



## An integrated approach to AI in radiology

A guide to streamlining workflows, delivering insights to care teams, and driving improved outcomes.

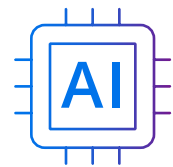
eBook  
Nuance Diagnostic Solutions

# The power of AI in radiology

Diagnostic imaging is integral to most healthcare journeys. Prompt, accurate imaging results are essential for determining appropriate care pathways, and any delay can have a dramatic impact on patient outcomes. But with increasing patient volumes, severe staffing shortages, and burnout among radiologists and other clinicians at an all-time high, the need for AI has never been greater.

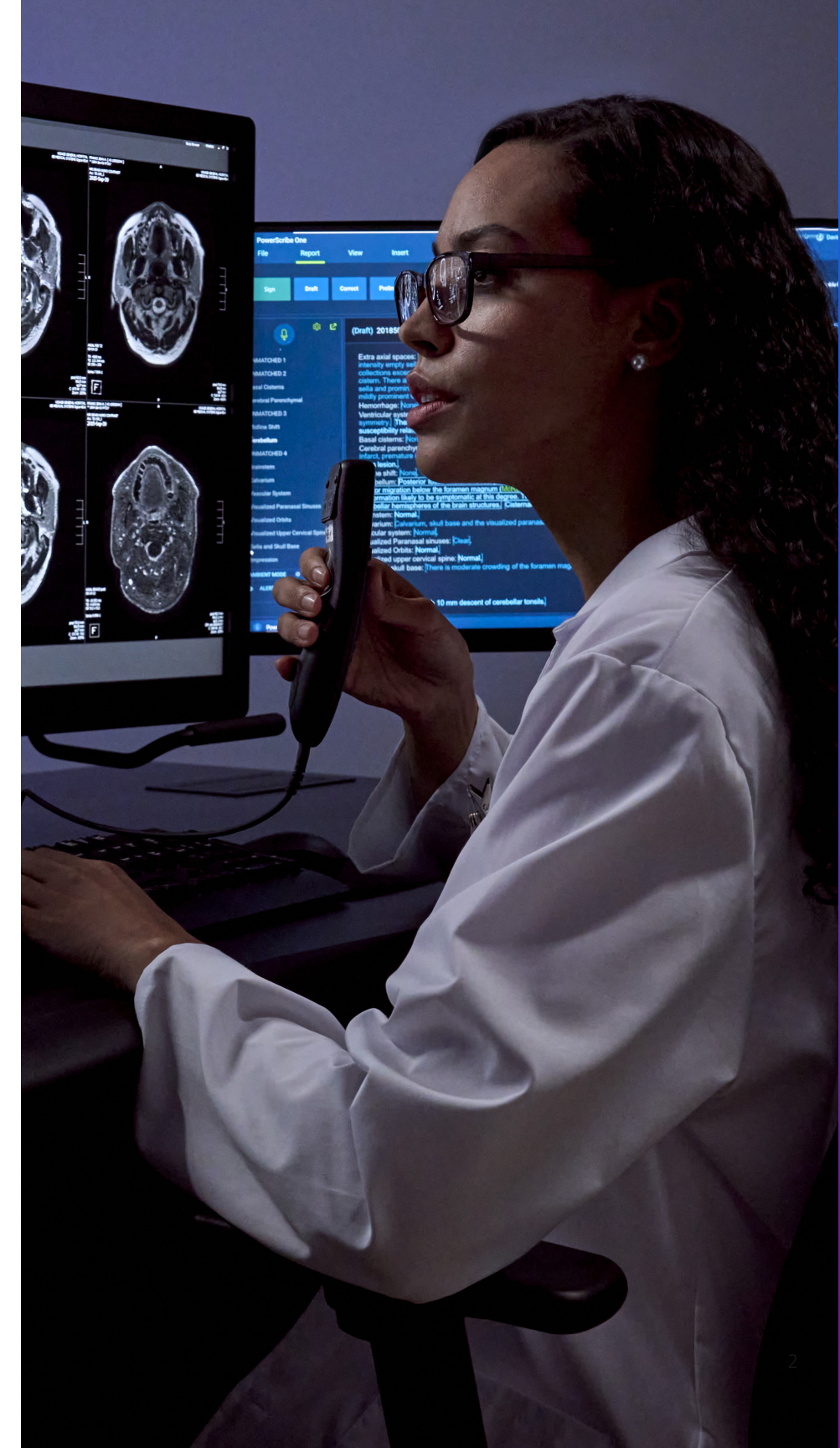
AI is the key to enhancing medical imaging and extracting diagnostic insights from vast quantities of data. It frees clinical teams from the distractions, interruptions, and delays that get in the way of staying focused, moving quickly, and working smarter.

