groups central to this change. Radiologists interpret and report on images, for which they hold medico-legal responsibility. In comparison, radiographers acquire and optimise the images, control for radiation dose, perform quality assurance and are the default professional point of contact in the scanner room with the patient. AI affects each role, although in distinct ways. For example, Irish radiographers favour the work they can do around quality assurance, clinical auditing, dose optimisation and workflow efficiency but oppose the future implementation of AI in all areas regarding patient interaction and final image interpretation (Ryan et al., 2021). In comparison, whilst anticipating fewer diagnostic errors, Italian radiologists fear AI will devalue their role (Coppola et al., 2021).

While the data to date on these points is voluminous, it is also disjointed. The surveys differ across most dimensions: by country, by skillgroup, by particular tasks, and by research instrument. Most of the existing research has examined single skillgroups in isolation; only a handful have compared professionals' perspectives with workflow data, and even fewer have directly compared radiologists' and radiographers' perceptions. Without such comparative insights, there is a danger that implementation plans will treat "imaging staff" as a single homogenous group with one set of needs.

This review sets out to compile the evidence from 2021- 2025 on the views of radiologists and radiographers on AI in diagnostic imaging. The review has five main aims:

- To compile broad brush strokes of the general attitudes to AI
- To compile perceived benefits and difficulties, including education and accountability
- To relate these back to the ways in which AI and subjective attitudes towards it are said to affect workflow
- To compare the relative priorities of each profession. The practical aim is for each department to know where each profession is most clearly in favor of AI, and where barriers to adoption need to be understood and addressed.

2. METHODS

2.1 Search Strategy

Pub Med searches were performed using natural-language and Boolean searches relating AI-related terms with those associated with the individual professions, and other terms relating to survey methodology, attitudes and perceptions, workflow, and implementation. Four separate searches were conducted: (a) radiographers, artificial intelligence, perceptions, survey, 2020-2025 (41 records); (b) radiologists, artificial intelligence, attitudes, survey, 2020-2025 (73 records); (c) radiographers, artificial intelligence, survey, 2021-2023 (79 records); and (d) radiologists, artificial intelligence, survey, attitudes, 2020-2023 (29 records). Not all the search results would be retrieved as duplicates, since the searches generate overlapping results. Further records were

also extracted from the resulting lists, and searches conducted using searches for implementation, workflow, and AI-supported screening.

2.2 Eligibility

Eligible studies were published between 2020 and 2025 with empirical perspective, attitude, knowledge or experience of radiologists, radiology trainees, radiographers, or other medical radiation professionals on the use of AI. We also retained studies of radiation oncology for additional workflow evidences. We included 5 further studies for context: a randomised trial for screening, an experimental diagnostic study on clinicians, a study on report summaries generated by ChatGPT, a survey of junior doctors and students, and a survey of screening-eligible Australians' attitude to AI. Ineligible studies included technical algorithm papers, review articles, and studies of other specialties.

2.3 Selection, extraction and synthesis

One reviewer screening titles and abstracts and deriving data systematically entered into a table (country, population, sample size, design, proportion of favorable attitude, perceived benefits, perceived challenges, trained, impact on workflow). Data collection was based on the published abstract and record indexing, no double screening was conducted. As differing definitions of the measured outcomes meant meta-analysis was not possible, proportions are presented as published and median and range of proportions of favorable attitudes presented solely for descriptive purposes. Qualitative data were summarized as follows: perceived benefits; challenges; impact on workflow; inter professional differences. Publication year of study is the year of the journal volume publication; the date a study was published online but not yet allocated to a journal volume is given as the online year.

3. RESULTS

Nineteen studies on professional perspectives and five contextual studies were eligible. All regions saw positively inclined attitudes toward AI, which corresponded with a similar range of barriers raised (training, accountability, validation). The following sections describe the results of the studies regarding characteristics, attitudes, benefits, barriers, education, impact on workflow, and difference by profession.

3.1 Study characteristics

All 19 perspective studies recruited a combined total of approximately 7,600 participants from the 18 studies which included sample size data (See Table 1). Seven studies recruited radiologists or radiology trainees, seven radiographers or other medical radiation practitioners, four both of these groups, and one radiation oncology staff. Nine studies were conducted in Europe, five in the Middle East and Africa, three in the Asia-Pacific region, and two in an international context. Sample sizes ranged from 17 survey respondents (Goh et al., 2025) to 3,666 residents (Chen et al., 2023). The single Chinese resident survey comprised nearly half (48%) of all respondents, therefore aggregated impressions should be interpreted with this weighting in mind. Most studies employed cross-sectional online questionnaires with two studies using interviews or free-text data (Akudjedu et al., 2023; Goh et al., 2025).

