The Current State of the U.S. Pathology Workforce

A NARRATIVE REVIEW

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BACKGROUND

The number of active pathologists rose from 17,400 in 2004 to over 21,000 in 20241, but retirements are outpacing new trainees. Geographic imbalances and low public awareness remain challenges.

This review synthesizes U.S. pathology workforce trends from 2001 to 2025, highlighting demographic, economic, educational and professional factors. As demand grows and digital technologies evolve, understanding workforce dynamics is increasingly critical.

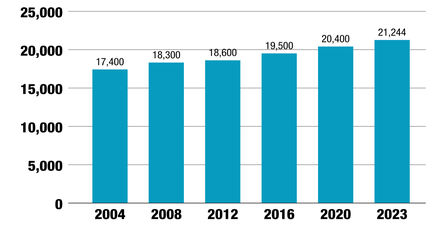
METHODS

A structured literature review of peer-reviewed publications, grey literature and policy reports relevant to the physician workforce. The analysis is organized thematically by demographics, current issues and future trends. Supplementary descriptive statistics were created using physician workforce and trainee data from national sources, including the AMA, AAMC, NRMP and HRSA projections.

RESULTS

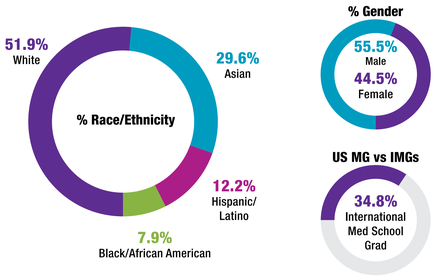
Demographics

US Pathologist Population from 2004-2023[1,2]



As of 2023, there are 21,244 active pathologists in the US (2.1% of US physicians)[2]

Demographic Makeup of Pathologists[2]



The Job Market

The job market for pathologists is robust and growing as strong demand outstrips current supply.

Comparison of Job Postings 2014-2018 and 2020-2024[3]

Time Period	# of Jobs	Average	Median
2014-2018	2908	581.6	570
2020-2024	6745	1349	1501

Average Salary of Pathologists from 2020-2024[4]

2024	2023	2022	2021	2020
$395,000	$366,000	$339,000	$334,000	$316,000

Current Issues

Supply Deficit

- About 600 new pathologists enter practice annually in the U.S., but it is 700-840 are needed to meet demand[5].
- Physician supply in non-metro areas is only 20% adequate, compared to 90% in metro regions[6].

It is projected that:

- There will be a total shortage of 13,500 US physicians by 2036[7]
- The U.S. will need 2,980 more pathologists (16% increase in overall pathologist demand) by 2037[6]

New Pathologists Enter Workforce

600 in the US each year vs **700-840** soon needed per year

Projected by 2037

16% increase in demand or **2,980** more pathologists needed

Aging Workforce[1,2]

Pathologist Workforce	2004	2020	2022	2023
<40 years	12.7%	13.2%	11%	10.2%
40-49 years	31.3%	24.9%	89.8%	89.5%
50-59 years	28.0%	26.3%		
60-69 years	17.9%	25.0%		
>= 70 years	10.1%	10.6%		
Non-Pathologist Workforce	**2004**	**2020**	**2022**	**2023**
<40 years	21.3%	18.9%	16.5%	16.8%
40-49 years	30.7%	25.6%	83.1%	82.8%
50-59 years	27.9%	24.0%		
60-69 years	13.9%	22.1%		
>= 70 years	6.2%	9.4%		

Over a quarter of pathologists are approaching retirement age; in 2020 35.6% of the pathologist workforce was greater than 60 years old[2].

Workload and Burnout[8]

The three main causes of pathologist burnout are workload/demand for productivity, under-recognition, and increasing EHR stress

71.4% of pathologists reported ever having felt burnout; of those that reported burnout, 32.9% reported it as a current issue. Burnout was reported as the highest amongst those ages 45-54 (74.8%) and lowest amongst those ages 35-44 (64.4%)

Perception Issues[9]

59.5% of the general public do not think pathologists are medical doctors.

Only 13.8%~36.4% of the general public identify pathologists as the ultimate decision makers in the diagnostic process.

Future of Pathology

Digital Pathology Today

Digital pathology is the practice of pathology using digital imaging with technologies like whole slide imaging, replacing glass slides and microscopes. This enables remote collaboration, AI integration and cloud-based data sharing for research.

The digital pathology workflow[10]

Adopting digital pathology leads to fewer confirmatory tests for those with metastatic/recurrent disease, savings in offsite pathology costs and quicker turnaround times.

Use of AI in Pathology Workflow[10]

AI algorithms are being used to analyze digitized pathology slides for disease detection, classification and grading.

Application	Examples	Benefits
Cancer detection and classification	Paige Prostate (prostate cancer) and PathAI (subtypes of breast cancer) are tools that aid in cancer detection and classification	Increased accuracy and early diagnosis
Automated grading	The Virchow foundation model enables pan-cancer detection and grading	Consistency and reduced variability
Quantitative analysis	Measuring necrosis, cell counts and biomarker expression	Supply of detailed, quantitative data
Research support	Discovering new biomarkers and understanding disease	Accelerating innovation in research

What's Next?[11]

Experts predict that by 2030, AI applications will be in routine use for basic tasks that involve a lot of:

- Automated quantification of IHC and immunofluorescent (IF) biomarkers
- Counting mitotic figures and lymphocytes
- Lymph node metastasis

The applications projected to be in routine use by 2030 are basic tasks (like labeling), rather than "aspirational" tasks such as predicting molecular biomarker status.

Regulatory and ethical challenges will need to be addressed to fully utilize the potential of AI tools in the diagnostic workflow.

RESOURCES

To further support the pathologist workforce, ASCP has creative new resources designed to inspire and inform pre-med undergraduates and medical students while supporting recruitment efforts and fostering interest in the next generation of pathologists.

Please scan these QR codes to access our new pathology workforce resources.

CONCLUSIONS

The pathology workforce is under growing strain due to an aging workforce, limited visibility, and rapid technological change. These challenges, compounded by the broader physician shortage, threaten diagnostic capacity.

To meet demand, scalable solutions like telepathology, AI-assisted diagnostics, and remote collaboration are essential; especially for rural care. Sustained investment in innovation, education, and workforce planning is critical for the future of pathology.

REFERENCES

https://bit.ly/Current_State_PosterRefList

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Nothing to Disclose