

# The American Society for Clinical Pathology 2020 Vacancy Survey of Medical Laboratories in the United States

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## ABSTRACT

**Objectives:** To determine the extent and distribution of workforce shortages within the nation's medical laboratories.

**Methods:** The survey was conducted through collaboration between the American Society for Clinical Pathology Institute for Science, Technology, and Public Policy in Washington, DC, and the Evaluation, Measurement, and Assessment Department and Board of Certification in Chicago, IL. Data were collected via an internet survey distributed to individuals who were able to report on staffing and certifications for their laboratories.

**Results:** The coronavirus disease 2019 (COVID-19) pandemic disrupted the staffing of clinical laboratories and the stream of incoming graduates entering the workforce. Results show decreased vacancy rates for the majority of laboratory positions across all departments surveyed. The overall anticipated retirement rates continue to decline, which suggests that the field has already lost personnel with vast amounts of experience.

**Conclusions:** Addressing the current and future needs of the laboratory workforce requires a collective effort by numerous groups of stakeholders at all levels, including the laboratory employers, laboratory training programs, health care executives/hospital administrators, and professional organizations. The time is now to address the future shortage of laboratory professionals and to create a resilient clinical laboratory professional workforce.

## INTRODUCTION

Since the emergence of a novel coronavirus in late 2019, "the spread of [severe acute respiratory syndrome coronavirus 2] SARS-CoV-2 impacted nearly every aspect of society worldwide."<sup>1</sup> According to the Centers for Disease Control and Prevention, "the [coronavirus disease 2019] COVID-19 pandemic is a formidable global public health challenge."<sup>1</sup> The pandemic forced the laboratory workforce into the spotlight.<sup>2,3</sup> Across the country, laboratory professionals continue to work tirelessly to develop innovative testing methods and perform complex diagnostic tests for COVID-19, often in addition to routine workloads.<sup>3</sup> The American Society for Clinical Pathology (ASCP) 2020 Vacancy Survey report includes a snapshot of how laboratories across the country were affected by the pandemic and the strategies they used to maintain lab operations.

The ASCP has conducted its Vacancy Survey to determine the extent and distribution of workforce shortages within the nation's medical laboratories for 33 years. Since its

## KEY POINTS

- The coronavirus disease 2019 (COVID-19) pandemic has disrupted the staffing of laboratory personnel and the stream of incoming graduates entering the workforce.
- There is a need to use the spotlight on the lab resulting from COVID-19 to cultivate the future of the laboratory profession as a whole and individual specialties.
- Addressing the current and future needs of the laboratory workforce requires a collective effort by stakeholders at all levels, within the laboratory field and outside institutions.

## KEY WORDS

Anatomic pathology; Clinical pathology; ASCP Vacancy Survey; Certification; COVID-19; Laboratory departments; Laboratory workforce; Laboratory staffing; Laboratory staff recruitment and retention

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inception, this confidential survey has been administered every 2 years and has served as the primary source of information about staffing of laboratories for academic, government, and industry labor analysts. Results from past surveys show that laboratory medicine is a rapidly evolving field, and the survey has evolved in response to changes within the profession.

Each administration of the Vacancy Survey also represents an opportunity to improve its methodology for collecting current relevant data while maximizing survey participation. New questions were added to the 2020 survey to examine some of the factors affecting vacancy rates. The ASCP continues to gather questions, comments, and suggestions from our members regarding the profession, with the goal of addressing them through this informative survey.

## MATERIALS AND METHODS

The ASCP 2020 Vacancy Survey was conducted through collaboration between the ASCP Institute for Science, Technology, and Public Policy in Washington, DC, and the Evaluation, Measurement, and Assessment Department and the Board of Certification in Chicago, IL. The Vacancy Survey Working Group, whose members broadly represent the field of laboratory medicine, reviewed the survey questions and critiqued the report. The survey included both quantitative and qualitative components, and email invitations to complete the survey online were sent to laboratory personnel on June 22, 2020, via Key Survey. The survey was closed on July 24, 2020. Partner organizations were also invited to complete the survey to broaden the scope of the current issues that the laboratory workforce faces. To maximize participation, the survey used snowball sampling, in which respondents were asked to forward the survey invitation email to other individuals currently practicing in the field.

Most of the names on the initial email recipient list were derived from the ASCP email database and included individuals from the following categories: Lead; Supervisor/Manager; Educator; Laboratory Director; and Educator/Lab Director who can report on vacancies, anticipated vacancies, and certifications of staff.

The following partnering entities participated in the survey:

- Association for the Advancement of Blood & Biotherapies (formerly AABB, formerly the American Association of Blood Banks)
- American Association for Clinical Chemistry
- America's Blood Centers
- Association for Molecular Pathology
- American Medical Technologists
- American Society of Cytopathology
- American Society for Clinical Laboratory Science
- American Society for Microbiology
- Clinical Laboratory Management Association
- National Society for Histotechnology
- Philippine Association of Medical Technologists-USA, Inc

The ASCP 2020 Vacancy Survey sought to collect staff and supervisory level data for the following laboratory areas:

- Anatomic pathology (including non-medical doctor [MD] professionals)
- Blood bank (immunohematology)
- Chemistry/toxicology
- Core laboratory
- Cytogenetics
- Cytology
- Flow cytometry
- Hematology/coagulation
- Histology
- Immunology
- Laboratory information system (LIS)/quality assurance (QA)/performance improvement (PI)
- Microbiology/virology/infectious disease
- Molecular biology/molecular pathology/molecular diagnostics
- Phlebotomy
- Point-of-care
- Send-outs
- Specimen processing

ASCP survey administrators recognized that there is no standard approach for how laboratories are organized and that laboratory departments hire staff with a variety of certifications. The ASCP gave survey participants the opportunity to report on the certifications that exist or are sought after for the laboratory departments under their supervision. We collected data on changes in testing, staffing, and retention of laboratory professionals during the COVID-19 pandemic in this survey. Both qualitative and quantitative analyses were performed using SPSS software (IBM).

## KEY FINDINGS

The primary objective of this research was to estimate the vacancy rates within medical laboratory departments. Overall, this survey presents data from 476 respondents across the United States who currently hold a management level position or human resources position and reported being able to discuss the vacancies, anticipated vacancies, and certifications/expertise of medical laboratory staff at their current place of employment. These respondents represent 12,035 employees across the United States. In spring 2020, the Centers for Medicare & Medicaid Services announced that all elective surgeries and nonessential medical, surgical, and dental procedures be delayed during the COVID-19 outbreak.<sup>4</sup> Since this announcement, laboratories experienced decreases in non-COVID-19 testing volumes; to accommodate the workload in many laboratories, staff were reassigned to assist with the COVID-19 response. This reallocation may, in part, explain the lower response rate compared with the 2018 survey.

The respondents represented various laboratory facilities (academic and nonacademic hospitals with less than 100 beds to those with more than 1,000 beds; national, regional, and local reference

laboratories; academic institutions; government facilities; blood centers or blood banks; military, US Department of Veterans Affairs, and Veterans Health Administration facilities; public health laboratories; research laboratories; and industry, equipment, and pharmaceutical laboratories **TABLE 1**. Of all the departments surveyed, the core laboratory department had the highest representation of medical laboratory personnel at 16.4%, while the LIS/QA/PI department represented the fewest laboratory personnel at 0.7%. By region, the South Central Atlantic had the highest number of respondents at 23.1%, and the Central Southwest had the fewest respondents at 9.8% **TABLE 2**. The top 10 states with the most respondents were (in descending order) New York, Texas, Florida, California, Pennsylvania, Illinois, Minnesota, North Carolina, Maryland, and Arizona. The majority of participants (40.1%) reported that the approximate clinical pathology testing volume in their laboratory or institution per year was more than 100,000 tests. The approximate anatomic pathology testing volume per year was more than 50,000 tests.

Across the nation, the overall vacancy rate was highest for the chemistry/toxicology department (12.7%) and lowest for the cytology department (3.9%) **FIGURE 1**. According to the survey results, chemistry/toxicology (13.1%) had the highest staff vacancy rate (for the purposes of this report, the term *staff* means nonsupervisory personnel) in the nation, while cytology (4.3%) had the lowest **FIGURE 2**. The highest supervisor vacancy rate occurred in the LIS/QA/PI department (13.3%), and the lowest supervisor vacancy rate occurred in the cytology department (0%) **FIGURE 3**.

According to the survey findings, the chemistry/toxicology department also had the highest overall percentage (20.4%) of employees anticipated to retire in the next 5 years. Flow cytometry had the lowest rate of employees expected to retire in the next 5 years at 6.0% **FIGURE 4**. For staff level personnel, the retirement rate was highest in the chemistry/toxicology department (17.9%) and lowest

**TABLE 1** Distribution of Responses by Facility

Facility	Count (%)
Hospital-based laboratory with 300-499 beds	76 (16.0)
Hospital-based laboratory with 100-299 beds	64 (13.4)
Hospital-based laboratory with 500-749 beds	61 (12.8)
Hospital-based laboratory with ≥1,000 beds	42 (8.8)
Independent private laboratory	42 (8.8)
Hospital-based laboratory with <100 beds	40 (8.4)
Clinical outpatient laboratory	29 (6.1)
Hospital-based laboratory with 750-999 beds	25 (5.3)
Reference laboratory	23 (4.8)
Blood center or blood bank	22 (4.6)
Government facility	16 (3.4)
Military facility, VA, VHA	9 (1.9)
Public health laboratory	7 (1.5)
Research laboratory	6 (1.3)
Industry/equipment/pharmaceutical	1 (0.2)
Other	13 (2.7)

VA, US Department of Veterans Affairs; VHA, Veterans Health Administration.

