Diagnostic Imaging
PUBLISHED | MAY 24, 2025

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The growing demand for imaging services: Key trends shaping the future

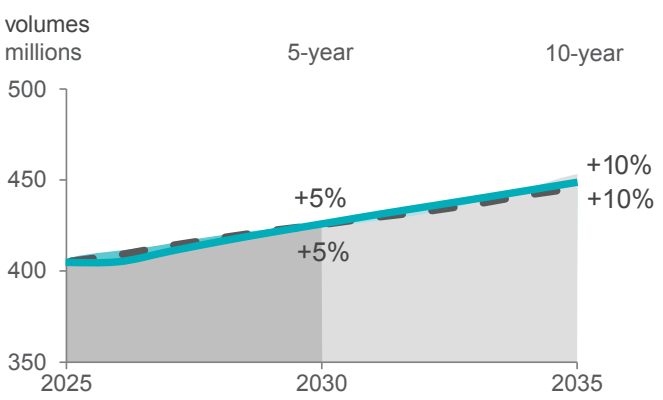
Introduction

Demand for medical imaging is projected to continue to grow over the next decade. This growth is fueled by powerful converging forces – an explosion of advanced imaging technologies, shifts in where patients receive care, new therapies that depend on imaging, and the pressures of an aging population. At the same time, healthcare organizations are navigating challenges around sustainability, workforce shortages, and the need for equitable patient access. For healthcare executives and imaging leaders, understanding these trends is crucial. Imaging is a cornerstone of modern medicine, and its growth will impact everything from hospital budgets to patient outcomes. In this article, we explore the key trends driving the booming demand for imaging services and what they mean for the future of care.

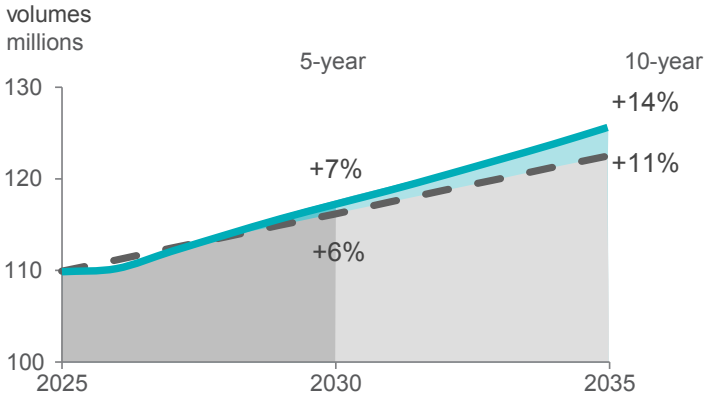
1. Advanced imaging modalities driving growth

The overall volume of imaging exams continues to climb year over year, and advanced modalities are leading the charge. Industry forecasts predict double-digit growth in imaging utilization over the next decade. They'll include especially high increases in complex studies such as CT and PET scans. Sg2, a Vizient company, projects standard outpatient imaging volume to grow about 10% and advanced imaging to grow by nearly 14% over the next ten years. Likewise, analysts at Sg2 anticipate the top imaging growth opportunities to be in PET (23%), ultrasound (16%), and CT (15%) exams over the coming decade. These advanced technologies have become indispensable for diagnosing cancer, heart disease, neurological conditions and more, especially as sites of care expand. For healthcare leaders, this means planning for more advanced imaging technology and the infrastructure to support them in multiple locations. The bottom line: As imaging technology improves, both patients and doctors expect more. This leads to a cycle where advanced CT, MRI and PET imaging increases overall demand.

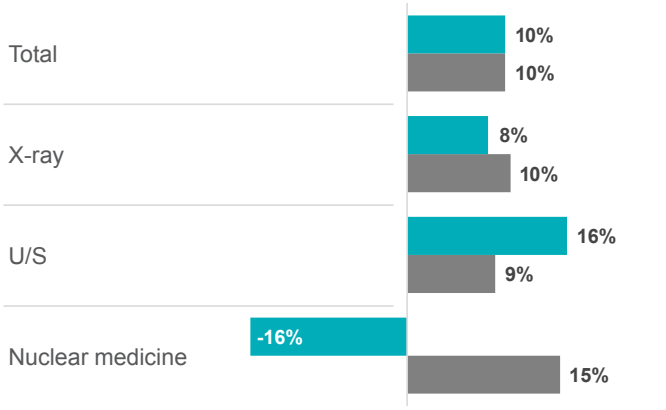
Outpatient standard imaging forecast
U.S. market, 2025 - 2035