Table 1. Characteristics of the 19 studies of professionals' perspectives, ordered by year

Study	Region	Population	Respondents (n)	Main focus
Jungmann et al. (2021)	Germany	Radiologists, IT specialists, industry	123	Confidence, validation, education
Coppola et al. (2021)	Italy	Radiologists	1,032	Advantages, risks, regulation
Ryan et al. (2021)	Ireland	Diagnostic radiographers; radiation therapists	318; 77	Role change, clinical priorities
Abuzaid et al. (2022)	UAE	Radiologists and radiographers	Not stated in abstract	Knowledge, readiness, challenges
Coakley et al. (2022)	Europe	Radiographers	96	Knowledge, attitudes, education

Study	Region	Population	Respondents (n)	Main focus
Currie et al. (2022)	Australia	Nuclear medicine technologists and radiographers	102	Task acceptance, ethics
Akudjedu et al. (2023)	Global	Radiography professionals	314	Benefits and misgivings (mixed methods)
Alsultan (2023)	Saudi Arabia, Sudan, Yemen	Radiologists and radiologic technologists	210	Knowledge, attitude, practice
Högberg et al. (2023)	Sweden	Breast radiologists	47	Screening, accountability
Hashmi et al. (2023)	United Kingdom	Radiology trainees	149	Demand for AI teaching
Chen et al. (2023)	China	Radiology residents	3,666	Replacement fear, usefulness, intention to use
Hamd et al. (2024)	Saudi Arabia	Radiology professionals	374	Awareness, acceptance, barriers
Catanese et al. (2025)	Spain	Radiologists and trainees	102	Opportunities, application areas, concerns
Khalaf et al. (2025)	Kuwait	Radiographers	50	Readiness; AI-generated chest reports
Edwards et al. (2025)	International	Radiographers, radiation therapists, nuclear medicine scientists, sonographers	649	Moral responsibility for AI-supported decisions
Goh et al. (2025)	Singapore	Breast screening radiologists	17 survey; 10 interviews	AI as companion reader (mixed methods)
Doherty et al. (2025)	14 European countries	Medical imaging educators	33	Preparedness to teach AI
Alarifi (2025)	Saudi Arabia	Radiologists	79	Ratings of AI-simplified reports
Vorbach et al. (2025)	Germany, Austria, Switzerland	Radiation oncologists and medical physicists	163	Autocontouring in routine workflow

Study years follow the reference list. Interview participants are not added to the survey totals.

3.2 Overall attitudes toward AI

The mood was generally positive. Across eight similar surveys using the same measure, between 74.2 and 98.0% of respondents were positive, with a median of 79.5% (Figure 1). The radiographers appeared a little more enthusiastic than the radiologists; however the scale was inconsistent as some used 'excitement', others 'agreement that the change was necessary' or 'endorsement of the change' in order to compare them.

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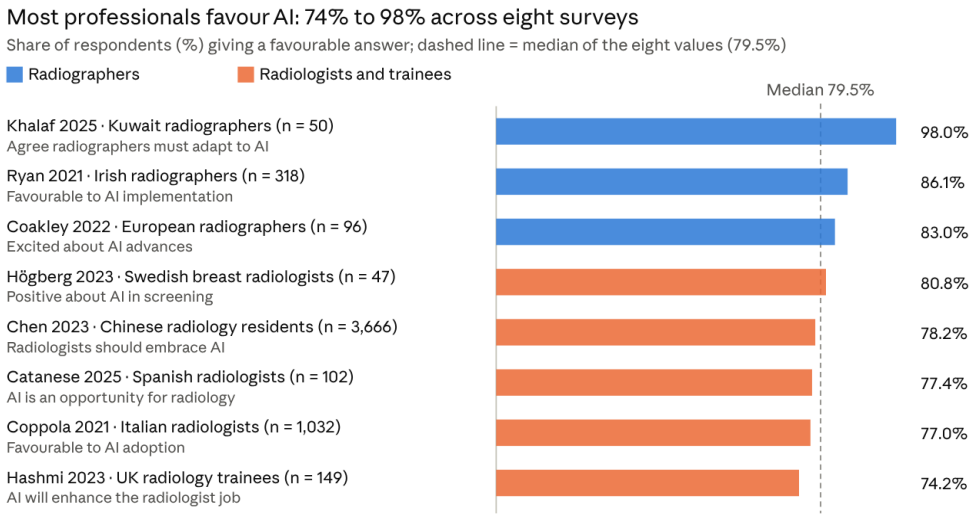


