

Lab Leaders and Automation: Is Technology Closing the Staffing Gap?

Laboratory leader perspectives on staffing vacancies, survival strategies, total laboratory automation, digital pathology, clinical AI, and the changing nature of laboratory work.

Real Opinions • Peer Patterns • Validated by Data

15

total responses captured

9

complete responses

3

countries represented

60%

survey completion rate

WHY THIS REPORT

The laboratory workforce problem is not invisible to lab leaders. It is invisible to the operating model around them.

The ASCP 2024 Vacancy Survey describes persistent staffing shortages, long hiring timelines, rising retirement pressure, and concern about adapting to emerging technology. Automation is often presented as the answer, but laboratory leaders must decide whether a system actually removes work, reallocates it, or introduces new validation, informatics, and maintenance burdens.

This report interprets responses from laboratory directors, chief pathologists, operations managers, supervisors, and laboratory professionals across United States, United Kingdom and Canada.

How to read this report. The survey captured 15 responses, including 9 complete and 6 partial responses, across the United States, the United Kingdom, and Canada. Country percentages use all 15 responses. The role, setting, volume, and main operational questions use a base of 10. Percentages and counts are reproduced from the source export; options with no recorded responses are shown as 0.0% where the displayed counts exhaust the base.

EXECUTIVE SUMMARY

Six findings that define the peer tension in this topic.

INSIGHT 01

Vacancies are widespread, even when they are not yet critical

80.0% report moderate vacancy rates and another 10.0% report severe rates.

INSIGHT 02

The short-term response is expensive

40.0% rely most heavily on agency or travel technologists, while 30.0% rely on structural overtime.

INSIGHT 03

The shortage is both a compensation problem and a burnout problem

Compensation and career ladders and burnout or early exits each lead at 40.0%.

INSIGHT 04

Automation changes the work more often than it removes the work

50.0% say TLA reallocates tasks and 40.0% say its main value is error mitigation.

INSIGHT 05

Digital pathology is blocked first by capital architecture

70.0% identify scanner and enterprise storage cost as the main barrier.

INSIGHT 06

Automation can damage identity if change is poorly managed

50.0% identify cultural demoralization as the unexpected workforce challenge.

01

VACANCY REALITY

The staffing gap is broad enough to shape daily operations

90.0%

report at least moderate certified-staff vacancies

CONTEXT

Vacancy rates do not need to be critical before they alter scheduling, cost, and turnaround-time risk.

WHAT THE DATA SHOWS

80.0% report 5% to 15% vacancies, 10.0% report 16% to 30%, and 10.0% remain below 5%.

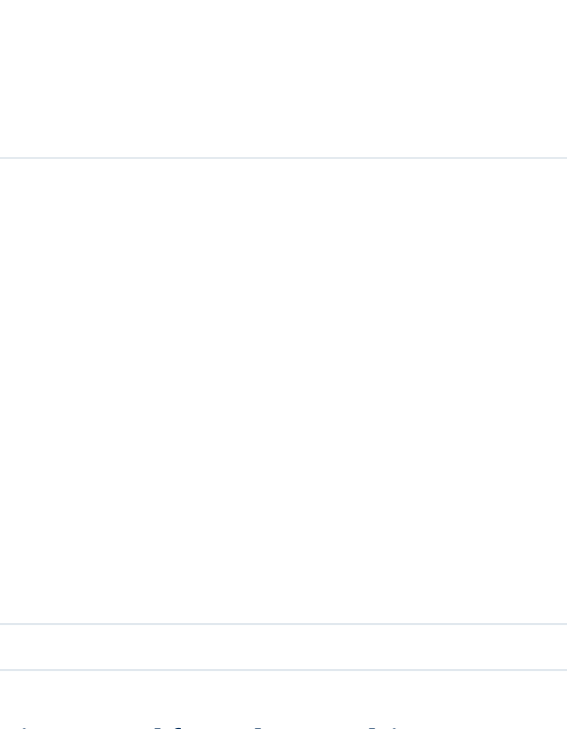
THE INSIGHT

The cohort is not dominated by crisis-level vacancies, but almost every laboratory is operating with a meaningful staffing gap.

WHY IT MATTERS

Persistent moderate vacancies can normalize overtime, agency dependence, and deferred improvement work.