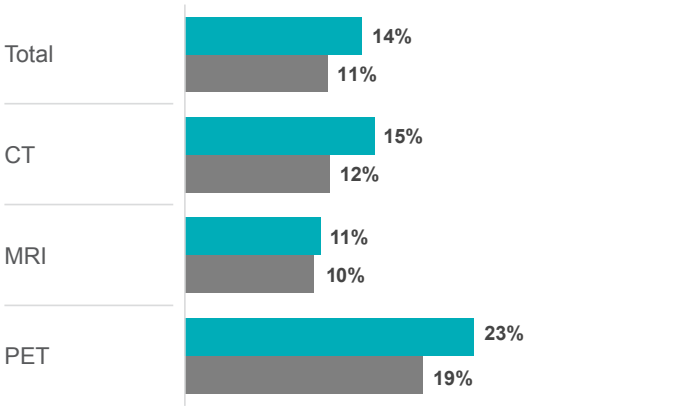
Outpatient advanced imaging forecast
U.S. market, 2025 - 2035



Outpatient standard imaging volumes by imaging type, U.S. market, 2025 - 2035



Outpatient advanced imaging volumes by imaging type, U.S. market, 2025 - 2035



2. Shifting Sites of Care Beyond the Hospital

Not only is imaging technology advancing, but where we image patients is quickly evolving as well. A clear trend in recent years is the shift of imaging services out of large hospitals and into outpatient and community settings. Advances in technology and the need for convenient, cost-effective care have led to more freestanding imaging centers, ambulatory clinics, and even mobile units. In fact, the U.S. imaging market is experiencing "a broad shift in volumes from hospital settings to outpatient centers," with outpatient imaging growth now outpacing the overall radiology market.[1]. About 40% of all radiology volume is now performed in outpatient imaging centers or clinics, rather than in acute-care hospitals.[1] This shift is significant for both patients and providers. For patients, it often means easier access, lower costs, and the comfort of receiving scans in a less intimidating environment. Health systems, meanwhile, are developing "systemness"

strategies – coordinating imaging across networks of hospitals and outpatient sites – to capture this growth and ensure quality and efficiency across all locations. Executives are investing in smaller-footprint, high-performance imaging equipment that can fit in clinics or even in a mobile trailer.

In some cases, providers deploy mobile diagnostic imaging units that travel to rural or underserved areas. They bring critical imaging services like mammography or stroke diagnostics directly to patients in need. The setting of care is no longer one-size-fits-all, and successful imaging programs are meeting patients where they are.

3. New Treatments Requiring More Imaging

Another driver of imaging demand is the arrival of new medical treatments that rely on imaging for success. A prime example is the new class of Alzheimer's disease therapies. Recent FDA-approved Alzheimer's drugs (such as monoclonal antibodies targeting amyloid plaques) come

with strict imaging requirements. Before starting therapy, patients need a PET scan to confirm the presence of amyloid in the brain, and they must undergo multiple MRI scans during treatment to monitor for side effects.[2] One newly approved Alzheimer's medication requires at least one PET scan and five MRIs in the first year of treatment to ensure safety and efficacy.[2]

Similarly, the rise of "theranostics" – therapies that combine therapeutic and diagnostic radiopharmaceuticals – is boosting demand for nuclear medicine imaging. Theranostic agents, like new radioligand treatments for prostate cancer or neuroendocrine tumors, use a radioactive drug to target and kill cancer cells. These treatments require advanced imaging, such as PET and CT, to select the right patients and to track how well the treatment is working. The pipeline of novel imaging tracers and targeted therapies is expanding, and each new drug often brings a need for companion scans.

For healthcare providers, this trend underscores the importance of having the right imaging technology and capacity to support cutting-edge treatments. Whether it's an Alzheimer's infusion that needs MRI monitoring or a cancer theranostic that requires PET imaging, the technology must be in place.

4. Greener Imaging: A push for sustainability

As imaging volumes grow, so does awareness of the environmental impact of high-tech equipment. Large MRI and CT machines can consume substantial energy and resources, and the healthcare sector is looking for ways to reduce its carbon footprint. In radiology, a movement toward "sustainable imaging" or "green radiology" has emerged, urging departments to adopt practices that save energy, reduce waste, and promote environmentally friendly designs. Imaging manufacturers are now investing in more energy-efficient technologies. For instance, newer MRI systems have helium-free magnets, eliminating the need for scarce helium gas, while CT scanners now have power-saving modes. Radiology leaders are leveraging federal programs and industry partnerships to retrofit or replace older machines with greener models[1].

