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Radiology at a Crossroads:

Five Converging Trends Reshaping the Need for Diagnostic Decision Support

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Over the past decade, amid a substantial increase in the demand for diagnostics, the field of radiology has enjoyed an upward trajectory of influence in the healthcare industry. This bolstered status has also prompted greater urgency around evidence-based practice as the downstream impact of radiology decision-making is substantial, touching nearly every area of care delivery.

As multiple trends converge, the field of radiology is facing a crossroads that demands a call to action. Forward-looking organizations recognize that optimal performance must be driven by standardized care that addresses everything from patient safety and mortality to length of stay and patient experience. This industry brief outlines five trends impacting radiology today and why radiologists need immediate point-of-care access to the most current industry evidence and advanced diagnostic decision support tools.

- Demand for outpatient imaging is projected to grow by 7.5% from 2018 to 2023.
- Utilization rates for the fastest growing population in the U.S.—those 65+—is 240 exams/1,000 persons compared to 159/1,000 and 72/1,000 for the 45-54 and 18-44 groups.

– Source: Advisory Board [i]

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Trend #1: Staffing Shortages/Increased Demand

Healthcare staffing shortages are reality for most specialties, but radiologists rank among the highest for burnout.[ii] Demand for radiology skills is high—a survey published in the American College of Radiology in 2019 reported a 30% increase in job openings from 2017 to 2018.[iii] Yet multiple reports point to an aging workforce that is expected to leave a significant gap between demand for and supply of radiologists by 2025.[iv] As general demand for imaging far outpaces staffing increases, healthcare organizations must consider how to combat the daily fatigue and frustration associated with taxing workloads, which can lend to increased risk of error.

The medical imaging market is expected to grow at a compounded annual growth rate of 6% from 2017-2025.[v]

One way to improve the outlook is to ensure radiologists have the most up-to-date evidence at their fingertips to optimize outcomes despite limited resources. Solutions like STATdx from Elsevier provide immediate, accurate and current answers to complex cases and unfamiliar specialties. This not only minimizes the potential for adverse events, but also promotes less waste associated with inappropriate imaging requests.

94% of surveyed professionals found STATdx to be effective in reducing the time it takes to make a accurate diagnosis. *Source: 2019 TechValidate survey*

Trend #2: Growth in Teleradiology and Telemedicine

Telemedicine is making waves across healthcare, and radiology is no exception. Growing in tandem with the overall imaging demand, the teleradiology market is expected to reach a whopping $21.8 billion by 2026. That's up from $4.6 billion in 2017.[vi]

While many factors are driving this phenomenon, most research points to lack of timely diagnostic services—resulting from professional shortages and burnout—as a significant catalyst. Especially in rural and underserved areas, teleradiology holds great promise as a solution to greater access. Notably, a 2018 study[vii] found that poor and rural counties are less likely to have access to radiologists who accept Medicare when compared to their more urban and wealthier counterparts.

In addition, healthcare organizations have identified teleradiology as a solution to imaging bottlenecks during emergencies, especially during off hours when delays can impact quality of care. Public health crises like the COVID-19 pandemic exacerbate the need for telemedicine and access to the best clinical guidance at the point of care.[viii] During a state of emergency, the likelihood that radiologists will be pulled into the emergency department (ED) or other triage settings to use either telemedicine or teleradiology is high. Consequently, clinicians must be equipped with the latest evidence and guidance to support consistent, optimal care.

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Trend #3: New Disrupters

Consolidation is rampant in healthcare, forcing a rapid evolution of business models in the field of radiology. As providers seek economies of scale by outsourcing radiology, many independent group practices are forced to look for new options to ensure financial stability and sustainability. As a result, 7 of the top 20 radiology practices completed a merger and acquisition deal within the last 18 months. [ix]

In a competitive practice landscape fueled by an increased focus on value, radiologists must demonstrate their value to referring physicians more than ever before. Competition will become increasingly fierce in the coming years as other healthcare stakeholders increasingly look to quality performance as a precursor to partnership. Consequently, turnaround time, error rate, care coordination and cost are increasingly scrutinized and must therefore be optimized through use of tools that promote better performance. It's one reason healthcare organizations rely on STATdx to empower radiologists and reduce variation at point-of-care by providing guidance on the latest industry best practices.