**TABLE 2** Distribution of Responses by Region

Region	Count (%)
South Central Atlantic	109 (23.1)
Northeast	102 (21.7)
Far West	89 (18.9)
Central Northeast	68 (14.4)
Central Northwest	57 (12.1)
Central Southwest	46 (9.8)

<sup>a</sup> Central North East = Illinois, Indiana, Michigan, Ohio, Wisconsin; Central North West = Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; Central South West = Arkansas, Louisiana, Oklahoma, Texas; Far West = Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming; Northeast = Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; South Central Atlantic = Alabama, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia.

in the flow cytometry department (4.9%) **FIGURE 5**. The supervisor retirement rate was highest in the cytology department (43.6%) and lowest in the molecular pathology/diagnostics department and anatomy pathology department (10.0%) **FIGURE 6**.

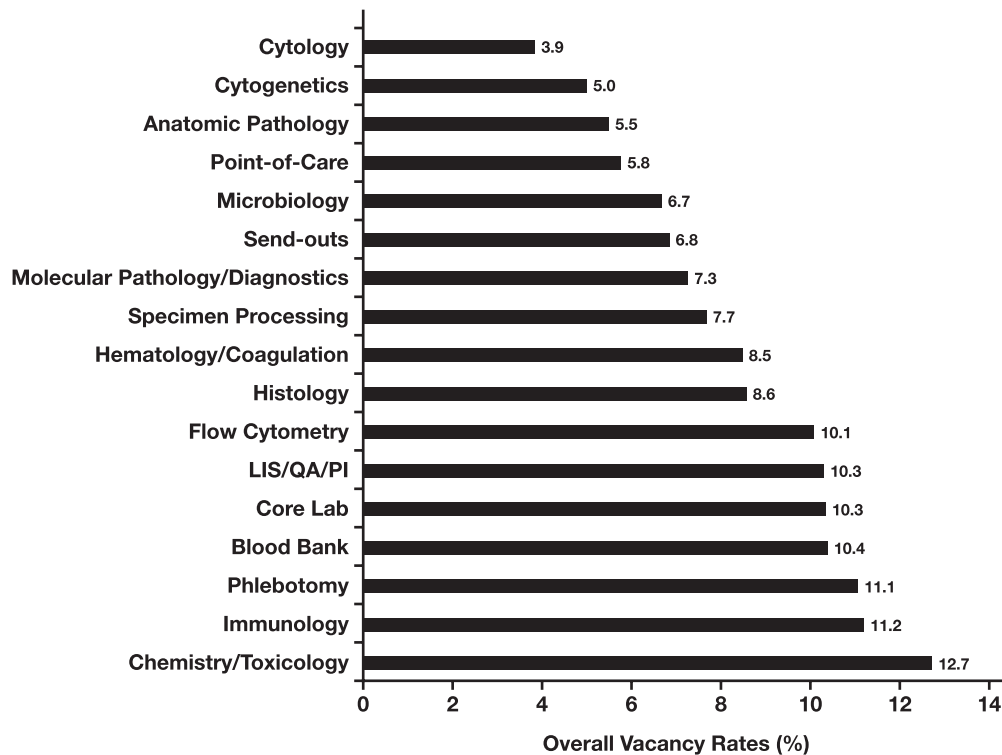
On average, hiring staff for most departments takes 3 to 6 months, while hiring supervisors takes 3 months to a year. All departments reported that it takes 3 to 6 months to fill staff vacancies, except immunology, where it takes 7 to 12 months. At the same time, it takes 3 to 6 months to hire a supervisor for most departments, except for blood bank, chemistry/toxicology, hematology/coagulation, immunology, microbiology, point-of-care, and send-outs, which takes 7 months to a year on average.

**TABLE 3** shows the comparison of regional vacancy rates between 2018 and 2020. The Central Northeast region reported the highest overall vacancy rate compared with other regions (10.2%); the Central Southwest had the lowest vacancy rate (5.3%) **TABLE 3**. Regarding the vacancy rates of the 5 departments with the most respondents by region, data revealed that vacancy rates in anatomic pathology were highest in the Northeast (13.1%) and lowest in the South Central Atlantic (2.3%). Vacancy rates in the blood bank were highest in the Far West (13.6%) and lowest in the Central Northwest (3.1%). In the core laboratory, the South Central Atlantic (14.5%) had the highest vacancy rates, while the Central Northwest had the lowest rate (6.9%). The microbiology department had the highest vacancy rates in the Northeast (7.5%) and the lowest in the Central Southwest (3.8%). The vacancy rate in phlebotomy was highest in the Central Northwest (15.1%) and lowest in the Central Southwest (5.4%) **FIGURE 7**. The regional distribution of states is shown in **TABLE 2**.

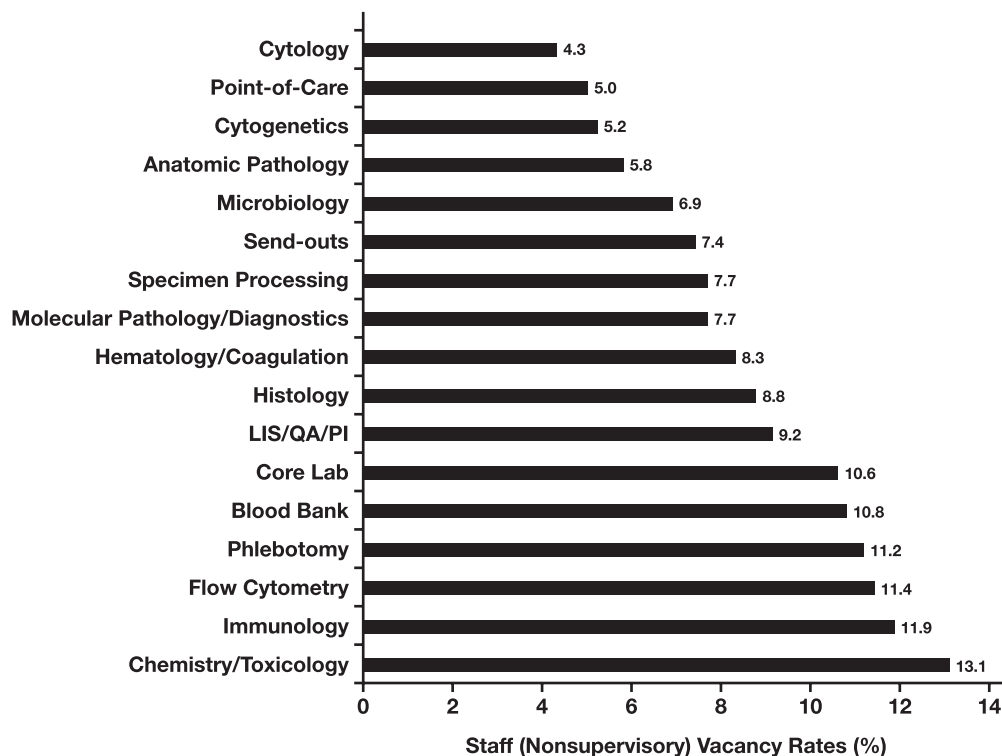
## LABORATORY DEPARTMENTS

### Anatomic Pathology, Non-MD Professionals

The total vacancy rate for anatomic pathology is 5.5% **FIGURE 1**. This department has a staff vacancy rate of 5.8%; the supervisory vacancy rate is 2.7% **FIGURE 2** and **FIGURE 3**. Results also reveal that 8.3% of all anatomic pathology employees are expected to retire in



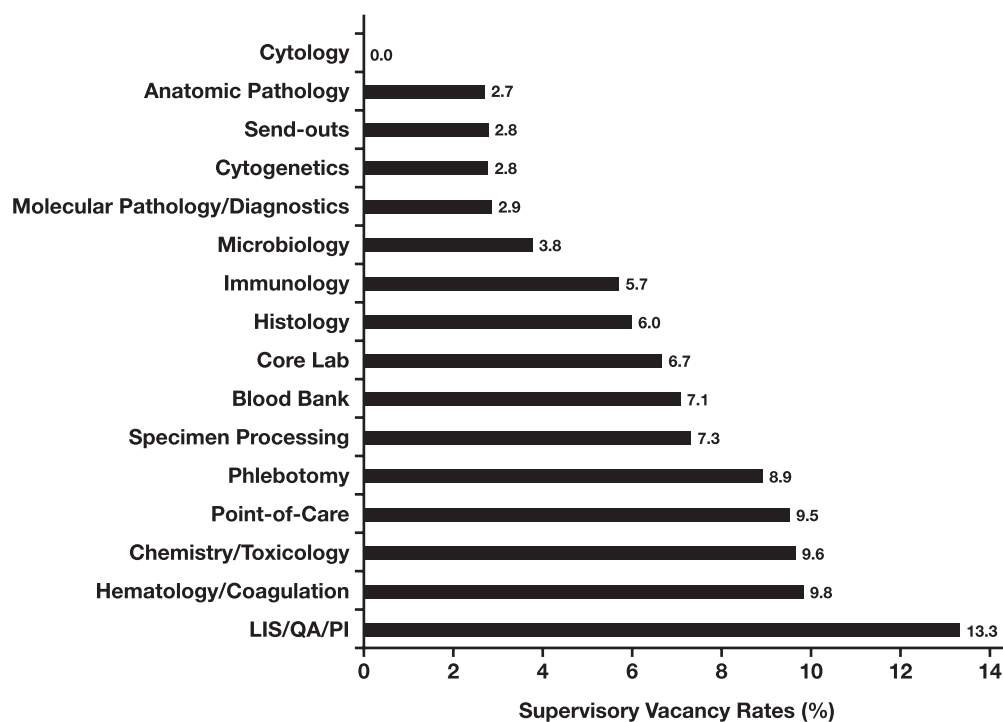
**FIGURE 1** Overall vacancy rates by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.



