

# Featured Article

## American Society for Clinical Pathology's 2011 Vacancy Survey of U.S. Clinical Laboratories

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Since 1988, the American Society for Clinical Pathology (ASCP) has conducted its Wage and Vacancy Survey to provide the most recent wage data and determine the extent and distribution of shortages within the nation's clinical laboratory workforce. This confidential survey has been administered every two years and has served as the primary source of information for academic, government, and industry labor analysts. While continuity remains a central objective in monitoring trends, the survey has evolved in response to changes within the profession. New questions have been added to the 2011 survey to examine some of the factors affecting wage and vacancy rates. This year, the ASCP Wage and Vacancy Survey has been administered as two separate surveys. Last month, the results of the Wage survey were published in *LabMedicine*.

## Methodology

The 2011 Vacancy Survey was prepared by the ASCP's Public Policy Office in Washington, DC and the Society's Board of Certification (BOC), Chicago, IL. The survey was designed to be a web-based survey, which consisted of 13 questions on vacancies, work shift issues, retirement, and hiring difficulties. Electronic invitations were sent on January 11, 2011 via Zarc Interactive (an online survey vendor). The majority of these initial recipient email addresses were derived from the ASCP database, with the following partnering societies: American Association for Clinical Chemistry (AACC), American Medical Technologists (AMT), American Society of Cytopathology (ASC), American Society for Clinical Laboratory Science (ASCLS), American Society for Cytotechnology (ASCT), Clinical Laboratory Management Association (CLMA), and National Society for Histotechnology (NSH) contributing to the initial recipient cohort. To maximize survey response, recipients were allowed to forward the electronic survey invitation to fellow colleagues within the laboratory profession. Due to the recipient's ability to forward the survey invite, however, an accurate rate of response cannot be calculated. The survey was closed on February 11, 2011.

The 2011 Vacancy Survey sought to collect staff- and supervisory-level data, as well as recruitment and retention information on the following laboratory areas and related certifications:

- Anatomic Pathology
- Blood Banking
- Chemistry
- Cytology
- Cytogenetics
- Hematology
- Histology
- Immunology
- Microbiology
- Phlebotomy

The ASCP Survey administrators recognize there is no standard approach for how laboratories are organized. Laboratory areas may hire staff with a variety of certifications. ASCP provided survey participants with the opportunity to report on the certifications that exist or are sought after for the laboratory area under their supervision.

## Key Findings

The primary objective of this research was to estimate the rate of shortage within clinical laboratory departments. Overall, this survey represents 625 facilities, 1,719 departments, 16,274 employees, and 17,674 positions from across the United States.

According to the survey, phlebotomy, chemistry, hematology, and blood banking laboratory departments employ the majority of clinical laboratory personnel (**Figure 1**). Across the nation, vacancy rates were highest for blood banking (11.6%), histology (9.81%), and chemistry (8.62%) departments. The lowest vacancy rates occurred in the departments of cytology (5.14%) and immunology (5.56%) (**Table 1** and **Figure 2**).

In general, hospitals with fewer than 100 beds and outpatient clinics reported higher vacancy rates compared to other facilities. For most of the laboratory departments surveyed, the lowest vacancy rates were found at hospitals with 300-499 beds. By region, (**Table 2**) the Far West reported higher vacancy rates than other regions while the South Central Atlantic had the lowest vacancy rates. Overall, survey results show that 47.23% of facilities do not perform molecular diagnostics, 24.72% of facilities have one central molecular diagnostics department, 21.52% of facilities have molecular diagnostics performed within specific laboratory departments, and 6.52% of respondents do not know if molecular diagnostics is performed at their facility.

## Blood Banking/Transfusion Medicine

Of all the departments surveyed, blood banking/transfusion medicine had the highest overall (staff and supervisors) vacancy rate at 11.6% (**Figure 2**). The staff (non-supervisory) vacancy rate is 10.3%, while the supervisor vacancy rate is 18.6% (**Figure 3** and **Figure 4**). Blood Banking/Transfusion Medicine departments in hospitals with 500 beds or more have a higher staff vacancy rate, 13.5%, compared to other facilities in the survey. Hospitals with 300-499 beds report a lower staff vacancy rate, 7.03%, for the blood banking/transfusion medicine department. Sample size constraints prevented further analysis of vacancy rates for supervisory positions by facility. The vacancy rate for the blood banking/transfusion medicine department is highest in the Far West, 15.2%, and lowest in the North East, 7.46%.