On the procurement side, healthcare providers and suppliers are increasingly aligning around sustainability criteria for purchasing medical imaging equipment. The Medical Equipment Proactive Alliance for Sustainable Healthcare (MEPA) – a collaboration of industry stakeholders – has even published guidelines defining eco-friendly purchasing standards for imaging devices.[3] These include factors like energy efficiency ratings, recyclable materials, and end-of-life disposal plans. Hospitals are beginning to include such criteria in RFPs for new MRI, CT, or X-ray units, pushing vendors to prioritize greener designs. Efforts to save energy also extend to daily operations. Optimizing scanner utilization ensures that machines aren't running idle, while using digital workflows eliminates the need for film printing. Proper disposal of hazardous materials, such as lead shielding or isotopes, minimizes environmental harm.

While sustainability might not have been a traditional focus of radiology, today it's becoming part of strategic planning. Executives recognize that pursuing eco-friendly imaging practices isn't just good for the planet, it can also reduce operating costs (through energy savings) and appeal to socially conscious patients and staff. Expect to see "green" considerations increasingly woven into imaging service decisions, from capital purchases to department policies.

5. Innovating and supporting the imaging workforce

A booming demand for imaging comes with a parallel challenge: having enough skilled professionals to perform and interpret those scans. Workforce shortages in radiology, from technologists who run the machines to

radiologists who read the images, has remained a concern in recent years. In response, the industry is embracing innovation and new support strategies for the imaging workforce. One promising innovation is the use of remote scanning technology. This allows an expert technologist to operate imaging equipment (like an MRI scanner) from a separate location, guiding an on-site assistant or less experienced technologist. Although adoption in the U.S. has been relatively limited so far only around 7% of healthcare systems have implemented remote imaging in practice, interest is growing as organizations look for creative ways to extend staffing.[4] Remote scanning can effectively "share" highly trained technologists across multiple sites. This model not only helps cover staffing gaps in hard-to-recruit locations, but also provides mentoring and training opportunities: the remote experts coach local staff in real time, multiplying the educational impact.[1]

Aside from remote operations, the field is also turning to Artificial Intelligence (AI) and digital tools to support the workforce. AI algorithms are being deployed to assist radiologists by automating time-consuming tasks. This includes things like measuring lesions or flagging abnormal findings, which in turn improves efficiency and reduces burnout. They can also help technologists by automatically positioning patients for optimal image capture or suggesting protocol settings, serving as a smart assistant in the scan room.[1] While regulatory and reimbursement frameworks for radiology AI are still catching up (the FDA has approval criteria for AI tools, but insurers have yet to broadly reimburse their use, many providers are moving forward with adoption because the ROI comes in the form of workflow gains and quality improvements rather than direct payment. Hospitals are forming enterprise AI governance committees to oversee the safe deployment of these tools. They want to continuously monitor their impact on care quality, efficiency, and uniformity. Indeed, experts stress the need for formal AI governance. Each practice should evaluate how AI is used, ensure it truly adds value, and guard against any unintended biases or safety issues.[5]

In addition, there's a renewed focus on strengthening the imaging talent pipeline. This includes expanding radiology technologist training programs, as well as supporting more slots in radiology residency programs. Even novel ideas like partnerships with high schools or community colleges to attract young people to imaging careers are being considered.[5] By investing in education and workforce support, healthcare providers aim to ensure that as imaging volume grows, we will have enough trained professionals to maintain high-quality care. The takeaway for executives is that workforce challenges can be met with a combination of innovation and support. This involves using AI and remote scanning, as well as training and recruitment. This approach ultimately makes the imaging workforce more resilient and effective.

6. Radiopharmaceuticals: Pipeline growth and supply challenges

We're witnessing a maturing pipeline of both diagnostic and therapeutic radiopharmaceuticals, which holds great promise for patients. Several new radiotracers for PET