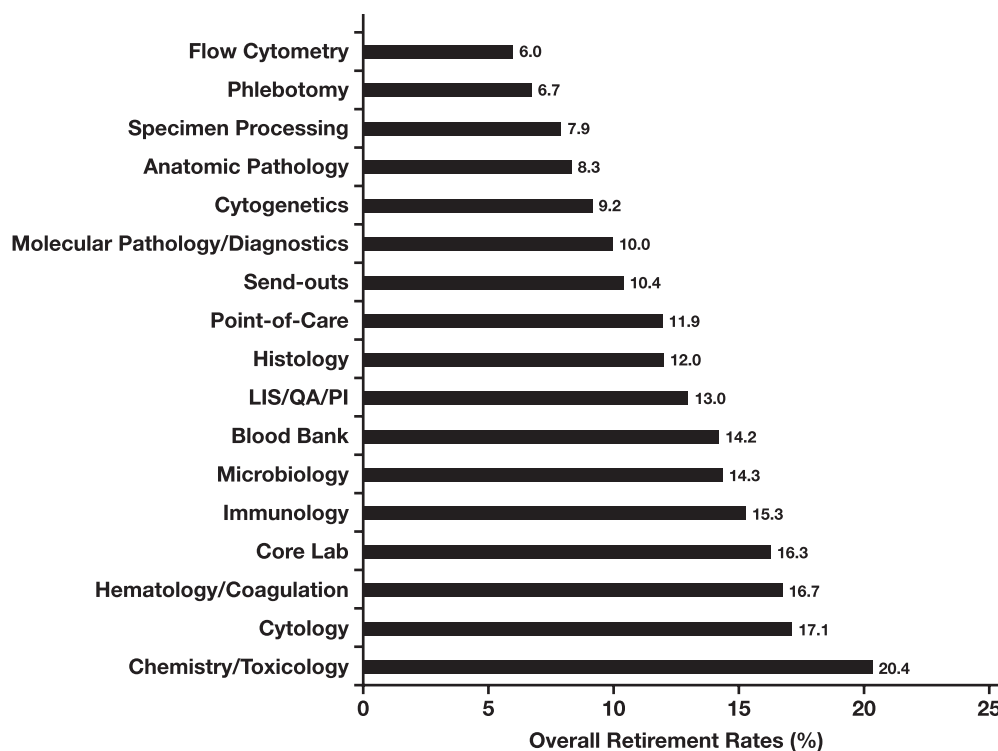
**FIGURE 2** Staff (nonsupervisory) vacancy rates by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

the next 5 years. Staff and supervisor retirement rates for anatomic pathology are 8.1% and 10.0%, respectively **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring for the anatomic pathology department, most respondents reported that the preferred credentials or certification are cytotechnologist (CT), histotechnician (HT),



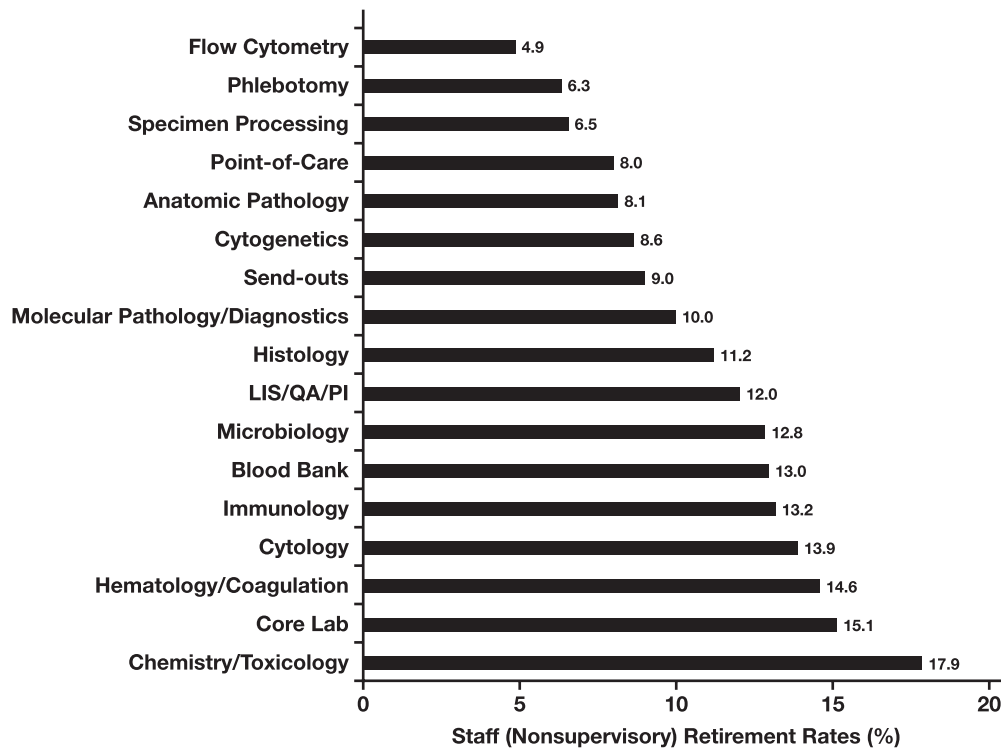
**FIGURE 3** Supervisory vacancy rates by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.



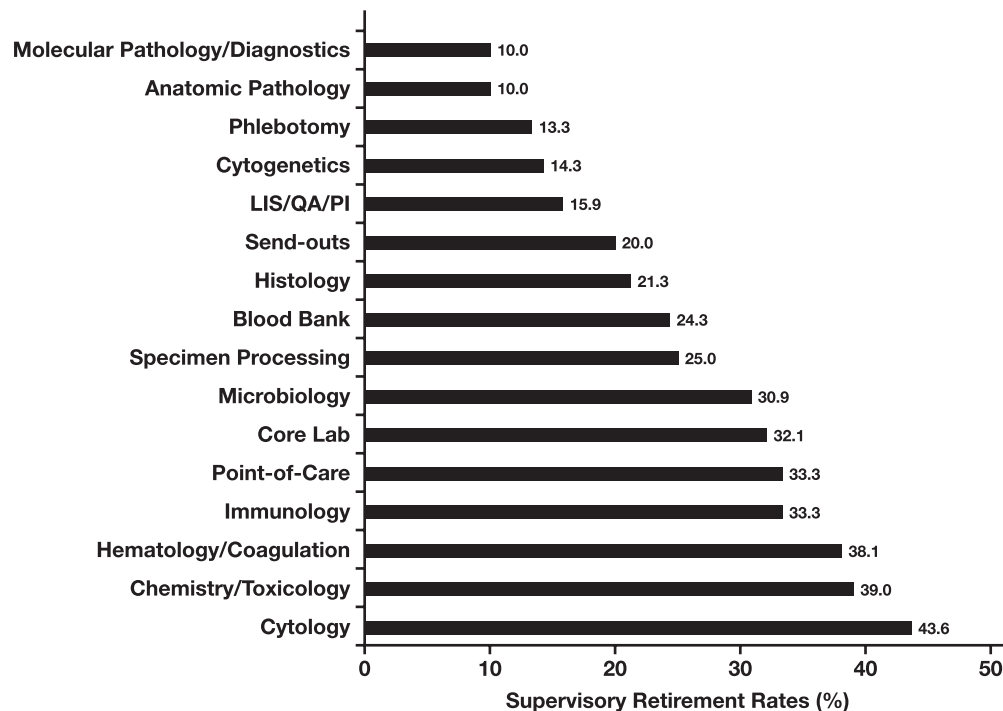
**FIGURE 4** Overall retirement rates (anticipated in the next 5 years) by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

histotechnologist (HTL), and pathologists' assistant. Also, 58.9% of the respondents from the anatomic pathology department indicated that their department requires that they hire certified individuals **TABLE 4**.

Data show that 52.3% of supervisors and 37.1% of staff are certified in anatomic pathology laboratories. Evening shifts (2:00 PM to 10:00 PM) and double shifts are difficult to fill for these departments, while night shifts (10:00 PM to 6:00 AM) are



**FIGURE 5** Staff (nonsupervisory) retirement rates (anticipated in the next 5 years) by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.



**FIGURE 6** Supervisor retirement rates (anticipated in the next 5 years) by laboratory department. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

very difficult to fill. (Shift options provided in the survey were very easy, easy, neither difficult nor easy, difficult, very difficult, not applicable.)

### Blood Bank (Immunohematology)

The overall vacancy rate for blood bank is 10.4% **FIGURE 1**, with staff and supervisor vacancy rates at 10.8% and 7.1%,



TABLE 3 Vacancy Rates by Region			
Region	2020 Vacancy Rate, %	2018 Vacancy Rate, %	Δ
Central Northeast	10.2	11.1	-0.9
Northeast	10.0	10.2	-0.2
Far West	9.3	8.8	0.5
South Central Atlantic	8.8	8.1	0.7
Central Northwest	7.1	5.6	1.4
Central Southwest	5.3	10.4	-5.1

<sup>a</sup>Central North East = Illinois, Indiana, Michigan, Ohio, Wisconsin; Central North West = Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; Central South West = Arkansas, Louisiana, Oklahoma, Texas; Far West = Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming; Northeast = Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; South Central Atlantic = Alabama, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia.