Figure 1. Favorable attitudes toward AI in eight surveys of radiographers and radiologists

Values as Published in Khalaf et al (2025), Ryan et al (2021), Coakley et al (2022), Högberg et al (2023), Chen et al (2023), Catanese et al (2025), Coppola et al (2021), Hashmi et al (2023)

Differences in the measurement of values between studies appear at least notable. It must be distinguished that enthusiasm does not equal confidence. For example, the results of a survey in Germany among radiologists, IT experts and industry representatives are that only 25% trusts to current AI results, however 86% believe that AI could improve efficiency of the medical practice (Jungmann et al., 2021). In another study in Saudi Arabia, 45.2% of 374 participants working in radiology reported to experience high impact of AI, while 44% of the participants also expressed enthusiasm towards adoption of the technology (Hamd et al., 2024). Moreover, in a mixed sample of Saudi Arabia, Sudan and Yemen, 61.9% of 210 participants showed positive attitudes regarding AI (Alsultan, 2023). However, acceptance seemed to be critical: only 29.4% of the breast radiologists in Singapore rated the performance of AI as good as that of a human reader although 64.7% recommended AI as a companion reader (Goh et al., 2025).

In addition, fears about being replaced were rare among radiologists, but more prevalent among radiographers. Just 29.9% of Chinese residents thought that AI could decrease demand for radiologists (Chen et al., 2023), while 88.9% of Italian radiologists experienced no worry about job losses (Coppola et al., 2021). Whereas, in Ireland, 46.1% of diagnostic radiographers and 41.2% of radiation therapists thought that AI would facilitate the reduction of personnel (Ryan et al., 2021).

3.3 Perceived Benefits

A summary of the perceived benefits related to five themes: (1) decision support, (2) workflow efficiencies, (3) quality and dose tasks, (4) time savings, and (5) patient or communication improvements (Table 2). In the largest survey study conducted among radiologists, the same tendency could be observed: of 1032 Italian radiologists who were surveyed, 73.0% expected a reduction in diagnostic error rate, 67.9% believed there would be a better optimization of their workflow, 60.3% expected a decrease in reputational issues, and 90.4% intended to be involved in regulating the use of AI (Figure 2; Coppola et al., 2021).

Table 2. Perceived benefits of AI reported by radiologists and radiographers

Benefit theme	Key evidence	Source
Decision support and screening	64.7% of Singapore radiologists recommended AI as a companion reader; confidence was highest (mean 9.3/10) when AI was validated on local data; AI was seen as strongest in routine, fatigue-prone tasks	Goh et al. (2025)

Benefit theme	Key evidence	Source
Priority application areas	Spanish radiologists named screening (23.36%), image interpretation and reporting (21.17%), and imaging requests and scheduling (14.6%)	Catanese et al. (2025)
Workflow efficiency	Global radiographers linked AI to enhanced workflows and optimised workstreams; Australian technologists voiced no concern about AI being clinically useful or improving efficiency	Akudjedu et al. (2023); Currie et al. (2022)
Quality, dose, and image processing	Irish radiographers and radiation therapists prioritised quality assurance, clinical audit, dose optimisation, and post-processing; Australian technologists gave high priority to segmentation, quantitation, reconstruction, and noise or dose reduction	Ryan et al. (2021); Currie et al. (2022)
Time savings	88.8% of oncology users reported time savings in organ-at-risk contouring, and 92% found autocontouring helpful	Vorbach et al. (2025)
Patient benefit	64.9% of diagnostic radiographers and 70.6% of radiation therapists expected AI to be positive for patients	Ryan et al. (2021)
Reporting support	Radiologists rated ChatGPT-4 patient-friendly reports at mean correctness of 3.95 (MRI), 4.05 (CT), and 4.22 (mammography/ultrasound)	Alarifi (2025)

Percentages are quoted as published. Italian radiologists' perceived benefits are shown in Figure 2 .