Certified laboratory personnel vacancy rate



02

SURVIVAL MECHANICS

Laboratories are buying time through agency staffing and overtime

40.0%

rely most heavily on temporary travel or agency staff

CONTEXT

Short-term measures protect service continuity, but they can add cost and increase pressure on permanent teams.

WHAT THE DATA SHOWS

Agency staffing leads at 40.0%, structural overtime at 30.0%, outsourcing at 20.0%, and longer routine turnaround at 10.0%.

THE INSIGHT

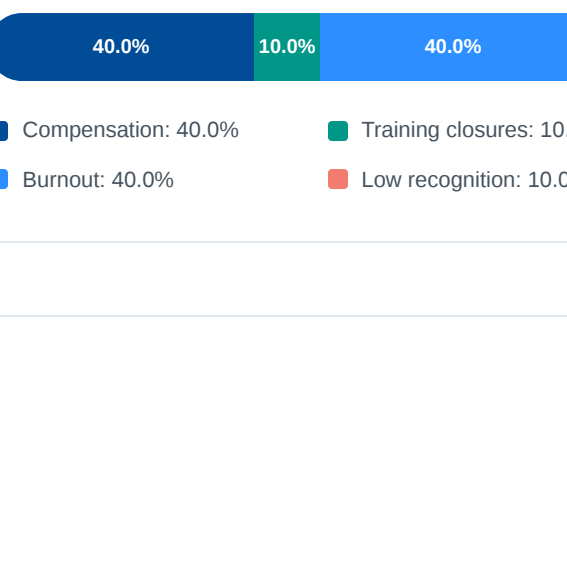
Most leaders are protecting turnaround rather than formally reducing service scope.

WHY IT MATTERS

A prolonged temporary solution can become a structural operating model without solving recruitment or retention.

Short-term strategy used most heavily

Share of respondents



03

WHY PEOPLE LEAVE

Compensation and burnout are equal parts of the workforce problem

40% + 40%

share the lead as structural drivers

CONTEXT

Recruitment and retention fail for different reasons, but they converge in the same vacancy line.

WHAT THE DATA SHOWS

Uncompetitive compensation and weak career ladders and professional burnout or early exits each receive 40.0%; training closures and low recognition receive 10.0% each.

THE INSIGHT

The workforce gap cannot be solved only by expanding the entry pipeline or only by retaining current staff.

WHY IT MATTERS

A credible plan needs pay, progression, workload, recognition, and training capacity together.

Primary workforce shortage driver

Share of respondents



04

AUTOMATION PARADOX

TLA mostly reallocates expertise rather than eliminating headcount

50.0%

describe task reallocation as the main workforce reality

CONTEXT

Automation can move specimens and standardize steps, but complex testing, validation, and exceptions remain human work.

WHAT THE DATA SHOWS

50.0% report task reallocation, 40.0% error mitigation only, 10.0% headcount reduction, and no respondents call it operationally net-negative.

THE INSIGHT

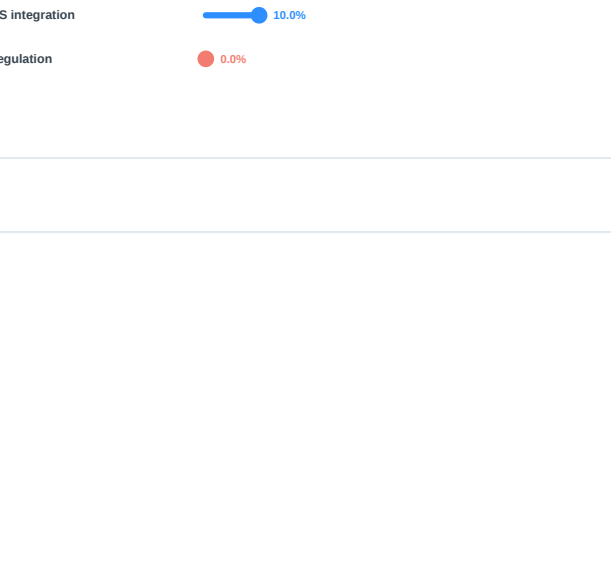
The strongest benefit is not fewer people. It is better use of scarce certified people.

WHY IT MATTERS

Business cases should specify which high-value work becomes possible when repetitive work is removed.

Primary workforce reality of TLA

Share of respondents



05

WHERE AUTOMATION WORKS

The core laboratory remains the clearest proof point

60.0%

identify chemistry and hematology tracks as the strongest offset

CONTEXT

Automation performs best in standardized, high-volume processes with repeatable specimen flow.