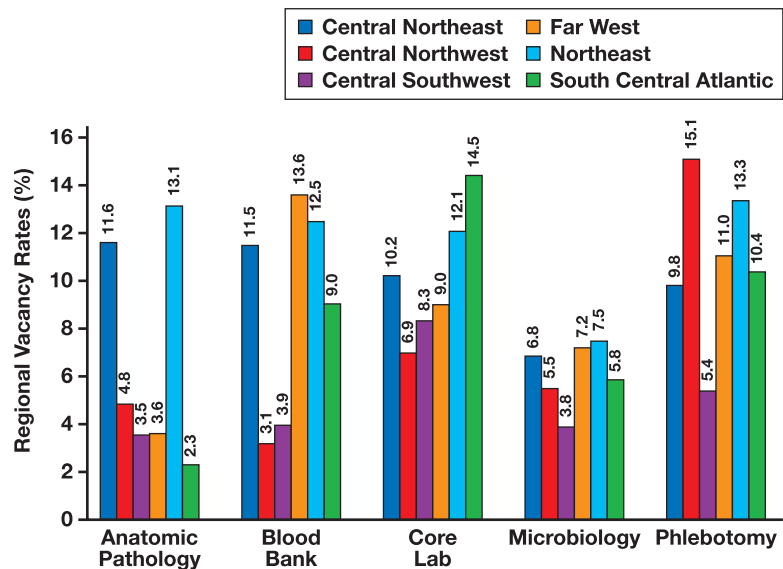


FIGURE 7 Departmental (top 5 with the most respondents) vacancy rates by region.

respectively **FIGURE 2** and **FIGURE 3**. Survey respondents working in blood banks indicated that they anticipate a 14.2% overall retirement rate in the next 5 years. Staff members have an anticipated retirement rate of 13.0% compared with 24.3% for supervisors **FIGURE 4**, **FIGURE 5** and **FIGURE 6**.

Respondents from blood banks prefer the following certifications when hiring employees: technologist in blood banking (BB), specialist in BB, medical laboratory scientist (MLS)/medical technologist (MT), and medical laboratory technician (MLT). Overall, 80.4% of the respondents reported that their laboratory department requires certification for laboratory positions **TABLE 4**. According to the survey results, 75.4% of staff and 92.1% of supervisors working in blood banks are certified. Blood bank evening (2:00 PM to 10:00 PM) and weekend shifts are difficult to fill, while night (10:00 PM to 6:00 AM) and double shifts are very difficult to fill.

Chemistry/Toxicology

The total vacancy rate for chemistry/toxicology is 12.7% **FIGURE 1**, highest among all departments. The vacancy rate is 13.1% for staff, highest among all departments, and 9.6% for

supervisors **FIGURE 2** and **FIGURE 3**. Results also reveal that 20.4% of chemistry/toxicology employees are expected to retire in the next 5 years. The retirement rates are 17.9% for staff and 39.0% for supervisors **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**. This department has the highest anticipated overall and staff retirement rates of all the departments surveyed.

Most of the respondents from the chemistry/toxicology department prefer to hire employees with MLS/MT, MLT, and specialist in chemistry certifications. Also, 75.0% of the respondents indicated that certification is a prerequisite by their department for all candidates to be hired **TABLE 4**. Within chemistry/toxicology, data show that 76.8% of staff and 66.3% of supervisors are certified. Evening (2:00 PM to 10:00 PM) and overtime shifts are difficult to fill, while night (10:00 PM to 6:00 AM) and double shifts are very difficult to fill according to respondents.

Core Laboratory

The vacancy rate for the core laboratory is 10.3% **FIGURE 1**. The total vacancy rate for staff is 10.6%, and the supervisor vacancy rate is 6.7% **FIGURE 2** and **FIGURE 3**. Results also reveal that 16.3% of the

**TABLE 4** 2020 vs 2018 Rate of Respondents Who Indicated That Certification Is Required When Hiring Laboratory Personnel in Their Department

Department	2020, %	2018, %	Δ
Anatomic pathology	58.9	41.7	17.3
Cytology	89.1	75.0	14.1
Chemistry/toxicology	75.0	70.7	4.3
Core lab	73.0	74.4	-1.4
Histology	39.3	42.1	-2.7
Hematology/coagulation	71.2	75.0	-3.8
Blood bank	80.4	84.9	-4.5
Molecular biology/pathology/diagnostics	56.8	62.4	-5.6
Phlebotomy	23.0	28.7	-5.8
Microbiology	70.0	75.9	-5.9
Send-outs	25.9	36.1	-10.1
Point-of-care	53.3	63.6	-10.3
Immunology	61.7	74.2	-12.5
Specimen processing	13.6	27.9	-14.3
LIS/QA/PI	41.9	59.4	-17.5

LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

total core laboratory department employees are expected to retire in the next 5 years. The retirement rate for staff is 15.1% and 32.1% for supervisors **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring employees for core laboratories, most respondents reported MLT and MLS/MT as the preferred credentials or certifications. Survey results show that 92.3% of staff and 83.0% of supervisors are certified. This department also has the highest rate of certified staff among all the departments surveyed. Almost three-quarters (73.0%) of the survey participants reported that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. Evening shifts (2:00 PM to 10:00 PM) are difficult to fill, while night (10:00 PM to 6:00 AM), double-shifts, and weekend shifts are very difficult to staff in this department.

### Cytogenetics

The vacancy rate for cytogenetics is 5.0% **FIGURE 1**. The staff vacancy rate is 5.2%, and the supervisor vacancy rate is 2.8% **FIGURE 2** and **FIGURE 3**. Survey respondents from the cytogenetics department indicated that they anticipate a 9.2% retirement rate within the next 5 years. The staff retirement rate is 8.6%, and the rate for supervisors is 14.3% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

The certification of choice when hiring employees in the cytogenetics department is technologist in cytogenetics. Also, 60.8% of staff and 77.1% of supervisors are certified. Because of the small sample size, staffing by shift difficulties and the rate of respondents indicating that certification is a prerequisite for hire were not reported.

### Cytology

The vacancy rate for cytology is 3.9% **FIGURE 1**. Total staff and supervisor vacancy rates are 4.3% and 0.0%, respectively **FIGURE 2** and

**FIGURE 3**. Survey results show that 17.1% of cytology personnel are expected to retire in the next 5 years. The staff retirement rate is 13.9%, and the rate for supervisors is 43.6%, which is the highest among all departments surveyed **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

Respondents from the cytology department preferred CT and specialist in cytotechnology certifications when hiring employees. Also, 89.1% of the respondents indicated that certification is a prerequisite for all candidates they hire, and this department has the highest rate of respondents reporting that they require certification for candidates they hired **TABLE 4**. Survey results show that 77.7% of staff are certified. Because of the small sample size, supervisor certification rate and staffing by shift difficulties were not reported.

### Flow Cytometry

The vacancy rate for flow cytometry is 10.1% **FIGURE 1**, with a staff vacancy rate of 11.4% **FIGURE 2**. Survey respondents from the flow cytometry department indicated that they anticipate a 6.0% retirement rate in the next 5 years. The staff retirement rate is 4.9% **FIGURE 4** and **FIGURE 5**.

Respondents from flow cytometry preferred MLS/MT certification when hiring employees. Survey results show that 43.3% of staff are certified. Because of small sample size, the following could not be reported: supervisor vacancy rate, supervisor retirement rate, supervisor certification rate, rate of respondents indicating that certification is a prerequisite for hire, and staffing by shift difficulties.

### Hematology/Coagulation

The vacancy rate for hematology/coagulation is 8.5% **FIGURE 1**. Total staff and supervisor vacancy rates are 8.3% and 9.8%, respectively **FIGURE 2** and **FIGURE 3**. Survey respondents from the hematology/coagulation department indicated that they anticipate a 16.7% overall retirement rate in the next 5 years. Staff members have a retirement rate of 14.6% compared with 38.1% for supervisors **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

Most of the respondents from the hematology/coagulation department preferred to hire employees with MLT, MLS/MT, technologist in hematology, and specialist in hematology certifications. In this department, 71.2% of the respondents reported that their department requires certification when hiring staff **TABLE 4**. Also, 75.8% of staff and 78.8% of supervisors are certified. Overtime shifts are difficult to fill, while night (10:00 PM to 6:00 AM) and double-shifts are very difficult to fill, according to respondents.

### Histology

The total vacancy rate for histology is 8.6% **FIGURE 1**. The staff vacancy rate is 8.8%, and the supervisory vacancy rate is 6.0% **FIGURE 2** and **FIGURE 3**. Results show that in the next 5 years, this department anticipates a retirement rate of 12.0%. Staff members have a retirement rate of 11.2%, comparatively lower than the rate for supervisors, which is 21.3% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring employees in the histology department, most respondents reported HT and HTL as the preferred credential or certification. Also, 39.3% of the respondents from this department



indicated that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. Survey results also show that 58.2% of staff and 93.6% of supervisors in the histology department are certified, reporting the highest certification rates for supervisors among all departments surveyed. Night (10:00 PM to 6:00 AM) and double-shifts are very difficult to fill in the histology department.

### Immunology

The vacancy rate for immunology is 11.2% **FIGURE 1**. The total vacancy rate for staff is 11.9%, and for supervisors the rate is 5.7% **FIGURE 2** and **FIGURE 3**. Results show that in the next 5 years this department anticipates an overall retirement rate of 15.3%. The staff retirement rate is 13.2%, while the supervisor retirement rate is 33.3% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

The certifications of choice when hiring employees in the immunology department are MLT and MLS/MT. In this department, 61.7% of the survey respondents reported that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. According to survey results, 64.2% of staff and 61.8% of supervisors are certified. Evening shifts (2:00 PM to 10:00 PM) and overnight shifts are difficult to fill, while night (10:00 PM to 6:00 AM) and double-shifts are the most difficult to fill in this department.