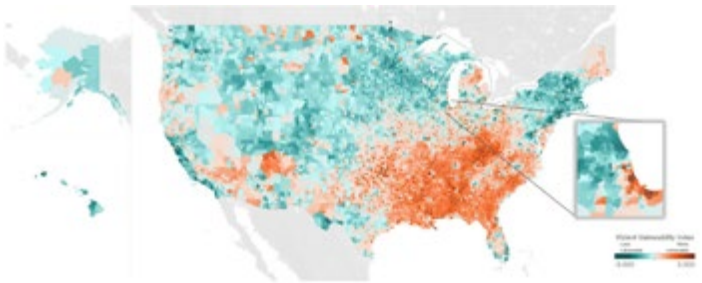
scans have gained FDA approval in the recent years. These include specialized agents for detecting prostate cancer or neuroendocrine tumors. These advancements improve our ability to visualize diseases at the molecular level. On the therapeutic side, drugs like Pluvicto for prostate cancer and Lutathera for certain neuroendocrine tumors have emerged as game-changers. These drugs exemplify the theranostic approach which uses a radioactive compound to both image and treat the patient. The result is a surge of investment and R&D in the radiopharmaceutical space. In 2024, there was massive interest and large-scale deal-making in this sector. Pharmaceutical companies struck partnerships to develop new radiopharm therapies, building on the success of first-to-market products.6 However, this rapid growth has been coupled with some supply chain vulnerabilities. Many radiopharmaceuticals rely on a limited number of production sites (often a handful of nuclear reactors globally) to supply the necessary isotopes. An uptick in demand has left these supply chains struggling to meet the needs, with isotope producers scrambling to scale up capacity.[6] A prominent example is the isotope Technetium-99m (Tc-99m), which is used in the majority of nuclear medicine scans. Its supply has faced periodic shortages because it depends on aging reactors for its precursor (Molybdenum-99).

The industry and government are now investing in establishing domestic production of key isotopes. This is aimed at reducing reliance on imports and old reactors. However, these efforts will take time to fully materialize. In the meantime, providers have had to navigate occasional shortages or rationing of certain nuclear medicine tests due to supply hiccups. Beyond production, distribution logistics for radiopharmaceuticals also present challenges. These agents often have extremely short half-lives ranging from hours to days. Therefore, the supply chain must be carefully choreographed to ensure that a dose reaches the patient on time. Despite these hurdles, the momentum behind radiopharmaceutical innovation remains strong. Policymakers are being urged to address reimbursement and regulatory pathways to support these new agents, given their high costs and unique handling needs.[6] For healthcare executives, the radiopharmaceutical boom means preparing for greater use of nuclear medicine. This involves investing in PET scanners, hot labs, and trained staff. Additionally, they need to advocate for solutions to supply bottlenecks and reimbursement. It's an exciting frontier. The blending of diagnostics and therapy has the potential to transform care, especially in cancer. However, this must be matched with a strong infrastructure to ensure that patients can access these novel treatments and scans when needed.

7. Improving patient access and health parity in imaging

As imaging services grow, a significant trend in healthcare is the focus on patient access and health parity, especially patient access to advanced imaging technology. Unfortunately, disparities in imaging access and utilization are well documented.[7] Rural communities often have fewer imaging facilities and longer wait times for critical scans. Addressing these gaps is a priority for many providers and policymakers. One approach is bringing technology closer

to the patient. We've seen an expansion of mobile and portable imaging solutions. Mobile mammography coaches that travel to underserved neighborhoods for breast cancer screening, while portable CT scanners diagnose strokes in the field. There have also been advancements in modular imaging suites. These innovations ensure patients don't always have to travel long distances to large hospitals for advanced imaging. Equipment manufacturers have developed smaller imaging systems, such as compact MRI or CT units in a more scalable size to serve outpatient clinics or urgent care centers, without sacrificing imaging quality or clinical capability. This enables more equity in imaging quality across multiple sites of care. For example, a community health center could offer a CT scan for lung cancer screening locally rather than referring patients to a central facility. Ensuring parity also means updating older equipment in safety-net hospitals and clinics so that no group is stuck with outdated imaging technology.



In recent years there have been grants and initiatives aimed at replacing aging scanners in rural or inner-city facilities. These efforts ensure that quality of care isn't determined by ZIP code. Moreover, equitable access to advanced imaging includes varying patient habitues, chronic conditions, language, and cultural preferences. Inclusive technology advancements such as larger patient gantries and tables, multi-lingual patient prompts, and other accessibility features are now a major consideration in supplier equipment design. Digital health tools, like remote scanning, are helping to bridge some gaps. They expand on-site clinical expertise, ensuring patients in ambulatory settings receive the same level of clinical care as those at major academic centers. Many imaging providers are making parity a core part of their mission. They're investing in training, technology, and programs to address equity in advanced imaging. The message is clear: imaging must be accessible to all who need it. By innovating care delivery and actively reaching out to under-imaged populations, the healthcare system is striving to ensure that the benefits of modern diagnostics are shared broadly, helping to close gaps in outcomes.