Within blood banking/transfusion medicine, data show that 82.5% of staff employees and 76.6% of supervisors are certified (**Figure 5**). In addition, 19.6% of blood banking/transfusion medicine employees work double shifts or overtime (**Figure 6**). Molecular Diagnostics is performed in 4.42% of the total blood banking/transfusion medicine laboratories surveyed (**Figure 7**).

## Chemistry

The total vacancy rate for the area of chemistry is 8.62%. (**Figure 2**) Overall staff vacancy rate is 8.22%, and overall supervisory vacancy rate is 11.6%. (**Figure 3** and **Figure 4**) By facility, the staff vacancy rate is highest, 11.6%, in chemistry departments situated in hospitals with fewer than 100 beds. The staff vacancy rate is lowest in hospitals with 300-499 beds, 6.62%. Due to sample size restrictions statistical analysis of vacancy rate for supervisory positions by facility could not be performed. The South Central Atlantic has the highest vacancy rate, 10.4%, and Central North West states had the lowest vacancy rate, 6.02%.

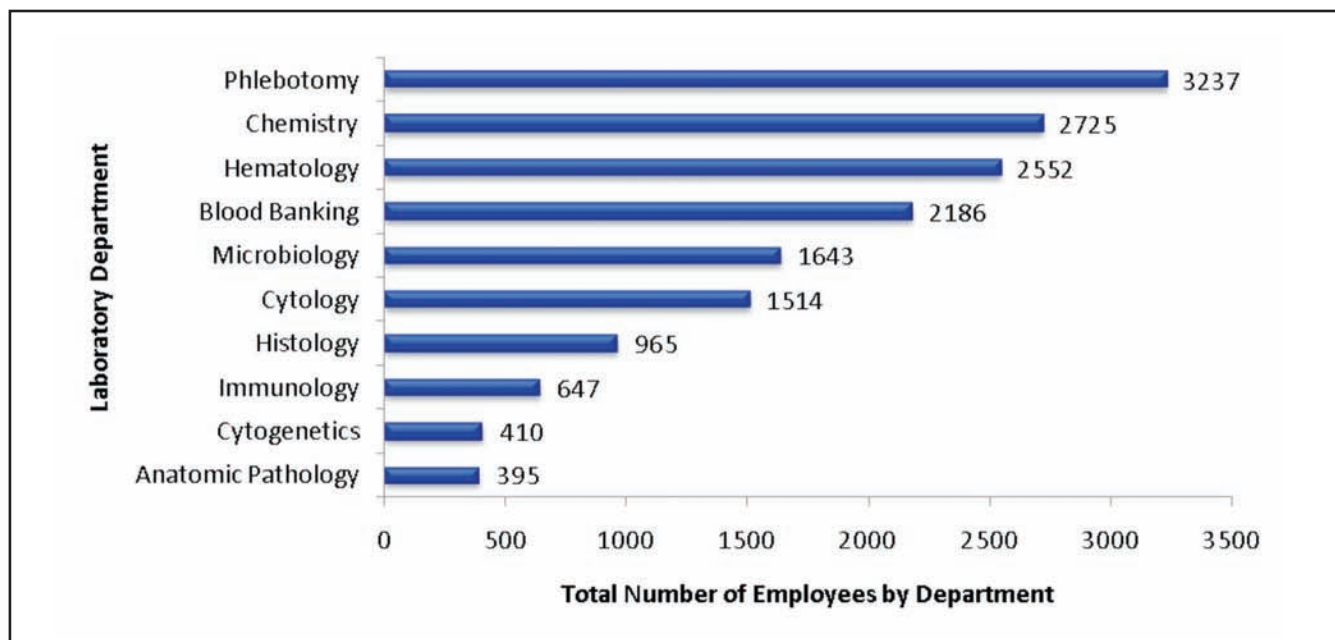


Figure 1\_Overall total number of employees by laboratory department.