### Laboratory Information System/Quality Assurance/Performance Improvement

The vacancy rate for LIS/QA/PI is 10.3% **FIGURE 1**. The vacancy rate for staff positions is 9.2%, with 13.3% for supervisors **FIGURE 2** and **FIGURE 3**. LIS/QA/PI has the highest supervisory vacancy rates of all departments. Survey respondents from the LIS/QA/PI departments indicated that they anticipate a 13.0% overall retirement rate in the next 5 years. Staff members have a retirement rate of 12.0%. The supervisor retirement rate is at 15.9% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

Most of the respondents from the LIS/QA/PI departments preferred to hire employees with MLT and MLS/MT certifications. In these departments, 41.9% of the respondents reported that certification is required by their departments when hiring staff **TABLE 4**. Survey results also show that 60.9% of staff and 56.5% of supervisors in the LIS/QA/PI departments are certified. Night (10:00 PM to 6:00 AM) and double-shifts are the most difficult to fill in these departments.

### Microbiology

The total vacancy rate for microbiology is 6.7% **FIGURE 1**. The staff vacancy rate is 6.9%, and the supervisor vacancy rate is 3.8% **FIGURE 2** and **FIGURE 3**. Results also reveal that 14.3% of microbiology department employees are expected to retire in the next 5 years. The staff retirement rate is 12.8%; for supervisors, the retirement rate is 30.9% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring staff-level employees in the microbiology department, most respondents reported MLT, MLS/MT, technologist in microbiology, or specialist in microbiology as the preferred credentials or certifications. Also, 70.0% of the supervisors indicated that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. Survey results show that 75.4% of staff and

91.9% of supervisors in the microbiology department are certified. Evening shifts (2:00 PM to 10:00 AM) are difficult to fill, while night (10:00 PM to 6:00 AM) and double-shifts are very difficult to fill in this department.

### Molecular Biology/Molecular Pathology/Molecular Diagnostics

The vacancy rate for molecular biology/molecular pathology/molecular diagnostics is 7.3% **FIGURE 1**. The vacancy rate for staff positions is 7.7%, and for supervisors it is 2.9% **FIGURE 2** and **FIGURE 3**. Survey respondents from the molecular biology/molecular pathology/molecular diagnostics department indicated that they anticipate a 10.0% retirement rate in the next 5 years. Staff members have a retirement rate of 10.0%, with 10.0% for supervisors **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

Most of the respondents from the molecular biology/diagnostics/molecular pathology department preferred to hire employees with MLT, MLS/MT, technologist in molecular biology/technologist in molecular pathology certifications as well as specialist in molecular biology certifications. Also, 56.8% of the respondents from this department indicated that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. Survey results show that 53.2% of staff and 57.5% of supervisors in the molecular biology/diagnostics department are certified. Both the double and evening (2:00 PM to 10:00 PM) shifts are difficult to fill in this department, with the night shift (10:00 PM to 6:00 AM) being very difficult to fill.

### Phlebotomy

The vacancy rate for phlebotomy is 11.1% **FIGURE 1**. The vacancy rate is 11.2% for staff positions and 8.9% for supervisors **FIGURE 2** and **FIGURE 3**. Results show that 6.7% of employees in phlebotomy anticipate retiring in the next 5 years. The staff retirement rate is 6.3%; the rate for supervisors is 13.3% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

The certifications of choice for new staff-level employees in the phlebotomy department are medical assistant, clinical laboratory assistant/medical laboratory assistant (MLA), and phlebotomy technician (PBT). In this department, 23.0% of the survey participants indicated that certification is a prerequisite by their department for candidates to be hired **TABLE 5**. Results show that 43.0% of staff and 64.6% of supervisors in the phlebotomy department are certified. Evening (2:00 PM to 10:00 PM) shifts are difficult to fill in this department, with the night (10:00 PM to 6:00 AM) and double-shifts being very difficult to fill.

### Point-of-Care

The total vacancy rate for point of care is 5.8% **FIGURE 1**. The staff vacancy rate is 5.0%, and the supervisor vacancy rate is 9.5% **FIGURE 2** and **FIGURE 3**. Results also reveal that 11.9% of point-of-care department employees are expected to retire in the next 5 years. The staff retirement rate is 8.0%; for supervisors, it is 33.3% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring staff-level employees in the point-of-care department, most respondents reported that the preferred certifications

**TABLE 5** 2020 vs 2018 Nonsupervisory (Staff) and Supervisory Retirement Rates

Department	Retirement Rate, % <sup>a</sup>					
	Staff (Nonsupervisory)			Supervisory		
	2020	2018	Δ	2020	2018	Δ
Anatomic pathology	8.1	11.7	−3.5	10.0	27.1	−17.1
Blood bank	13.0	15.8	−2.9	24.3	28.0	−3.7
Chemistry/toxicology	17.9	17.6	<b>0.3</b>	39.0	24.7	<b>14.3</b>
Core lab	15.1	15.9	−0.7	32.1	30.9	<b>1.2</b>
Cytogenetics	8.6	15.2	−6.6	14.3	20.7	−6.4
Cytology	13.9	13.8	<b>0.1</b>	43.6	33.6	<b>9.9</b>
Flow cytometry	4.9	18.0	−13.1	—	36.4	—
Hematology/coagulation	14.6	17.6	−3.0	38.1	33.2	<b>4.9</b>
Histology	11.2	11.1	<b>0.1</b>	21.3	18.2	<b>3.0</b>
Immunology	13.2	15.0	−1.8	33.3	24.5	<b>8.8</b>
LIS/QA/PI	12.0	25.8	−13.8	15.9	32.4	−16.5
Microbiology	12.8	15.7	−2.8	30.9	32.2	−1.3
Molecular biology/pathology/diagnostics	10.0	10.0	0.0	10.0	19.8	−9.8
Phlebotomy	6.3	9.2	−2.9	13.3	16.1	−2.8
Point-of-care	8.0	11.7	−3.7	33.3	38.4	−5.1
Send-outs	9.0	11.9	−2.9	20.0	29.9	−9.9
Specimen processing	6.5	10.4	−3.8	25.0	25.0	0.0

LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

<sup>a</sup>Numbers in bold indicate the departments with increased retirement rates in 2020 from 2018.

are MLT and MLS/MT. Also, 53.3% of supervisors indicated that certification is a prerequisite by their department for candidates to be hired **TABLE 4**. Results also show that 65.1% of staff and 85.7% of supervisors in the point-of-care department are certified. Night (10:00 PM to 6:00 AM), weekend, and double-shifts are very difficult to fill.

### Send-Outs

The total vacancy rate for the send-outs department is 6.8% **FIGURE 1**. The staff vacancy rate is 7.4%, while the vacancy rate for supervisors is 2.8% **FIGURE 2** and **FIGURE 3**. Results also reveal that 10.4% of all send-outs employees are expected to retire in the next 5 years. Staff and supervisor retirement rates for the send-outs department are 9.0% and 20.0%, respectively **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

When hiring for the send-outs department, most respondents reported MLT and MLS/MT as the preferred certifications or credentials. Slightly more than a quarter of the respondents from the send-outs department (25.9%, **TABLE 4**) indicated that they are required by their department to hire certified individuals, and 48.6% of staff and 74.3% supervisors are certified.

### Specimen Processing

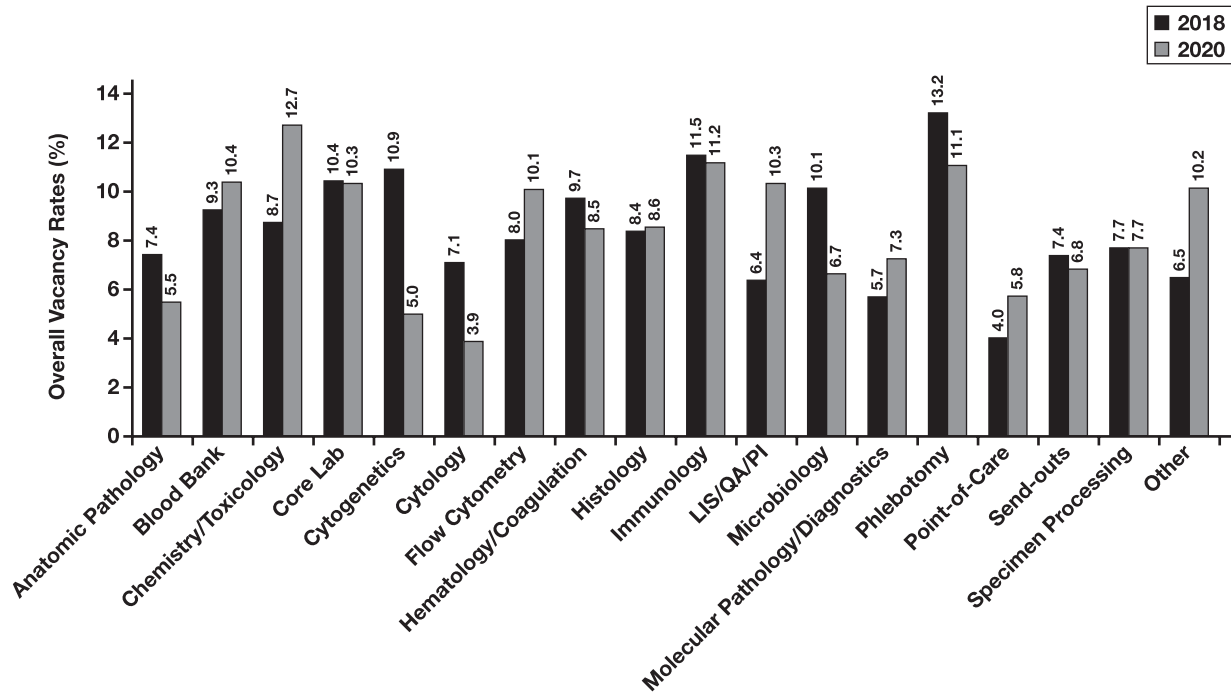
The overall vacancy rate for specimen processing is 7.7% **FIGURE 1**. The staff vacancy rate is 7.7%, and the rate for supervisors is 7.3% **FIGURE 2** and **FIGURE 3**. Survey results show that 7.9% of personnel in specimen processing are expected to retire in the next 5 years. The staff retirement rate is 6.5%; for supervisors, it is 25.0% **FIGURE 4**, **FIGURE 5**, and **FIGURE 6**.