In this guide, we'll explore how amplifying your imaging efforts with AI can bring new levels of clinical insight, and how an integrated strategy increases the value of AI—from the point-of-read to the point-of-care.



Let's begin by looking at how AI helps in three key areas:

- 1. Automates what radiologists can't stand:** AI can reduce mundane, time-consuming, and repetitive tasks that contribute to burnout and inefficiency.
- 2. Surfaces what radiologists can't see:** AI can see things humans can't, and expose timely, relevant information.
- 3. Identifies what radiologists can't miss:** AI can spotlight ancillary and subtle findings while supporting quality assurance and safety initiatives.



# AI automates what radiologists can't stand

"AI interprets what I'm dictating and prompts me when I use phrases such as 'pulmonary nodules,' so I can automatically add in clinical guidelines to give referring physicians a more complete report. It helps me get back to what I love about radiology—partnering with physicians to make a diagnosis and help patients get the best care possible."

— Dr. Patrick Browning, Northern California Medical Director, Open System Imaging

One of the major contributors to radiologist burnout is the mechanics of report creation. Process inefficiencies and redundant workflows can make it difficult to stay on top of reporting volumes.

That's why automation is so essential. When you introduce AI into radiology reporting, you can automate many tedious, repetitive tasks, reducing the time it takes to create a high-quality, high-value report.

300%

increase in radiology workload in the last 15 years<sup>1</sup>

77%

of radiology practice leaders report that burnout is a problem<sup>2</sup>

## AI accelerates next-generation radiology reporting

Many radiologists already use speech recognition software to dictate reports, but advancements in AI-powered, cloud-based speech introduce new efficiencies.

Advanced, radiology-specific AI can help minimize recognition errors that are common in legacy solutions and slow radiologists down with the need for constant corrections. It can also transform free-form dictation into automatically structured reports, so radiologists can dictate in their preferred style while the AI helps create a standardized report.

AI can minimize the need to repeatedly dictate the same values, measurements, and findings in multiple applications by automatically exchanging data across different systems. AI even has the potential to auto-generate the report impression without requiring the radiologist to re-dictate and summarize findings.

## AI reduces inefficiencies

Beyond speech recognition, AI can increase efficiency in other ways. It can prioritize cases to ensure the right specialist reads the right study at the right time. And it can help optimize workload imbalances across radiology departments with smart, flexible workload distribution.

AI can offer in-context communication and collaboration capabilities to help significantly reduce the constant interruptions that break radiologists' focus—like phone calls, taps on the shoulder, and requests for consultations.

AI solutions can also provide real-time clinical intelligence, quality alerts, and decision support, so downstream care teams get high-quality, actionable reports when they need them.

# AI surfaces what radiologists can't see

“AI can help in so many ways—providing timely clinical intelligence without adding to the cognitive load and eliminating the inefficiencies and communication gaps that have plagued radiology for so long.”

— Calum Cunningham, Senior Vice President and General Manager Diagnostic Imaging, Nuance

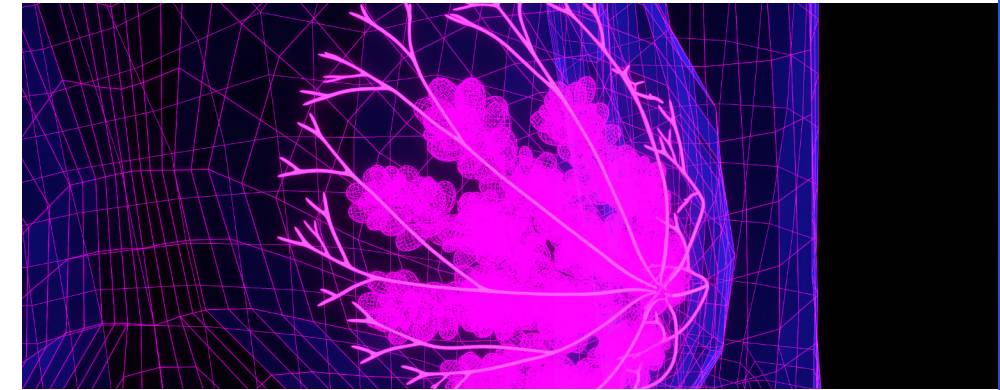
Radiologists are inundated with data, and for each interpretation they must scour imaging studies and associated patient information to surface diagnostic clues and supplemental findings, and ensure they identify unanticipated anomalies.

