



From discovery to breakthroughs:

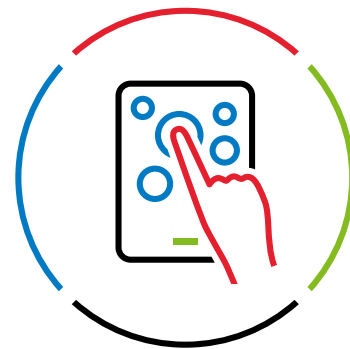
What a century of radiology literature can teach us



Radiology's history reveals a recurring pattern: innovation arrives first, understanding follows. From X-rays to AI, each breakthrough generated new questions that could only be answered through accumulated evidence. That is why access to historical literature remains essential for today's researchers.

The Radiological Society of North America (RSNA) has contributed to that evidence base since *Radiology* began regular publication in 1923.¹ Over the following century, RSNA's journals have documented changes in imaging technology, terminology, and clinical understanding.

That record matters because some of radiology's current questions reach further back than the language researchers use to ask them today.



A century of imaging advances, and the evidence they created

Each major advance in medical imaging created new clinical possibilities and a new set of research questions. As ultrasound, CT, MRI, and digital imaging entered practice, researchers had to establish where their limitations are and how they should be used:

1950s	Pulse-echo methods replaced earlier transmission techniques and became the basis of modern diagnostic ultrasound, bringing radiation-free imaging to medicine. ²
1970s	Computed tomography (CT) introduced cross-sectional imaging, eventually expanding to whole-body imaging, encouraging researchers to investigate faster acquisition, image quality, and radiation dose. ³
1970s–1980s	Magnetic resonance imaging (MRI) introduced a non-ionizing approach to soft-tissue imaging, followed by research into hardware, reconstruction methods, and clinical applications. ⁴
1990s–2000s	Radiology transitioned from film archives to searchable digital systems, changing how the field stores, retrieves, displays, and distributes medical images. ⁵

Each transition changed the questions asked, the methods used, and some of the vocabulary used to describe findings. As those conventions change, earlier evidence can become harder to retrieve through contemporary search terms alone.

Why old research can still answer new questions

Older studies are useful when researchers need to trace how a method, diagnostic approach, or body of evidence developed. That may require literature published before current conventions existed.

When terminology changes, evidence doesn't disappear

Citation searching helps researchers find relevant studies when terminology has changed. By following references backward to earlier studies and citations forward into later work, researchers can trace relationships that a keyword search may miss.

Earlier publications may use different names for techniques, findings, or diagnostic concepts. Combining citation searching with database searches can reconnect older studies with contemporary research questions.

This matters in radiology because a research question can outlast the vocabulary originally used to describe it. Combining citation research with database searches helps researchers reconnect those studies with contemporary questions.

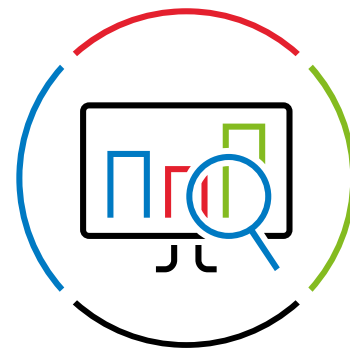
A research question can span decades

When a diagnostic approach or evidence changes, earlier studies can show why current protocols developed as they did. Looking across a longer record can help researchers establish how a field reached its current understanding.

For example, a team studying how lung cancer imaging protocols evolved may start by reviewing recent findings through current subscriptions, followed by:

- Identifying landmark studies that established earlier diagnostic approaches
- Tracing how those studies were cited and challenged over time
- Reviewing how diagnostic protocols shifted as new evidence entered the scene

This shows why the useful time horizon for a research question depends on the evidence it requires. For libraries and research institutions, historical coverage can become important when that evidence extends beyond current subscriptions.



How RSNA's published record connects past and present

RSNA's published record combines historical depth with coverage of current radiology research and education. Since *Radiology* began regular publication in 1923, RSNA's journals have expanded into areas, including⁶:

Radiology®:	Current research across medical imaging ⁷
RadioGraphics®:	Peer-reviewed educational material for radiologists, trainees, and physicists ⁸
Radiology: Artificial Intelligence®:	AI, machine learning, and data science applied to imaging ⁹
Radiology: Cardiothoracic Imaging®:	Advances in cardiac, vascular, and thoracic imaging research ¹⁰
Radiology: Imaging Cancer®:	Imaging research related to cancer screening, diagnosis, and treatment planning ¹¹

Longer-running publications provide historical depth, while newer specialty journals document questions emerging across contemporary radiology. Researchers can move across specialties or back through decades of evidence as their questions evolve.

The role of historical research in the AI era

AI introduces new methods for studying medical images and clinical questions, but researchers still need to establish what previous evidence shows. Historical literature can provide that context by documenting how the underlying problem was investigated before newer processing methods entered the discussion.

How historical research provides context for AI

Historical literature provides scientific context for researchers working with AI, because published research, imaging datasets, and AI training data serve different purposes:

- **Published research:** Questions, methods, findings, limitations, and interpretations or conclusions over time
- **Imaging datasets:** Observations used for research and analysis
- **Training data:** Examples from which an AI model learns patterns

Historical literature can show how a clinical question was investigated before AI entered the discussion, including methods used, comparison points established, and limitations identified. That evidence helps researchers judge what a newer AI study contributes to an existing body of work.