Respondents from the specimen processing department preferred MLA, PBT, MLT, and MLS/MT certifications when hiring staff-level

employees. In this department, 13.6% of the survey respondents indicated that certification is a prerequisite by their department for candidates to be hired, the lowest rate among all departments surveyed **TABLE 4**. However, certification requirement rates for this department are low in part because the certification exam for these personnel categories did not exist until 2016, when the ASCP created its MLA exam. Survey results also show that 36.2% of staff and 72.5% of supervisors in the specimen processing department are certified. Double-shifts are very difficult to fill in this department.

## THE CURRENT LABORATORY WORKFORCE

Results of the ASCP 2020 vacancy survey show decreased overall vacancy rates for laboratory positions, except for the blood bank, chemistry/toxicology, flow cytometry, LIS/QA/PI, molecular pathology, and point-of-care departments compared with 2018 **FIGURE 8**. For most departments, hiring supervisors now takes between 3 months to a year, a longer time period compared with 2018's 3 to 6 months. Blood bank, chemistry/toxicology, hematology/coagulation, immunology, microbiology, and point-of-care departments take at least a year to hire a supervisor. When asked what the main laboratory workforce concern is this year, 14.2% of respondents reported the need for better salaries for laboratory personnel and increased effort in heightening the profile of the laboratory profession in the medical field. Filling vacancies was equally concerning (14.2%), exacerbated by the staffing challenges laboratories have faced during the pandemic. The third top concern respondents reported is staffing the laboratory with qualified laboratory professionals (10.4%).



**FIGURE 8** Overall vacancy rates (2018 vs 2020). LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

**TABLE 5** and **TABLE 6** compare the 2020 retirement rates with previous survey results. Overall retirement rates (for those who anticipate retiring in the next 5 years) for laboratory professionals are at their lowest across all departments, except for chemistry/toxicology and cytology **TABLE 6**. Retirement rates for staff in the majority of departments have declined **TABLE 5**. Although retirement rates for supervisors in approximately two-thirds of departments surveyed have decreased, the retirement rates in the chemistry/toxicology, core laboratory, cytology, hematology/coagulation, histology, and immunology departments have increased **TABLE 5**. Previous ASCP vacancy reports have suggested that the field will experience a loss of laboratory personnel who have been in the field for a long time and have vast experience. Current data suggest that much of this personnel loss has already occurred, at least in some areas, resulting in a decreased 5-year anticipated retirement rate.

Compared with the 2018 report, where evening shifts and night shifts were the most difficult to fill, the current report also shows that managers are experiencing difficulties filling double-shifts. Data also show that 89.9% (93.7% in 2018<sup>5</sup>) of supervisors have not had layoffs of any laboratory professionals in the departments they supervise within the past 6 months of participating in this survey. Furthermore, 83.8% (86.9% in 2018<sup>5</sup>) do not anticipate layoffs of any laboratory professionals in the department they supervise in the next 6 months. The 9.7% of supervisors who have laid off staff cited the following reasons for the layoffs: decreased workload (65.2%), COVID-19-related reasons (39.1%), and budget constraints (34.8%).

When open positions are not filled relatively quickly, respondents indicated that the responsibilities of positions were assigned temporarily to other personnel (63.9% [15.7% in 2018<sup>5</sup>]), left open (57.8% [46.0% in 2018<sup>5</sup>]), reposted (42.9% [28.6% in 2018<sup>5</sup>]),

**TABLE 6** Overall Retirement Rates by Department Since 2014<sup>a</sup>

Department	Overall Retirement Rate, % <sup>b</sup>			
	2020	2018	2016	2014
Chemistry/toxicology	<b>20.4</b>	18.3	22.9	23.6
Cytology	<b>17.1</b>	16.3	17.7	14.5
Hematology/coagulation	16.7	19.2	23.8	19.5
Core lab	16.3	17.1	20.7	16.9
Immunology	15.3	16.2	22.1	21.1
Microbiology	14.3	17.4	20.1	19.5
Blood bank	14.2	17.3	21.0	19.2
LIS/QA/PI	13.0	27.1	28.3	–
Histology	<b>12.0</b>	11.8	17.0	18.8
Point-of-care	11.9	13.5	24.7	17.5
Send-outs	10.4	13.6	18.2	15.6
Molecular biology/pathology/diagnostics	10.0	11.2	14.7	17.7
Cytogenetics	9.2	15.7	19.9	6.1
Anatomic pathology	8.3	13.0	15.8	13.8
Specimen processing	7.9	11.6	14.7	11.3
Phlebotomy	6.7	9.6	10.8	11.5
Flow cytometry	6.0	20.5	17.4	18.0

LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

<sup>a</sup> Data from 2014 to 2020 gathered from past American Society for Clinical Pathology Vacancy Surveys.

<sup>b</sup> Numbers in bold indicate the departments with increased retirement rates in 2020 from 2018.

eliminated (25.4% [15.0% in 2018<sup>5</sup>]), permanently assigned to other staff (21.6% [11.3% in 2018<sup>5</sup>]), or assigned to temporary personnel (17.2% [15.7% in 2018<sup>5</sup>]).

## New Technologies

The percentage of participants who indicated that new technologies caused changes to their staffing needs in this survey remained similar to 2018 (21.4% in 2018 vs 21.9% in 2020). When asked to identify the types of technologies that are causing the greatest changes to their staffing needs, respondents reported that molecular testing caused the greatest change (63.5%). Molecular testing volume continues to increase and require more specialized staff to perform these procedures. The COVID-19 pandemic only intensified the demand for staff to conduct molecular testing. During this time, there was an increased need for laboratory professionals (eg, MLAs, MLTs) to enter test orders and process specimens, perform SARS-CoV-2 polymerase chain reaction testing, and cross-train other staff. One respondent indicated that, "We have added multiple new methods due to coronavirus and we needed to add [full-time equivalents] FTEs to perform these tests. Additionally, due to when the samples arrive, we needed to train the second shift to perform molecular testing which was not typically performed on that shift."

Other top technologies contributing to staffing changes were automation (38.5%) and LIS (26.9%). Although respondents indicated that more testing is done with fewer staff through automation, turnaround time is affected by the need to train staff on how to use these instruments, leading many supervisors to actively seek certified laboratory professionals who are already educated and trained for expanded responsibilities. Additionally, institutions that integrate new hospitals into their system significantly increase workload for their laboratories; therefore, more automation and staff are essential. From the 2020 vacancy survey, respondents indicated that LIS and electronic health record are driving an increased need for more laboratory professionals. Laboratory managers encounter challenges finding candidates with LIS experience. Some indicated that constant upgrades to LISs require additional staff training and a systems manager.

## Hiring, Recruiting, and Retaining Laboratory Personnel

When hiring personnel, respondents reported the following challenges: better pay and/or benefits at other laboratories (67.9%); increasing competition for well-trained personnel (60.3%); delay in filling positions because of the need for justification from administration (56.3%); applicants without the necessary certification, education, or skills to perform the work (48.5%); budget constraints (44.7%); and position subject to hiring freeze (39.9%). Similarly, hiring managers indicated that their top challenge in recruiting personnel for open positions in the laboratory were better pay and/or benefits at other area laboratories (67.4%). Other challenges include increasing competition for well-trained personnel (65.5%), applicants not possessing the necessary education and skills to perform the work (58.0%), and lower compensation compared with other professions requiring similar education or training (47.1%). As for retaining staff, the top 3 issues include better pay and/or benefits at other area laboratories (60.9%), limited potential for advancement or additional compensation (60.1%), and workload/stress (49.4%). In addition to health and retirement benefits as well as premium pay for overtime, holidays, or weekends, the top perks offered to

laboratory personnel include tuition/continuing education reimbursements as well as bonuses and transportation allowances. When hiring managers were asked how much budget is allocated for laboratory staff labor/personnel, they indicated that it is at 37.7% on average.

On average, respondents indicated that more than half of positions that were vacated were voluntary resignations (58.5%). The top 3 reasons for voluntary resignations included leaving for another position within the field (52.8%), relocation (34.2%), and retirement (29.0%). Other top reasons included leaving the field (26.4%) and family obligations (21.2%). Compared with the 2018 data, a higher rate of respondents indicated leaving the field altogether (+6.0% change). In contrast, the mean rate of involuntary termination that respondents reported was lower, at 14.6%.

## Certification

Overall certification rates are highest in the core lab department and lowest among anatomic pathology and specimen processing (FIGURE 9). For the send-outs, point-of-care, immunology, specimen processing, and LIS/QA/PI departments, the percentage of respondents who reported hiring certified personnel decreased by more than 10% (TABLE 4).