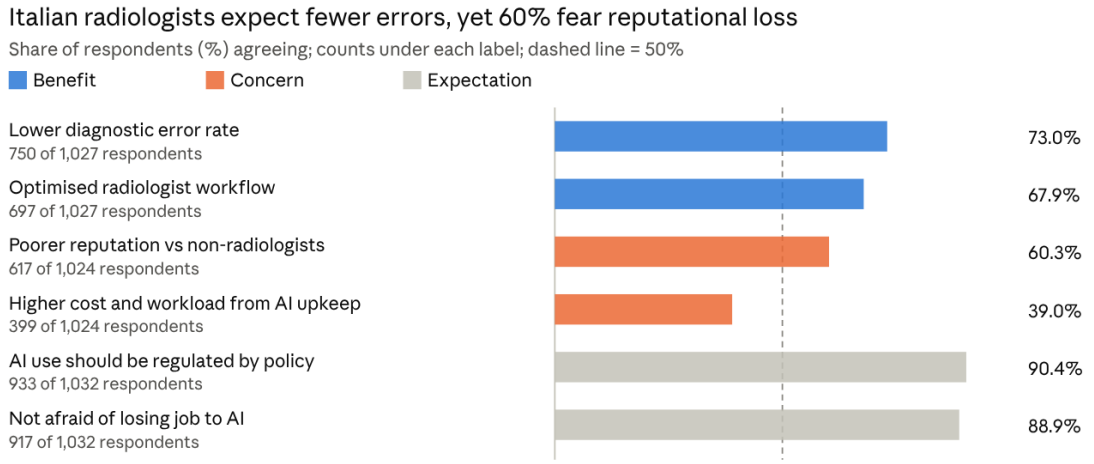


Figure 2. Perceived benefits, concerns, and expectations of 1,032 Italian radiologists

Counts as reported by Coppola et al (2021) refer to the results of a national survey of Italian radiologists (n= 1,032). The percentages were derived from the counts provided in the publication.

The benefits felt by radiographers were mostly operational, with the majority of them feeling that AI would be helpful in quality control, dose control, segmentation, and image quality rather than diagnostic. They also felt that they would be less comfortable with AI providing the final diagnosis of the radiological information (Currie et al., 2022; Ryan et al., 2021). However, there was not always agreement with perceived benefits of AI, or the extent to which they were achieved. In Kuwait, a radiologist only agreed with 53% of the written reports based on chest radiographs compared to 98% of radiographers felt that they needed to adapt to AI technology (Khalaf et al., 2025). Generative tools for summarizing can also show this discrepancy, a review by 4

neuro-radiologists found 83% of summaries by Chat GPT accurately represented the original report, but that "18% of assessments represented an under emphasis of important findings, without any hallucinated findings." (Sunshine et al., 2025).

3.4 Perceived Challenges

Eight themes of challenges were common to all areas (Table 3). Training, trust/validation and accountability were common in most (all but one or two areas) of the region and both types of professional group while workload/cost/loss of skills were less common but with the same strength.

Table 3. Perceived challenges of AI integration reported by radiologists and radiographers

Challenge theme	Key evidence	Source
Knowledge and training gaps	58.6% of Saudi radiology professionals reported limited AI knowledge and inadequate training, and 43.6% named skill development and program complexity as major barriers; 64% of European radiographers defined AI correctly but only 37% understood how AI, machine learning, and deep learning differ; UAE radiologists and radiographers named lack of training courses as the main challenge	Hamd et al. (2024); Coakley et al. (2022); Abuzaid et al. (2022)
Trust and validation	Only 25% trusted AI results; 93% wanted plausibility checks and 91% considered validation mandatory; Singapore radiologists were most confident when AI was validated on local data	Jungmann et al. (2021); Goh et al. (2025)
Accountability and liability	Practitioners attributed more moral responsibility to themselves for good than bad outcomes, and 33% also held developers and institutions responsible; 34.1% of Swedish breast radiologists saw a high or somewhat high risk, and 34.0% were uncertain; defining the liable actor was unresolved	Edwards et al. (2025); Högberg et al. (2023)
Professional standing, jobs, and de-skilling	Global radiographers feared de-skilling and weaker patient-centred care from over-reliance; about half of German-speaking oncology respondents worried that autocontouring would weaken resident training in sectional anatomy	Akudjedu et al. (2023); Vorbach et al. (2025)
Workload and cost	Increased workload was the biggest concern of Spanish radiologists; Singapore radiologists cited false positives, workflow inefficiencies, and long-term costs	Catanese et al. (2025); Goh et al. (2025)
Ethics, privacy, and diversity	Australian technologists rated medico-legal, ethical, diversity, and privacy issues as moderate to high concerns	Currie et al. (2022)
Automation bias	Systematically biased AI lowered clinician diagnostic accuracy by 11.3 percentage points, and image-based explanations did not remove the harm (−9.1 points)	Jabbour et al. (2023)
Regulation and guidance	Most Irish radiographers and radiation therapists favoured national legislation; 60% of German-speaking oncology respondents wanted society guidelines	Ryan et al. (2021); Vorbach et al. (2025)