AI can also change how researchers work with published evidence itself. Large language models (LLMs) are tools to accelerate clinical evidence synthesis, including work that would otherwise require researchers to process large volumes of literature manually.¹²



Why human evaluation still matters for AI results

Researchers need to know how the model was tested, which data were used, what clinical role it was designed for, and where limitations may affect the result. A strong performance metric alone cannot establish the quality or applicability of an AI-assisted study.

RSNA's Checklist for Artificial Intelligence in Medical Imaging (CLAIM) provides reporting guidance designed to improve transparency and reproducibility in medical imaging AI research, covering¹³:



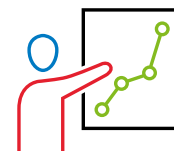
Research objectives and intended clinical role



Dataset characteristics, handling, and partitioning



AI model evaluation and performance metrics



Limitations, biases, and failure analyses

While AI tools can surface connections across vast amounts of published research, human expertise remains necessary to interpret those details against the clinical question and existing evidence.





Why a full radiology record matters for your institution

Research institutions increasingly support multidisciplinary teams working across oncology, cardiology, data science, and AI. These teams often require access to different eras of the literature simultaneously. Historical depth is therefore becoming an institutional capability rather than simply a library asset.

A publishing agreement between Wolters Kluwer and RSNA addresses that by bringing RSNA's current journals onto the Ovid® platform, allowing full access to its comprehensive portfolio.¹⁴

The value of that breadth and depth differs depending on what an institution already has access to:

- **Existing RSNA subscribers:** Have coverage in specific areas but need access to historical archives.
- **Existing Ovid customers:** Can access RSNA content to established research and information-access workflows.
- **Medical centers and research programs:** Medical centers and research programs can gain broader current and historical coverage that supports systematic reviews, education, specialty research, and long-term investigations.

The RSNA Complete Collection on Ovid brings together the five current journals with the *Radiology* Legacy Collection (1923–2021) and *RadioGraphics* Legacy Collection (1981–2021). The archives are searchable and acquired through a one-time purchase.

A research path can then move in several directions. A team might begin with current cancer imaging research, trace earlier *Radiology: Imaging Cancer studies*, consult *RadioGraphics* for educational context, and examine current AI literature as the question develops.

Connecting radiology's past with the questions ahead

Radiology has spent more than a century moving between discovery and understanding. New imaging methods create possibilities, while research tests where they work, where they fall short, and how they can be applied.

Its future will be shaped by technologies that have yet to emerge. But as the discipline's history consistently demonstrates, breakthroughs become meaningful only when they can be connected to accumulated evidence. Preserving access to that evidence helps ensure that tomorrow's discoveries build on a century of scientific understanding rather than starting from scratch.

Explore the RSNA Complete Collection on Ovid to see how current research and historical evidence work together across specialty imaging, education, and AI.



References

1. Boice, J., Dauer, L. T., Kase, K. R., Mettler, F. A., & Vetter, R. J. (2020). Evolution of radiation protection for medical workers. *The British Journal of Radiology*, 93(1112), 20200282. <https://doi.org/10.1259/bjr.20200282>
2. Radiological Society of North America. (n.d.). RSNA.org. <https://www.rsna.org/>
3. Radiological Society of North America. (2015). The history of US: From bats and boats to the bedside and beyond: RSNA Centennial article. *RadioGraphics*, 35(5). <https://doi.org/10.1148/rg.2015140300>
4. McCollough, C. H., & Prabhakar Rajiah. (2023). Milestones in CT: Past, Present, and Future. *Radiology*, 309(1). <https://doi.org/10.1148/radiol.230803>
5. Edelman, R. R. (2014). The History of MR Imaging as Seen through the Pages of Radiology. *Radiology*, 273(2S), S181–S200. <https://doi.org/10.1148/radiol.14140706>
6. Ramsoft, "A Brief History of the PACS: Past, Present, & Future," <https://www.ramsoft.com/blog/brief-history-pacs>
7. Radiological Society of North America. (n.d.). Journals. RSNA.org. <https://www.rsna.org/journals>
8. Radiology. (n.d.). RSNA.org. <https://pubs.rsna.org/journal/radiology>
9. RadioGraphics. (n.d.). RSNA.org. <https://pubs.rsna.org/journal/radiographics>
10. Radiology: Artificial Intelligence. (n.d.). RSNA.org. <https://pubs.rsna.org/journal/ai>
11. Radiology: Cardiothoracic Imaging. (n.d.). RSNA.org. <https://pubs.rsna.org/journal/cardiothoracic>
12. Radiology: Imaging Cancer. (n.d.). RSNA.org. <https://pubs.rsna.org/journal/imaging-cancer>
13. Wang, Z., Cao, L., Danek, B., Jin, Q., Lu, Z., & Sun, J. (2025). Accelerating clinical evidence synthesis with large language models. *Npj Digital Medicine*, 8(1). <https://doi.org/10.1038/s41746-025-01840-7>
14. Checklist for Artificial Intelligence in Medical Imaging (CLAIM). (2020). *Radiology: Artificial Intelligence*. <https://pubs.rsna.org/page/ai/claim>
15. Sidi, R. (2026, May 27). Wolters Kluwer and Radiological Society of North America establish 10-year agreement to advance global access to leading radiology research journals. *Wolterskluwer.Com*; Wolterskluwer. <https://www.wolterskluwer.com/en/news/wolters-kluwer-and-radiological-society-of-north-america>