98% of surveyed professionals said STATdx is effective at providing high-quality, reliable content to support their diagnostic decisions. As a result of using STATdx, 88% surveyed professionals have increased confidence in their diagnosis.

Source: 2019 TechValidate survey

Trend #4: Growth in Litigation

Heightened litigation and verdicts against radiologists are a rising threat to the future of radiology. Recent settlements have been in the millions of dollars, with one notable case reaching more than $8 million due to misinterpretation of medical images. [x, xi]

One study found that misinterpretation of diagnostic studies was present in 78% of radiologist medical malpractice cases. The top five diagnostic studies most frequently misinterpreted make up 98% of the total: [xii]

- CT scan (97–34%)
- X-ray (81–28%)
- MRI (50–18%)
- Mammogram (35–12%)
- Ultrasound (16– 6%)

98% of surveyed professionals said STATdx is effective in reducing diagnostic error.

Source: 2019 TechValidate survey

The potential impact of error is a serious concern for the industry as roughly 15% of total malpractice claims involve radiologists, and more than 80% of missed-diagnosis claims involve permanent injuries to the patient or death.[xiii] Mitigating the risk of litigation requires consistent, evidence-based readings to reduce errors and ensure standardization. Point-of-care resources like STATdx reduce the potential for error through the availability of 200,000 expert-selected and annotated image examples.

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Trend #5: Rise of AI in Radiology

Amid significant and growing demand for imaging, artificial intelligence (AI) and blockchain have emerged as two promising trends driving the future of medical imaging. One in-depth analysis published in the Journal of the American College of Radiology suggests that radiology is primed to optimally leverage these technology advances due to its production of large digitized data sets that can be subjected to advanced analytics and deep learning.[xiv]

Artificial intelligence in the medical imaging market is estimated to rise from $21.48 billion in 2018 to a projected value of $264.85 billion by 2026.[xviii]

While the potential exists to apply AI to existing infrastructures and realize immediate return on investment through improved accuracy and speed of diagnostics, the full impact of the technology is not clearly understood yet. It's important to note that the hype related to AI is associated more with efficiencies than diagnosis and decision-making, as its effectiveness has been narrowly defined to that of detection. And while radiologists can rest easy that AI will not replace them in the workforce, they will still need to adapt to new workflows and roles in care delivery as industry leaders and academia continue advancing the cause of AI in diagnostic imaging.[xvi, xvii]

STATdx: The Industry Leading Radiology Reference Solutions

STATdx is the industry leading online diagnostic decision support solution that increases accuracy and confidence in diagnosing complex imaging cases. Widely regarded as the industry's top radiology reference solution, STATdx is used in 19 of the top 20 hospitals and 83% of the top radiology group practices in North America.

When placed appropriately into physician workflows, tools like STATdx reduce variation by empowering radiologists to deliver the best clinical decisions, provide patient care recommendations based on the latest industry best practices and lower costs.

96% of surveyed end-users were satisfied with STATdx. *Source: 2019 TechValidate survey*

By providing information in a concise, bulleted format, STATdx cuts through the noise to ensure clinicians have the right answers when and where they need them most. Advanced functionality allows radiologists to mark favorites to share with colleagues, track history and identify view preferences.

And, every diagnosis is backed with a wealth of highly annotated image examples and patient cases, making comparisons easy.

Written by renowned radiologists in each specialty, key features include:

- Over 4,700 common and complex diagnoses
- 200,000 expert-selected and annotated image examples
- Approximately 1,400 differential diagnosis modules
- 20,000 easily sortable patient cases with cine clips for select topics
- Over 200 basic and advanced procedures
- Powerful, integrated search functionality
- Compare multiple diagnoses side by side
- Earn *AMA PRA Category 1 Credit™* for STATdx search queries

STATdx is used in 19 of the top 20 hospitals and 83% of the top radiology group practices in North America.

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