Jabbour et al. (2023) studied hospital clinicians, not radiologists, and is included as context for automation bias.

Psychological variables could also be crucial to the current situation of AI implementation within radiology residents. An article from 3,666 Chinese radiology residents showed that, symptoms of burnout were associated with fear of replacement (OR 1.89), a lower perceived usefulness (OR 0.77) and a lower willingness to use (OR 0.71) of AI. In addition, perceived usefulness is the most influential factor for the intention to use AI (OR 5.97, Chen et al., 2023). Therefore, the willingness to accept AI might still be subject to working circumstances, not only information.

Furthermore, the automated bias finding should be investigated by imaging departments. A normal AI model increased clinician accuracy by 2.9 percentage points compared to baseline of 73.0%, but biased models decreased accuracy by 11.3 percentage points (Jabbour et al., 2023). A clinician who relies exclusively on an arbitrarily trusted tool may be misdirected by it, and the recommendation of plausibility checks and local validation should be prioritized not as a cautious stance but as a safety necessity. Broadly, public views concur: 42% of 802 Australians who are breast-screening eligible were vehemently opposed to AI working alongside clinicians to read screens or as a triage filter (Pearce et al., 2025).

3.5.Education and Preparedness

Education has been the most consistent obstacle to implementation of AI, and was identified as a concern by respondents (Figure 3). 149 UK trainees in radiology were surveyed, of whom 148 believed training on AI should be covered in residency, 125 wished to be involved with AI projects, and 106 had never worked with AI. Only 1 of the 149 trainees claimed that their training programme had included teaching on AI (Hashmi et al., 2023). In Kuwait, 92% of radiographers said they would like to undertake a course in AI (Khalaf et al., 2025). On the other side of the coin, only 8% of European radiographers had received AI training prior to qualification (Coakley et al., 2022), and only 15.1% of 33 imaging educators had received training in AI (Doherty et al., 2025).

Values reported in Hashmi et al. (2023), Khalaf et al. (2025), Hamd et al. (2024), Doherty et al. (2025), Coakley et al. (2022) ranged depending on measure and population. Teachers displayed moderate awareness of artificial intelligence (AI) (9.21/12); however, levels of AI teaching preparedness were low/medium, with a desire for institutional support (Doherty et al., 2025). Knowledge deficit was also apparent in practice, with just 58.1% of radiologists and technologists in Saudi Arabia, Sudan and Yemen classed as knowledgeable, with 50% demonstrating appropriate practice (Alsultan, 2023). Conversely, younger Spanish radiologists reported higher IT knowledge (Catanese et al., 2025), with UK students and foundation doctors endorsing AI in education (63.2%) yet expressing concern over a lack of training (Baker et al., 2025). Trainees requested practical content covering introduction, application, and critical evaluation of AI software (Hashmi et al., 2023), a desire consistent with the safety concerns elaborated in Sec. 3.4: a user who can critically evaluate a tool is less prone to over-trust it.



Figure 3. Demand for AI training compared with training received

3.6 Workflow impact

There is less evidence on workflow than attitudes, most of which is breast screening and radiotherapy based (Table 4). However, the strongest of these findings is an objective one. The MASAI randomized trial found that screening with AI support used fewer screen reads than double reading but found the same number of cancers (Figure 4; Lång et al., 2023). It also found a recall rate of 2.2% (vs 2.0%) and the false-positive rate did not change (1.5%), with a positive predictive value of recall of 28.3% (vs 24.8%).