WHAT THE DATA SHOWS

Core laboratory leads at 60.0%, molecular diagnostics at 30.0%, anatomic pathology at 10.0%, and microbiology records no selections.

THE INSIGHT

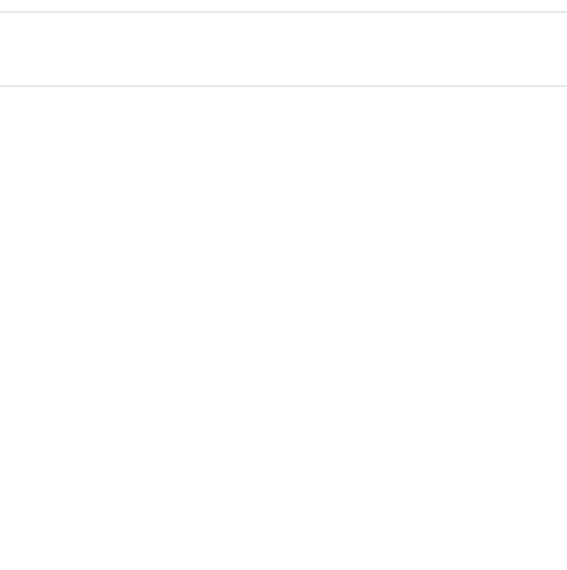
The farther work moves from standardized flow toward complex interpretation, the less direct the labor offset becomes.

WHY IT MATTERS

Technology expectations should be matched to the variability and exception burden of each section.

Section where automation offsets shortages

Share of respondents



06

DIGITAL PATHOLOGY

The first barrier is not willingness. It is the capital and data architecture

70.0%

cite scanner and storage expenditure

CONTEXT

Whole-slide imaging requires scanners, storage, network performance, integration, validation, and workflow redesign. CAP guidance emphasizes formal validation before diagnostic use.

WHAT THE DATA SHOWS

Capital and storage cost leads at 70.0%, cultural resistance at 20.0%, LIS integration at 10.0%, and regulatory or reimbursement concerns record no selections.

THE INSIGHT

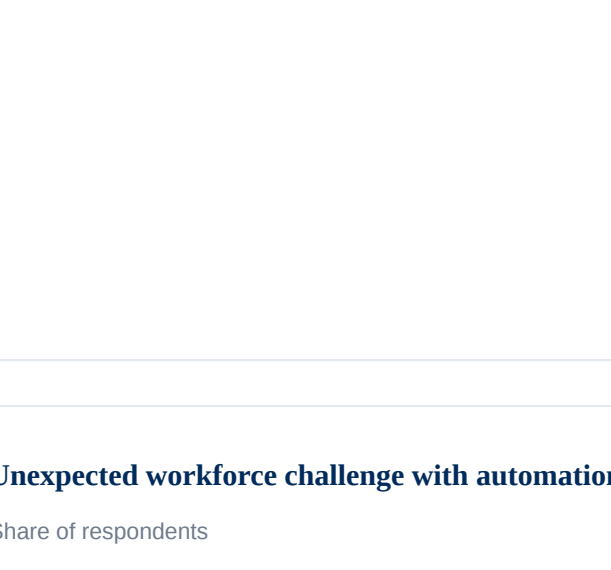
The adoption hurdle is an enterprise infrastructure decision, not a single equipment purchase.

WHY IT MATTERS

Digital pathology business cases must include total data lifecycle, validation, and integration costs.

Primary barrier to digital pathology

Share of respondents



07

CLINICAL AI

AI sentiment is split between readiness, friction, and affordability

30 / 30 / 30

mature, high-friction, and budget-limited views each hold equal weight

CONTEXT

Automated screening can reduce repetitive review, but false positives, liability, workflow integration, and capital shape whether it saves time.

WHAT THE DATA SHOWS

30.0% call AI highly mature, 30.0% call it immature or high-friction, 30.0% say it is budgetarily out of reach, and 10.0% view it as untested or risky.

THE INSIGHT

The cohort does not share one maturity curve because implementation context matters as much as algorithm performance.

WHY IT MATTERS

AI evaluation should measure re-review burden, exception handling, integration, and total workflow time rather than headline accuracy alone.