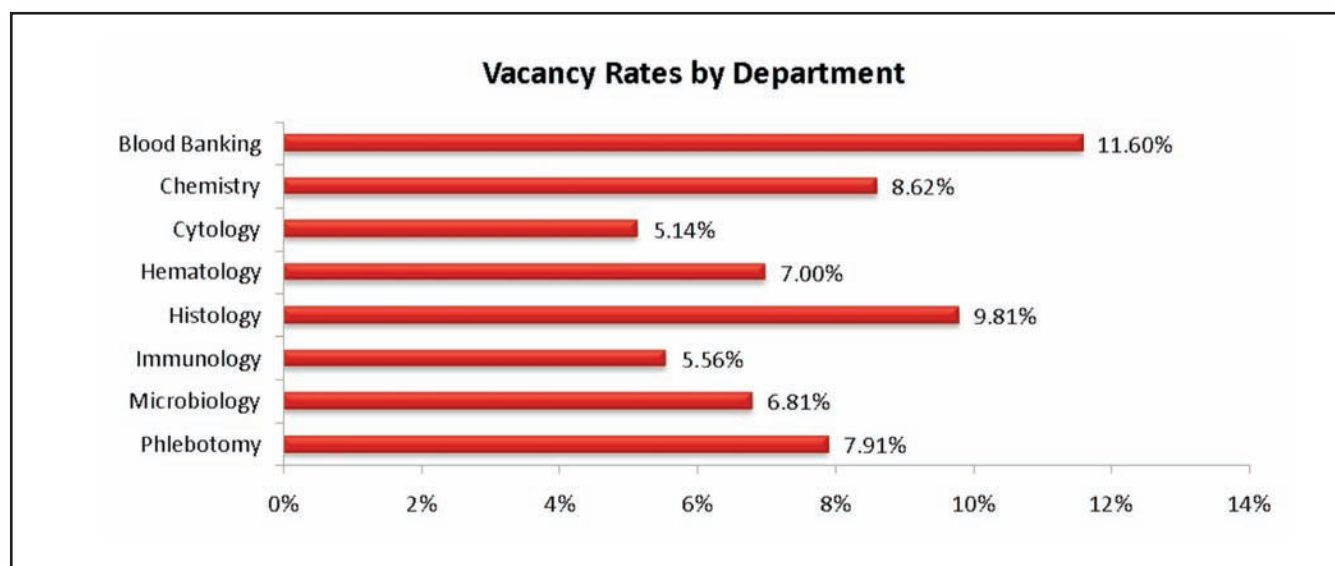


Figure 2\_Vacancy rates by laboratory department. \*Sample sizes for Anatomic Pathology and Cytogenetics did not allow for statistically significant comparisons.

According to the survey results, 93.8% of staff and 96.7% of supervisors working in chemistry laboratory departments are certified. (Figure 5) Employees who work overtime or double shifts constitute 17.5% of the total workforce in the department (Figure 6). Results show that molecular diagnostics is performed in 8.82% of Chemistry laboratories surveyed (Figure 7).

**Cytology**

The overall vacancy rate for the cytology department is 5.14%, the lowest across all surveyed departments (Figure 2). Total staff vacancy rate is reported to be 2.67%, and total supervisor vacancy rate is 18.55% (Figure 3 and Figure 4). Analysis of vacancy data by laboratory facilities and region

Table 1\_Total Number of Responses per Department

Department	N
Anatomic Pathology	68
Blood Banking	226
Chemistry	272
Cytogenetics	28
Cytology	189
Hematology	272
Histology	146
Immunology	121
Microbiology	181
Phlebotomy	216
Total	1719