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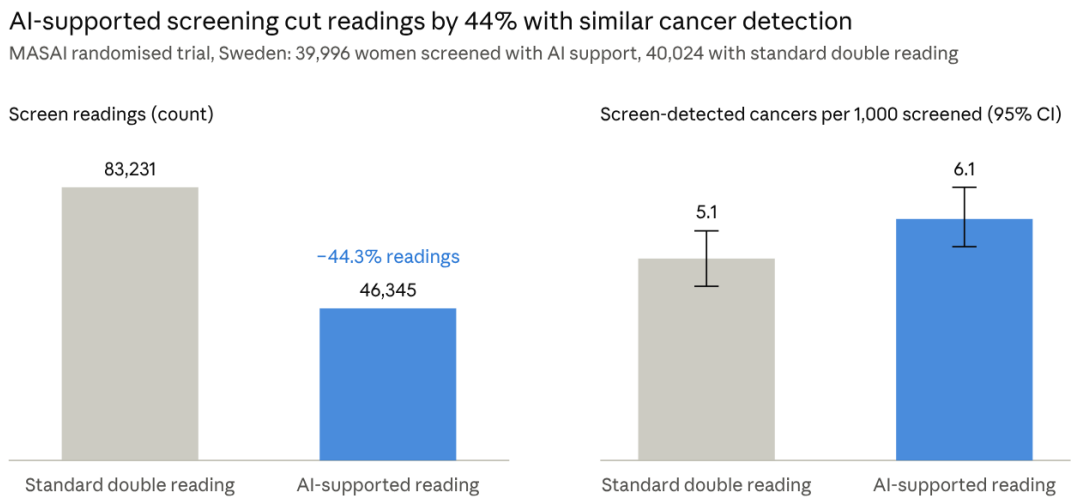


Figure 4. Screen-reading workload and cancer detection with AI-supported and standard mammography screening

Counts and rates as reported by Lång et al. (2023), clinical safety analysis of the MASAI trial. The percentage reduction is computed from the reported reading counts.

Table 4. Evidence on workflow impact of AI in diagnostic imaging and related practice

Evidence type	Setting	Main finding	Source
Randomised trial	AI-supported mammography screening, Sweden, 80,033 women	Recall 2.2% vs 2.0%; false-positive rate 1.5% in both arms; positive predictive value of recall 28.3% vs 24.8% (readings and detection in Figure 4)	Lång et al. (2023)
User survey	AI autocontouring in radiotherapy, 163 respondents, about two-thirds using it routinely	92% of users found it helpful; 88.8% reported time savings; about 41% estimated savings of 11–20 minutes per case	Vorbach et al. (2025)
User survey	Radiographers and radiation therapists, Ireland	27.6% of diagnostic radiographers and 40.3% of radiation therapists already used AI clinically; workflow improvement was a priority area	Ryan et al. (2021)
Survey	Spanish radiologists and trainees	Potential workload increase was the largest concern	Catanese et al. (2025)
Mixed methods	Singapore screening radiologists	AI was strongest on routine, fatigue-prone tasks; concerns were false positives, workflow inefficiencies, medico-legal accountability, and cost	Goh et al. (2025)
Rating study	ChatGPT summaries of 30 neuroradiology reports, 4 radiologists	83% of ratings said the summary represented the report extremely or very well; 5% noted missing information, 12% overemphasis, and 18% under emphasis of findings	Sunshine et al. (2025)

Survey percentages reflect perceived, not measured, effects.

From this analysis, three conclusions can be made. First, workflow benefits are likely to be greatest when AI substitutes for repeat (or manual) work, as in the use of AI for secondary reading in screening as well as in contouring in radiotherapy. Second, it should be borne in mind that perceivers or measurers of benefits do not necessarily equate to true benefits, such as radiologists in Spain and Singapore worried that workload might increase with the overhead of confirming AI output, dealing with false positives and system maintenance, although trials showed a corresponding time saving for reading (Goh et al., 2025). Third, the achievement of workflow benefits will depend on role design. Clinicians in Singapore suggest that this should include clear role definitions and national standards to ensure that AI does not serve as a second reader to the radiologist (Goh et al., 2025), while in relation to radiographers, greater efficiency was greatest in quality assurance, auditing and dose management which Irish respondents noted they already had working relationships with some clinical applications (Ryan et al., 2021).