Current view of clinical AI

Share of respondents



08

CHANGE MANAGEMENT

Automation can make staff feel less skilled unless the role transition is explicit

50.0%

identify cultural demoralization as the unexpected challenge

CONTEXT

A system designed to help can still threaten professional identity if implementation is framed mainly around replacement or speed.

WHAT THE DATA SHOWS

Cultural demoralization leads at 50.0%, training drag at 30.0%, and technical skills and vendor support deficits each receive 10.0%.

THE INSIGHT

The most common surprise is human, not technical.

WHY IT MATTERS

Leaders need to explain how expertise becomes more important, create new competencies, and protect staff during training.

Unexpected workforce challenge with automation

Share of respondents



09

CAPITAL ALLOCATION

Restricted budgets are reinforced by competition with more visible departments

50.0%

name reimbursement-driven capital restriction

CONTEXT

Laboratories often compete for investment against patient-facing programs with more visible narratives.

WHAT THE DATA SHOWS

Restricted capital budgets lead at 50.0%, C-suite prioritization elsewhere at 30.0%, physical constraints at 20.0%, and IT review delays record no selections.

THE INSIGHT

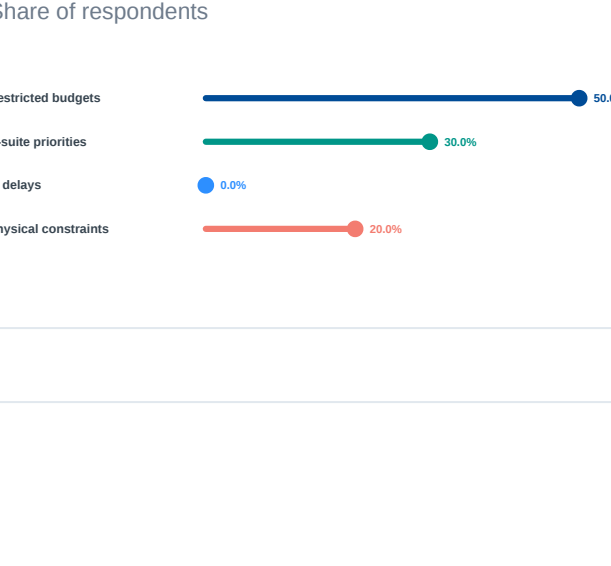
Modernization is constrained by how laboratory value is communicated and funded, not only by technology availability.

WHY IT MATTERS

Capital requests need to translate laboratory resilience into downstream clinical and financial outcomes.

Institutional barrier to advanced technology

Share of respondents



10

FIVE-YEAR HORIZON

Leaders split between valuing the workforce and consolidating the system

30% + 30%

choose reimbursement reform or regional consolidation

CONTEXT

Long-term sustainability can be pursued through workforce economics, role redesign, automation, or scale.

WHAT THE DATA SHOWS

Reimbursement and wage reform and regional mega-laboratories each receive 30.0%; pre and post-analytical automation and task reallocation each receive 20.0%.

THE INSIGHT

There is no single future model. The field is balancing better valuation of local expertise against economies of scale.

WHY IT MATTERS

Different laboratory settings may need different combinations rather than one universal blueprint.

Most critical five-year sustainability shift

Share of respondents



+

OPEN RESPONSE LENS

What peers say the numbers cannot fully capture

The open responses are unusually consistent. Leaders reject the idea that automation is the one-for-one replacement for laboratory professionals. They emphasize quality oversight, complex interpretation, validation, troubleshooting, and patient safety as work that still requires trained people.

Automation is most effective when it augments highly skilled laboratory staff rather than replaces them.

OPEN RESPONSE THEME - AUGMENTATION

Machines still need skilled professionals to oversee quality, troubleshoot problems, and ensure patient safety.

OPEN RESPONSE THEME - OVERSIGHT

The mistake is viewing automation as a one-to-one human-to-machine replacement.

OPEN RESPONSE THEME - WORKFORCE DESIGN

Interpretive note. Open-ended comments add context but are not quantified as prevalence.

PRACTICE LENSES

Four lenses for evaluating workforce technology

A credible, technical strategy should be judged by labor redesign, operational resilience, technical support, and staff experience, not only by throughput claims.

Net work removed

Workload lens

Identify which manual steps truly disappear and which new validation, exception, and maintenance tasks appear.

Certified time protected

Skill-m