But radiologists are only human, and there are some things the human eye simply can't see.

## AI supports quality improvement

Many of the most important applications of AI in radiology revolve around detecting abnormalities that are difficult to spot—or completely hidden from view. AI can identify anomalies that aren't visible, like a stroke on a non-contrast CT scan, and can also calculate volumetric measurements of irregular, amorphous structures.

But beyond revealing hidden insights locked in the pixels, AI offers more ways to help radiologists see what they need to without increasing their cognitive load.



## AI reduces cognitive load

AI can make the most relevant and useful information readily available when radiologists need it. That helps maintain focus in the reading room and minimize the need to search through multiple applications. For example, AI can proactively present relevant priors across facilities to provide clinical insight, prevent over-imaging, inform next steps, and identify disease progression or changes.

AI can also help make life easier for radiologists through intelligent workflow optimization. AI-powered workflow orchestration tools can prioritize and distribute patient exams based on acuity, specialty, time of day, and other user-defined criteria, ensuring the right study is assigned to the right subspecialist at the right time. Visual indicators in the worklist—such as flags noting a study is ready to be read, and badges for AI findings—put pertinent information at radiologists' fingertips.

# AI identifies what radiologists can't miss

“This has allowed us to be more proactive—doubling our follow-up recommendation identification and tracking so we can follow each patient through the process to closure.”

— Alonzo Lewis, Chief Executive Officer  
Trinity Health Michigan

No radiologist wants to see their patients fall through the cracks because of a missed finding. AI-powered solutions support more comprehensive care by helping radiologists detect things they can't miss, ensuring they capture and deliver the critical information needed to support personalized care decisions, increase efficiencies, and lower healthcare costs.

AI can help radiologists keep pace with rising imaging volumes while maintaining quality and precision. It can serve as a reliable safety net by catching errors like laterality and sex mismatches and identifying ancillary or less obvious findings, like a breast lesion on a chest CT.

Knowing that AI is running in the background to surface relevant findings enables radiologists to have a more comprehensive view of the case and stay focused on their interpretation. This extends the value of radiology, giving downstream care teams more complete, actionable insights.

## AI helps close the loop on patient follow-up

Perhaps one of the biggest challenges in healthcare is managing follow-up. AI can provide in-workflow capabilities that support consistent recommendations and help guide appropriate follow-up care. AI supports a proactive and comprehensive approach to tracking follow-up recommendations and streamlines communication to help prevent patients from falling through the cracks—improving patient care and reducing the risk of malpractice litigation.



# AI amplifies the impact of radiology

AI is about more than just driving efficiency and value for radiologists; its impact continues downstream by making report and imaging data more actionable and consumable by referring physicians and care teams. Radiologists have a golden opportunity to amplify their impact and demonstrate their value—and an enterprise AI strategy can help them seize this opportunity.



## Add value from point-of-read to point-of-care

To enable better-informed clinical decision-making and closer collaboration between imaging stakeholders, organizations need a platform that combines AI-supported radiology interpretations with AI-generated insights for clinicians.

Such a platform must also be supported by an infrastructure to manage the flow of information—from triage to follow-up—so that care teams have the timely clinical insights they need to improve patient outcomes.

In an era of value-based care, radiology can't miss out on this opportunity to harness AI and deliver actionable insights to downstream care teams and specialists.



# Take an integrated approach to AI with Nuance

AI is already integrated into many solutions radiologists use every day, but its continued evolution is creating a more complex landscape for them.

Finding a path through the crowded AI market can be overwhelming, making it difficult for radiologists to unlock the full potential of AI. There's a complex patchwork of imaging AI services—some acquired and deployed by radiology, some by other specialty departments—all with multiple integration points that create headaches for IT and security vulnerabilities for the organization.