3.7. Radiologists versus Radiographers

Both professions demonstrate a similar positive view of AI adoption, and experience a lack of training; however, they focus on a different set of risks (Table 5). Interpretative accountability, reputation and workload are the main concerns for radiologists, whereas de-skilling, patient-centred care and workforce are the main concerns for radiographers. Compared to radiologists, radiographers want AI to take over some roles concerning quality assurance, dosage and image processing rather than interpretation.

Table 5. Differences in emphasis between radiologists and radiographers

Domain	Radiologists	Radiographers and other medical radiation practitioners	Sources
Main expected benefit	Fewer diagnostic errors, better work organisation, companion reading in screening	Workflow, quality assurance, audit, dose optimisation, image quality, segmentation	Coppola et al. (2021); Goh et al. (2025); Ryan et al. (2021); Currie et al. (2022)
Preferred AI tasks	Screening, image interpretation and reporting, imaging requests and scheduling	Repetitive and lower-order tasks, quality, dose, and post-processing	Catanese et al. (2025); Currie et al. (2022); Ryan et al. (2021)
Where AI is resisted	AI as a replacement for human readers; AI accepted as an adjunct	AI in patient-facing roles and in final image interpretation	Goh et al. (2025); Ryan et al. (2021)
Main concern	Professional reputation, liability, workload	De-skilling, impact on patient-centred care, staffing	Coppola et al. (2021); Högberg et al. (2023); Akudjedu et al. (2023); Ryan et al. (2021)
Job security	88.9% of Italian radiologists not afraid of job loss; 29.9% of Chinese residents expected reduced demand	46.1% of Irish diagnostic radiographers and 41.2% of radiation therapists expected reduced staffing	Coppola et al. (2021); Chen et al. (2023); Ryan et al. (2021)
Training	98.7% of UK trainees wanted AI taught	8% of European radiographers had AI teaching before registration; 92% of Kuwaiti radiographers wanted courses	Hashmi et al. (2023); Coakley et al. (2022); Khalaf et al. (2025)
Accountability	Liable actor unclear to Swedish breast radiologists	33% of practitioners also held developers and institutions responsible; AI-ethics knowledge and discipline shaped ratings	Högberg et al. (2023); Edwards et al. (2025)

Entries compare findings from different studies, countries, and instruments. They indicate emphasis, not tested differences.

Few studies sampled radiologists and radiologic technologists together. Studies from Saudi Arabia, Sudan and Yemen showed that radiologists had more knowledge about artificial intelligence (AI) than technologists but the differences in attitudes were not significant between the two specializations (Alsultan, 2023). Based in the UAE, both specializations said training was their main concern (Abuzaid et al., 2022). Discipline of practitioners played a role in moral responsibility for AI assisted decisions (Edwards et al., 2025). The sporadic nature of direct comparisons within the same survey limits how far these can be generalized.

4. DISCUSSION

4.1. Main Results

Readiness among radiologists and radiographers to take on AI as an assistant 8 surveys show positive attitudes to AI adoption, between 74.2 and 98.0 per cent (Figure 1), and this is supported by an objective finding of a randomized screening trial – AI support may reduce the workload of reading images, without affecting cancer detection rates (Lång et al., 2023). But radiologists and radiographers show that readiness depends on certain conditions – they want validation based on their own local data, clarity over accountability, assurance that their professional role is protected, and, most of all, training, which they say they do not get (Figure 3).

4.2 Interpretation

Despite widespread acceptance of AI, trust in its outputs remains relatively weak, with only 25% of individuals in Germany reporting AI outputs to date to be trustworthy, despite a widespread expectation that AI will make clinicians more efficient (Jungmann et al., 2021). In an experimental study, systematically biased AI resulted in an 11.3 percentage point reduction in accuracy in clinicians, and effort to explain the outputs did not eliminate the accuracy reduction (Jabbour et al., 2023). The overall picture emerging from this research is that training in AI will fill a real need of the trainees, while at the same time, training would help overcome the safety issue posed by the experimental results.

A still larger, and modifiable, gap is in education. 98.7% of trainees wanted to learn about AI compared to only one trainee who reported that AI training was provided as part of their program (Hashmi et al., 2023). This is more than just attitude. Educators are themselves reporting lack of confidence to teach the skill (Doherty et al., 2025). Likewise, curricula and educator support can be in parity, and radiographer programs should be on the same level as residency programs, with only 8% of European radiographers surveyed reporting having had AI training before registering to practice (Coakley et al., 2022).