Data also reveal that 54.3% (44.2% in 2018<sup>5</sup>) of the respondents reported that they hire noncertified personnel to perform the following responsibilities: preanalytical processes–nontechnical (93.2% [81.1% in 2018<sup>5</sup>]), analytical testing–low complexity (47.7% [49.80% in 2018<sup>5</sup>]), analytical testing–moderate complexity (30.0% [37.5% in 2018<sup>5</sup>]), and analytical testing–high complexity (23.6% [27.8% in 2018<sup>5</sup>]). Although overall rates show that the rate of hiring noncertified personnel increased by 10% in 2020, the rate of noncertified staff performing low- to high-complexity testing decreased.

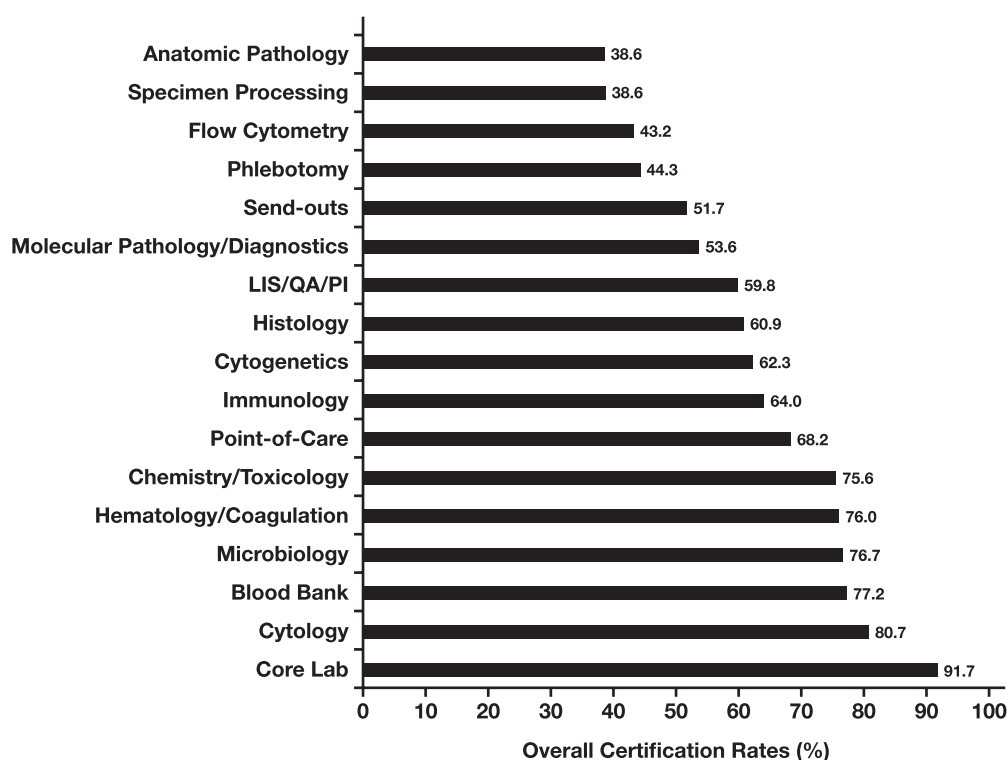
The education levels of staff employed in the laboratory who are not certified vary widely. The highest percentages of staff have a bachelor degree (39.2%) or a high school diploma/General Education Development (GED) (38.0%), followed by an associate's degree (17.7%); only 5.2% have an advanced degree.

Data show that 15.3% of respondents hired foreign nationals, a decrease of approximately 24% from 2018 (20.2%), with preference toward the following certifications: MLS/MT and MLT. The ASCP will continue to collect data on this question to analyze trends in the future.

## COVID-19 Pandemic Effects on Staffing

When asked about how the COVID-19 pandemic affected testing volumes in laboratories, 61.1% of survey respondents indicated that they experienced a decrease in testing volumes (FIGURE 10). Furthermore, the majority of respondents reported a decrease in testing volume for all departments, except in microbiology, where an increase in testing volume was the most prevalent response (54.3%) (TABLE 7). Cytology, histology, and anatomic pathology are the departments with the highest percentage of respondents reporting a decrease in testing volume (TABLE 7). Although 48.9% of respondents indicated that their institutions

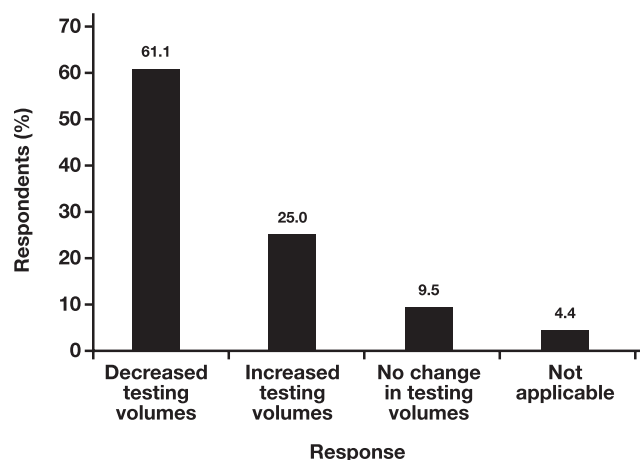




**FIGURE 9** Overall certification rates. LIS, laboratory information system; PI, performance improvement; QA, quality assurance.

did not decrease staffing, those that decreased staffing did so primarily through furloughs **FIGURE 11**, with an average length of furlough greater than 1 month. The departments with highest percentage of respondents reporting furloughs were anatomic pathology (33.9%), core laboratory (32.7%), and cytology (30.4%). Overall, 68.9% of respondents reported that their laboratory encountered a hiring freeze or slowdown during the pandemic.

To accommodate the current workload in many laboratories, laboratory staff were mainly reassigned to COVID-19 specimen processing (29.6%), reassigned to other areas of the laboratory (26.1%), added to the “labor pool” at their institution (21.0%), or relocated from their usual duties to perform SARS-CoV-2 testing (20.4%) **FIGURE 12**. **TABLE 8** shows how each laboratory department reassigned its staff. Most respondents reported that they reassigned their staff to another area of the laboratory for anatomic pathology, cytology, hematology/coagulation, histology, immunology, point-of-care, and specimen processing. The majority indicated reassignment of staff to COVID-19 specimen processing in the core lab, microbiology, and molecular biology/molecular pathology/molecular diagnostics departments. The departments where staff were most commonly added to the “labor pool” at their institution were LIS/QA/PI, phlebotomy, and send-outs. For the chemistry/toxicology department, most respondents indicated that staff were either reassigned to COVID-19 specimen processing or another area of the laboratory. At the time this survey was conducted, many of the respondents reported that some of their staff had to be quarantined because of COVID-19 exposure or symptoms, and staff absence was accommodated through internal coverage.



**FIGURE 10** Effects of the coronavirus disease 2019 pandemic on testing volumes in the laboratory (n = 476).

To retain laboratory staffing levels, the majority of the institutions offered shift adjustments, flexible scheduling, split teams, and rotations (23.8%); offered paid time off (12.1%); and reassigned or cross-trained staff (11.7%) **TABLE 9**.

## SUMMARY

Results of the 2020 ASCP vacancy survey show that vacancy rates are lower in most departments compared with the 2018 report, except for blood bank, chemistry/toxicology, flow cytometry, LIS/QA/PI, molecular pathology, and point-of-care **FIGURE 8**. Retirement rates for most of the departments surveyed continue to decline,



suggesting that the largest wave of retirements has passed **TABLE 6**. Certification requirements continue to increase for the anatomic pathology, cytology, and chemistry/toxicology departments, suggesting that hiring managers need more qualified and certified laboratory personnel in these areas **TABLE 4**.

Qualitative analysis results from this survey indicate the need for more qualified laboratory personnel, solutions to staffing challenges, and pay commensurate with education and experience. According to some participants, it is becoming more difficult to find qualified staff and retain them, especially for certain shifts and in rural areas. The pandemic only exacerbated the challenges that laboratories face in filling open positions, with many staff opting to retire early or leave the field altogether. One laboratory manager

said, “I have lost 25% of my staff in the last 6 months and have another 10% scheduled to retire this year. Even in normal, non-COVID times I would be unable to even hire at this pace, much less onboard and train. We are a large, well-respected medical institution in a highly desirable area. I cannot imagine what smaller rural labs are experiencing. I am worried that our standards for education and certification are at risk.”