What's more, many of these solutions are delivered and consumed in a piecemeal approach that adds complexity and effort. By adding further steps to radiologists' workflows, the solution becomes part of the problem.

Radiologists need a single, streamlined, end-to-end AI experience that simplifies access and usability by seamlessly integrating with existing radiology workflow and reporting systems.

## An AI-powered diagnostic imaging network

Nuance is already a trusted provider of intelligent radiology solutions that help imaging teams deliver more value to care teams and the patients they serve. And now, with the Precision Imaging Network (PIN), Nuance is extending the value of our diagnostic portfolio to help realize the full potential of AI.

## Adding value across the healthcare ecosystem

PIN connects more than 10,000 healthcare facilities and uses workflow-integrated AI and the power of structured data to deliver real-time clinical intelligence to referring physicians, care teams, and other imaging stakeholders.

It facilitates collaboration between providers and payers to improve quality, care coordination, and utilization management. It can help pharmaceutical and medical device companies qualify patients sooner and more accurately, enabling them to enhance and save more lives. And it serves as a platform to accelerate the deployment and adoption of AI for imaging AI developers.

Nuance customers achieve remarkable results

74%

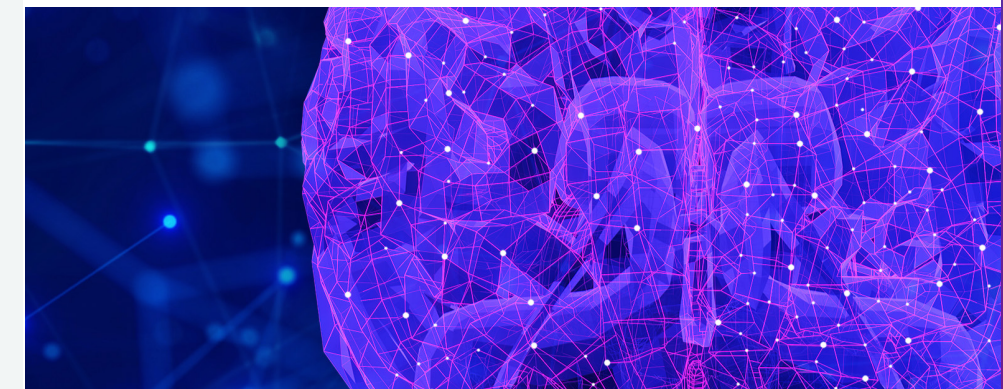
reduction in time-to-intervention

35%

fewer missed nodules

52%

improvement in follow-up compliance





# One partner, one platform

Nuance's comprehensive portfolio of diagnostic solutions, in conjunction with the Precision Imaging Network, harnesses AI to provide an integrated approach. It connects people, technology, and information across the care continuum through a single point of access to a unified platform.

This approach is the key to advancing care delivery and optimizing outcomes. It empowers clinicians with the information they need to detect disease earlier, respond and intervene faster, and deliver more precise treatment to ultimately improve patient quality of life.

## Ready to learn more?

Discover how you can tackle short-term challenges head-on while developing a long-term AI strategy with [Nuance diagnostic solutions](#) and the [Precision Imaging Network](#).



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### Endnotes

- 1 Bruls, R.J.M.; Kwee, R.M. (2020). Workload for radiologists during on-call hours: dramatic increase in the past 15 years. *Insights Imaging* 11, 121 (2020). <https://doi.org/10.1186/s13244-020-00925-z>.
  - 2 Parikh, J.R.; Wolfman D.; Bender C.E.; Arleo E. (2020). Radiologist Burnout According to Surveyed Radiology Practice Leaders. *Journal of the American College of Radiology*. 2020 Jan;17(1 Pt A):78-81. doi: 10.1016/j.jacr.2019.07.008. Epub 2019 Aug 6. PMID: 31398308.
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### About Nuance Communications, Inc.

[Nuance Communications](#) is a technology pioneer with market leadership in conversational AI and ambient intelligence. A full-service partner trusted by 77 percent of U.S. hospitals and more than 75 percent of the Fortune 100 companies worldwide, Nuance creates intuitive solutions that amplify people's ability to help others. Nuance is a Microsoft company.