Accountability requires design, not good intentions. Practitioners took individual responsibilities for the results of AI, but about one third also added responsibility for programmers and place of work with Swedish radiologists unsure of who was responsible (Edwards et al., 2025; Högberg et al., 2023). With AI used as a second reader, local policy should make clear who will spot and follow-up errors and who will sign off on the report.

How the workflow improvements AI can bring are dependent on the roles created 44.3% of screen reading was saved using a protocol in which AI triaged exams and played the role of assistant to the human reader (Lång et al., 2023). Other radiologists reported extra tasks and challenges of checking the output and dealing with false positives (Catanese et al., 2025; Goh et al., 2025). Departments should consider not just reading time, but also the time spent by the team to check the output and workload from recalls.

Radiographers are particularly excluded from AI planning. Although radiographers generally considered AI to be most effective for quality assurance, audits and dose management activities, a minority were worried about job cuts and de-skilling (Akudjedu et al., 2023; Ryan et al., 2021). The preponderance of the evidence on which this review is based did not include trial-level data on radiographer-related tasks, which may have resulted in a lack of workflow evidence.

The general public's views mirror the hesitant position of practitioners. The public across the health care system that was eligible for screening showed a higher willingness to accept AI for screening when a human was still involved in the process and objected to AI on its own (Pearce et al., 2025**).**

4.3 Practical implications

Table 6. Priority actions for integrating AI in diagnostic imaging departments

Priority	Recommended action	Evidence basis
1	Add profession-specific AI teaching to radiography and radiology curricula, and fund educator development	Hashmi et al. (2023); Coakley et al. (2022); Doherty et al. (2025)
2	Validate AI tools on local data before go-live, and audit performance afterwards	Goh et al. (2025); Jungmann et al. (2021)
3	Teach critical appraisal and plausibility checking to reduce automation bias	Jabbour et al. (2023); Jungmann et al. (2021)
4	Write down accountability rules: who reviews AI-reader disagreements and who is responsible for outcomes	Edwards et al. (2025); Högberg et al. (2023)
5	Co-design workflows with radiologists and radiographers, and define the AI role (companion reader, triage, or quality tool)	Goh et al. (2025); Ryan et al. (2021)
6	Measure workload before and after deployment, including checking time and recall work	Lång et al. (2023); Catanese et al. (2025)
7	Tell patients when AI is used and keep a human in the decision	Pearce et al. (2025)
8	Monitor staff wellbeing during rollout, since burnout lowered willingness to use AI	Chen et al. (2023)

4.4 Strengths and limitations

The synthesis synthesizes radiologist, radiographer, trainee and training staff views whilst combining perception data with a RCT and it is transparent where each number derives from. However several points are worthy of mention. The searches used one database and one reviewer so the scope for relevant studies to be missed is high. Data from abstracts and index records has been used so figures that are only recorded in full articles have been omitted so essential to cross check figures in the original papers. Outcome definitions differed so the median percentages of favourable attitudes are indeed descriptive figures rather than a weighted average. Many surveys used convenience samples or voluntary sampling so may have over reported enthusiasm as the more interested professionals are presumed to respond. Low response levels were reported such as 44.8% of Swedish breast radiologists (Högberg et al., 2023), with one study accounting for 48% of respondents (Chen et al., 2023). None of the 19 studies originated from Egypt and Latin America and most of Africa were unrepresented so results need to be tested locally before national implementation.

CONCLUSION

Radiologists and radiographers are clearly receptive to AI as an assisting role, with positive attitudes observed in three-quarters or more respondents in all eight surveys with objective corroboration of a large benefit of AI-supported reading in screening workload reduction. They do not consider AI as an unsupervised substitute. The obstacles to acceptance are narrow and modifiable: training cannot keep up with demand, trust hinges on local verification, delineation of accountability is still pending and workload and skill concerns still prevail. Radiologists and radiographers have different expectations of AI so plans for implementation need not be them imposed upon without input, but developed in consensus. Moving forward, research should focus on comparing the two professions within a single survey, assessing workflow outputs in addition to attitudes and utilizing evidence from neglected regions with inclusion of Egypt.

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