**Table 2\_Regional Distribution by State**

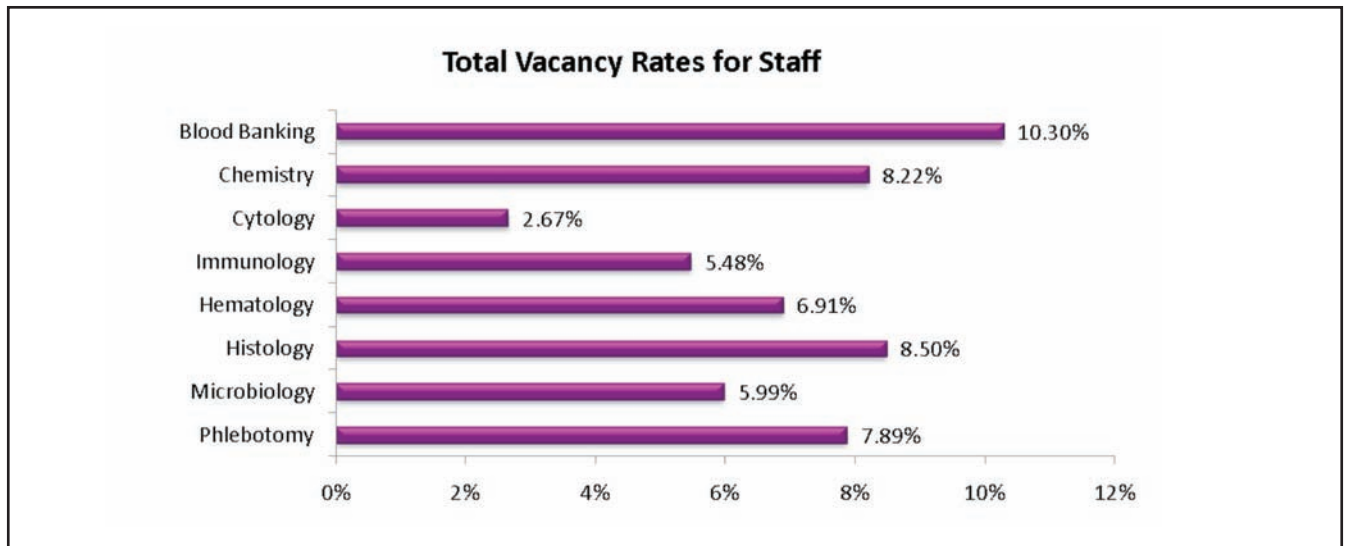
Region	States
Far West	Alaska (AK), Arizona (AR), California (CA), Colorado (CO), Hawaii (HI), Idaho (ID), Montana (MT), Nevada (NV), New Mexico (NM), Oregon (OR), Utah (UT), Washington (WA), Wyoming (WY)
Central North West	Iowa (IA), Kansas (KS), Minnesota (MN), Missouri (MO), Nebraska (NE), North Dakota (ND), South Dakota (SD)
Central South West	Arkansas (AR), Louisiana (LA), Oklahoma (OK), Texas (TX)
Central North East	Illinois (IL), Indiana (IN), Michigan (MI), Ohio (OH), Wisconsin (WI)
South Central Atlantic	Alabama (AL), Delaware (DE), District of Columbia (DC), Florida (FL), Georgia (GA), Kentucky (KY), Maryland (MD), Mississippi (MS), North Carolina (NC), South Carolina (SC), Tennessee (TN), Virginia (VA), West Virginia (WV)
Northeast	Connecticut (CT), Maine (ME), Massachusetts (MA), New Hampshire (NH), New Jersey (NJ), New York (NY), Pennsylvania (PA), Rhode Island (RI), Vermont (VT)

could not be performed as the results would provide statistically insignificant values.