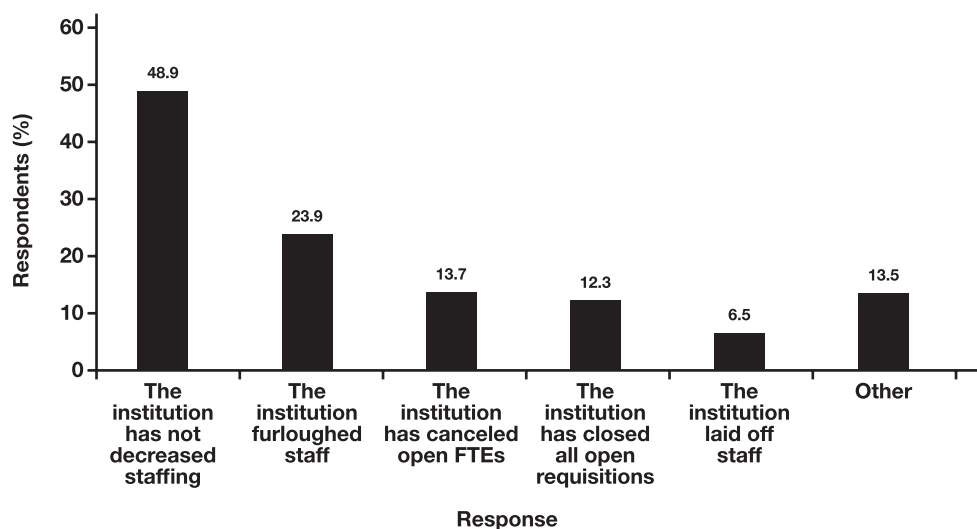
The groundbreaking study by ASCP and the University of Washington Center for Health Workforce Studies suggests that the COVID-19 pandemic changed the work environment of many if not most laboratories.<sup>2</sup> Results from this study corroborated findings from this report and demonstrated that the pandemic affected laboratory staffing mainly through furloughs, staff departure, and

**TABLE 7** Effects of COVID-19 in Laboratory Testing Volumes<sup>a</sup>

Department	Increased Testing Volumes, %	Decreased Testing Volumes, %	No Change in Testing Volumes, %	Not Applicable, %
Anatomic pathology	14.3	69.6	8.9	7.1
Blood bank	18.7	63.6	16.8	0.9
Chemistry/toxicology	30.1	58.9	11.0	0.0
Core lab	20.4	67.3	10.6	1.8
Cytology	10.9	82.6	6.5	0.0
Hematology/coagulation	22.7	66.7	9.3	1.3
Histology	6.5	79.0	11.3	3.2
Immunology	36.7	55.1	8.2	0.0
Microbiology	54.3	37.0	7.6	1.1
Molecular biology/pathology/diagnostics	40.4	53.2	4.3	2.1
Phlebotomy	25.3	62.7	9.3	2.7
Point-of-care	24.6	65.6	9.8	0.0
Send-outs	25.0	66.1	8.9	0.0
Specimen processing	24.4	61.6	12.8	1.2

COVID-19, coronavirus disease 2019.

<sup>a</sup> Sample size for respondents in other departments was too small and not reported.



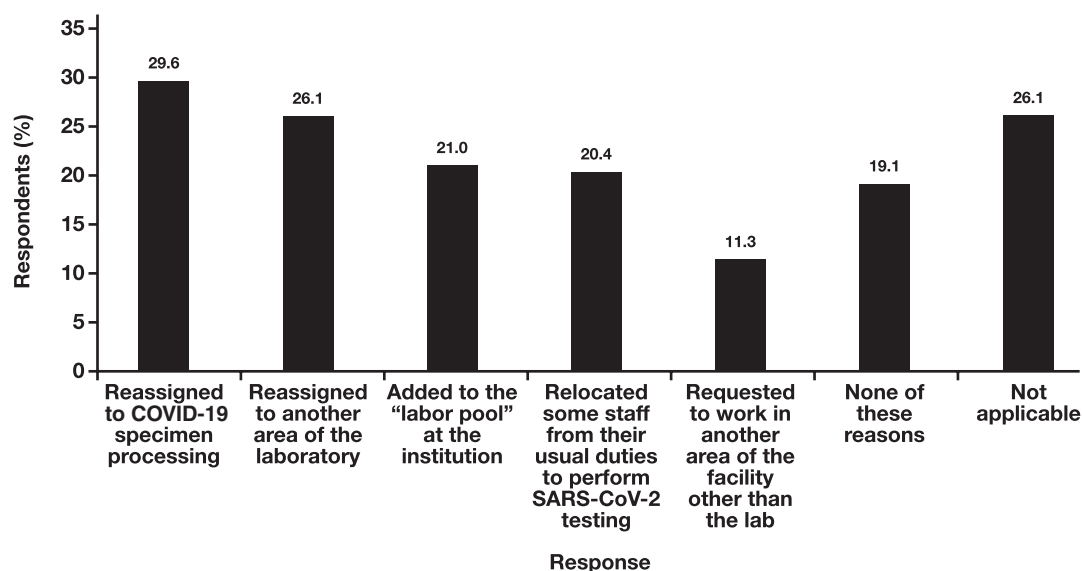
**FIGURE 11** Types of actions taken by institutions to decrease staffing during the coronavirus disease 2019 pandemic (n = 476 representing 1,132 departments). FTE, full-time equivalent.

**TABLE 8** Reassignments of Laboratory Staff by Department During the COVID-19 Pandemic<sup>a</sup>

Department	Reassigned to Another Area of the Laboratory, %	Reassigned to COVID-19 Specimen Processing, %	Added to the "Labor Pool" at Their Institution, %	Requested to Work in Another Area of the Facility Other Than the Lab, %	Relocated Some of Their Staff From Their Usual Duties to Perform SARS-CoV-2 Testing, %	None of These Reasons (Exclusive), %	Not Applicable (Exclusive), %
Anatomic pathology	<b>39.3</b>	33.9	28.6	17.9	21.4	16.1	19.6
Blood bank	20.6	18.7	22.4	10.3	17.8	23.4	32.7
Chemistry/toxicology	<b>35.6</b>	<b>35.6</b>	23.3	6.8	32.9	17.8	17.8
Core lab	28.3	<b>30.1</b>	24.8	7.1	23.0	17.7	23.9
Cytology	<b>37.0</b>	30.4	19.6	19.6	21.7	19.6	28.3
Hematology/coagulation	<b>30.7</b>	29.3	24.0	9.3	21.3	22.7	17.3
Histology	<b>35.5</b>	25.8	33.9	21.0	11.3	19.4	19.4
Immunology	<b>40.8</b>	34.7	36.7	12.2	34.7	16.3	12.2
LIS/QA/PI	22.7	22.7	<b>25.0</b>	4.5	15.9	22.7	25.0
Microbiology	31.5	<b>43.5</b>	25.0	7.6	35.9	17.4	15.2
Molecular biology/pathology/diagnostics	27.7	<b>36.2</b>	10.6	6.4	23.4	17.0	19.1
Phlebotomy	30.7	21.3	<b>34.7</b>	18.7	18.7	16.0	18.7
Point-of-care	<b>29.5</b>	26.2	27.9	9.8	31.1	18.0	21.3
Send-outs	28.6	21.4	<b>30.4</b>	8.9	23.2	19.6	17.9
Specimen processing	<b>33.7</b>	23.3	30.2	11.6	23.3	17.4	22.1

COVID-19, coronavirus disease 2019; LIS, laboratory information system; PI, performance improvement; QA, quality assurance; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

<sup>a</sup> Numbers in bold indicate which types of reassignments are the highest by department.



**FIGURE 12** Reassignments of laboratory staff by their institutions during the coronavirus disease 2019 (COVID-19) pandemic (n = 476). SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

early retirement while experiencing workload increases.<sup>2</sup> There is heightened awareness and urgency regarding the need to address the staffing challenges that laboratories have long experienced as

well as identify strategies to address work-life balance challenges and burnout among laboratory professionals. In the academic setting, laboratory training programs were affected by the pandemic

**TABLE 9** Specific Practices or Resources Respondents Used to Retain the Level of Staffing (n = 240)

Practice or Resource	%
Shift adjustment, flexible scheduling, split teams, rotation	23.8
Paid time off	12.1
Reassignment, cross-training	11.7
Furlough	6.3
Other responsibilities (test validation, inspection preparation, QA projects, SOP revision, research, etc)	5.0
Employee assistance, unemployment benefit, PPP	4.2
Pay reduction	3.3
None, NA, other	43.8

NA, not applicable; PPP, Paycheck Protection Program; QA, quality assurance; SOP, standard operating procedure.

primarily through difficulties in finding clinical rotations for students. This issue affected fulfilment of degree requirements for those close to graduation, thus proving a barrier to one pathway into the clinical laboratory science profession. When hospitals reduced or eliminated elective procedures in spring 2020, laboratories that provide a large proportion of their testing for elective procedures experienced a sharp decrease in testing volumes, and many furloughed or reduced the hours of their workforce.<sup>2</sup> These factors could be potential contributors to the lower vacancy rates seen in this report. Since 2014, anticipated retirement rates have continued to decline, which implies that many have already left the field.

In the 2018 vacancy report, the laboratory community was encouraged to develop strategies to advocate for better salaries for laboratory personnel at both the local and national levels in addition to focusing on laboratory staffing issues.<sup>5</sup> The report by Garcia et al<sup>2</sup> suggests that addressing the current and future needs of the laboratory workforce requires a collective effort by groups of stakeholders at all levels, including laboratory employers, laboratory training programs, health care executives/hospital administrators, and professional organizations. The report also suggests that “there is an opportunity to leverage the spotlight on the lab due to the COVID-19 pandemic, to cultivate the future of the laboratory profession as a whole as well as the individual specialties.”<sup>2</sup> To create a resilient professional laboratory workforce, creating a supportive environment for laboratory professionals is key.<sup>2</sup> According to 1 participant, “Medical Technology organizations need to take advantage of the current COVID-19 situation to promote and show the importance of Medical Lab Professionals in the healthcare cycle. We also need to push legislation for more recognition and pay raises to get closer to what nursing staff or even radiology techs getting paid. By doing that, we will be

able to encourage and win more high school graduates to select studying clinical laboratory science more frequently.” Medical laboratory administrators and leaders should collaborate with their human resources (HR) management and HR information systems to address laboratory workforce needs.

This report presented additional data on the effects of the pandemic on the staffing of laboratory personnel and other challenges many institutions and laboratory departments faced during the onset and beyond of the COVID-19 pandemic (2019 and 2020). Future ASCP vacancy surveys will continue to collect staffing data and investigate how the COVID-19 pandemic has or will change the landscape of the laboratory field.

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