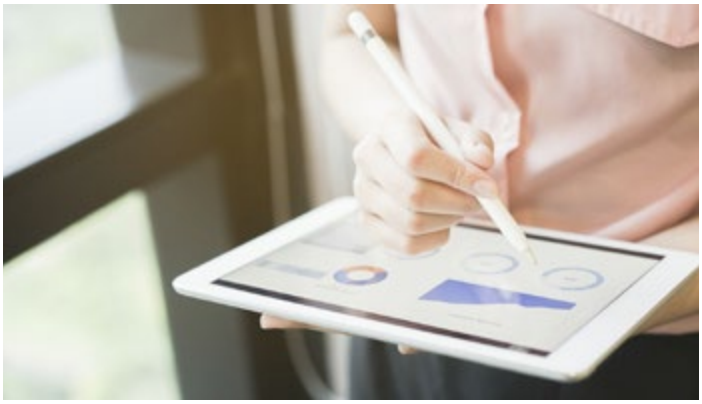
8. Advocacy and Patient Outreach

With several dynamics impacting the diagnostic imaging market landscape, strong advocacy and patient outreach programs are crucial enablers for the anticipated growth. Professional societies, industry groups, and government regulators are all playing roles in shaping the future of imaging services. On the advocacy front, professional organizations such as the American College of Radiology (ACR), Society of Nuclear Medicine and Molecular Imaging (SNMMI), and AdvaMed are pushing for policies that support sustainable imaging expansion. This is especially important as downward pressure on radiology reimbursement has become the new norm and the market is seeing increased scrutiny and oversight by the FDA for medical devices.[8] AdvaMed – a leading medical technology association, has launched a dedicated Imaging Division. In 2024 and 2025, this division has been very active in Washington, D.C. advocating for reimbursement and funding pathways for new imaging innovations.[9]

This advocacy is important for sustaining the expected growth in imaging. It's also critical for ensuring patients are educated and have access to important imaging and treatment options. A good example of advocacy and coordinated patient outreach is the recent milestones achieved in the field of Nuclear Medicine and Molecular Imaging. From hosting patient education events,[10] to supporting the FIND Act[11], the SNMMI has worked to move patient access to new technology forward. Given the combination of challenges, rapidly advancing technology, and new therapies, strong national advocacy and patient educations programs is projected to expand.

9. Data enabled technology planning

Many health systems have become more sophisticated than ever when it comes to strategic planning for imaging technology, including the use of AI. The shift in strategic focus on imaging technology is driven by two main factors. First, there is a need to replace equipment that has aged beyond recommended lifespan. Second, there are requests for new advanced technologies. Armed with real time insights for both existing fleets and new technology, imaging providers are advancing beyond the standard of total cost of ownership to include projected replacement plans. This level of planning is aligned with the overall organizational goals and supports transparency for all stakeholders for optimal decision making. Today's advanced insights are helping providers organize equipment and technology committees. These committees improve the governance of budgetary dollars and the approval of technology across the organization. Remarkably, the resources available today allow for as much or as little flexibility the organization prefers in a governance model



for imaging technology acquisition when the right strategy is set in place. This is crucial because many organizations lack the clinical and administrative resources to manage procurement, making innovation necessary to achieve their goals. Governance of AI procurement, implementation, and use is top of mind for most imaging providers. They must consider risks, rewards, and return on investment for deploying AI solutions.

Conclusion

The world of diagnostic imaging is evolving rapidly, propelled by technological breakthroughs and shifting healthcare needs. Demand is growing significantly due to the essential role of advanced scans in diagnosis and new therapies, and the increasing need for imaging-based care with an older population.

This surge brings exciting opportunities: faster and more accurate diagnoses, targeted treatments guided by imaging, and more accessible care through portable

and outpatient services. But it also brings challenges that healthcare executives must manage. Balancing growth with sustainability, ensuring a skilled workforce empowered by AI, strengthening supply chains for critical radioisotopes, and closing gaps in access will all be crucial to realizing the full potential of imaging

The trends outlined, from the boom in CT, MRI, and PET usage to the greening of radiology practices, all paint a clear picture of a dynamic landscape. Imaging is no longer confined to hospital basements. It is expanding geographically and technologically. It's tightly woven into the fabric of modern healthcare, touching service lines from orthopedics to oncology. With sound strategy and collaboration, providers can harness these trends to improve patient care while keeping costs and logistics in check. As we move forward, imaging will play an even greater role in early detection, precision medicine and health monitoring. It'll also operate in a smarter, more equitable and sustainable way.

For both healthcare leaders and the public, staying informed and engage with these developments is crucial. This'll ensure that we maximize the life-saving and life-improving benefits of medical imaging in the years ahead.

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