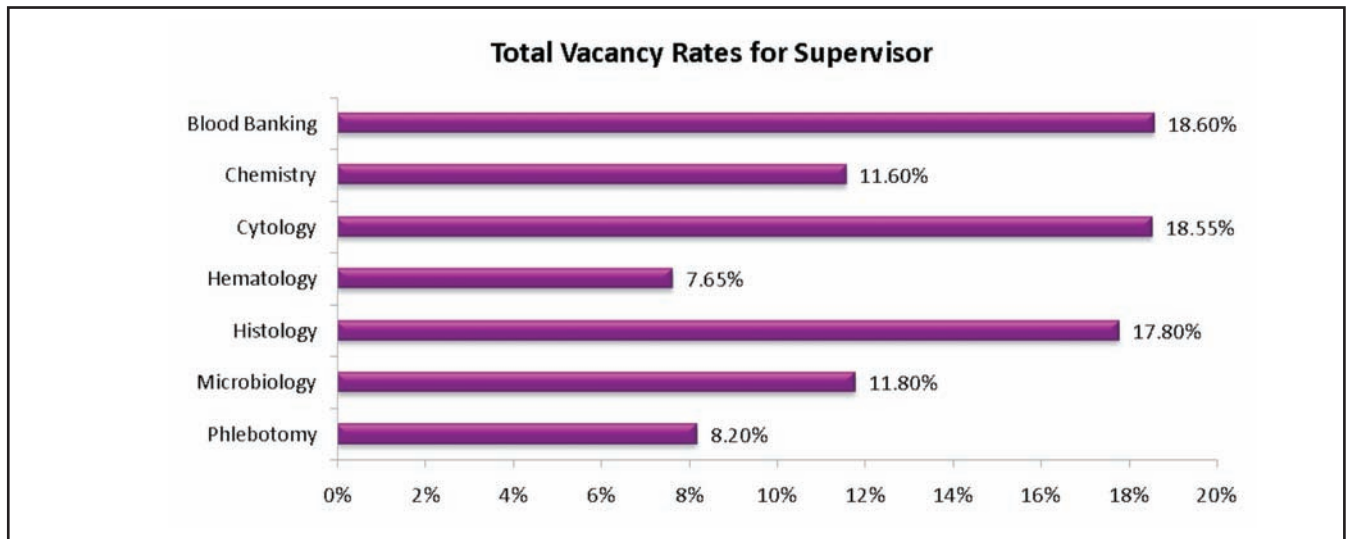
Survey results show that 90.7% of staff and 98.0% of supervisors in the cytology department are certified (Figure 5). Employees in the cytology department who work double shift or overtime make up 6.87% of the total laboratory personnel employed in the facility. This relatively low number is likely reflective of the workload limits placed on cytotechnologists by the Clinical Laboratory Improvement Amendments of 1988 (CLIA) (Figure 6). Molecular diagnostics is performed in 22.2% of the Cytology laboratories in the survey (Figure 7).

**Hematology**

The overall vacancy rate for the hematology department is 7.0%. (Figure 2) The staff vacancy rate is 6.91%, and the supervisor vacancy rate is 7.65%. (Figure 3 and Figure 4) Hematology departments in hospitals with 100 beds or less have a relatively higher staff vacancy rate of 8.03%, compared to



**Figure 3** Staff vacancy rates by laboratory department. Sample sizes for Anatomic Pathology and Cytogenetics department did not allow for statistically significant comparisons.



**Figure 4** Supervisory vacancy rates by laboratory department. Sample sizes for Anatomic Pathology, Cytogenetics, and Immunology did not allow for statistically significant comparisons.

other facilities surveyed. Hospitals with 300-499 beds reported a lower vacancy rate of 6.65%. By region, the total vacancy rate for the Hematology department is higher in the Central South West, 11.2%, and lower in the South Central Atlantic, 5.88%.

According to the survey results, 94.3% of staff and 93.4% supervisors in the hematology department are certified (Figure 5). Furthermore, 16.3% employees in the department work double shifts or overtime (Figure 6). Molecular diagnostics is performed in 4.78% of the total hematology laboratories surveyed. (Figure 7)

### Histology

The overall vacancy rate for the histology department is 9.81% (Figure 2). The total staff vacancy rate is 8.50%, and the total supervisor vacancy rate is 17.8% (Figure 3 and Figure 4). Further analysis of overall vacancy rates by region and facility for histology laboratories could not be performed as the results would be rendered statistically insignificant.

Survey results show that 69.4% of staff and 91.6% of supervisors in the histology department are certified (Figure 5). Of the total staff and supervisors employed in this department, 20.9% work double shifts or overtime (Figure 6). Molecular Diagnostics is performed in 9.59% of the total Histology laboratories in the survey (Figure 7).

### Immunology

The vacancy rate for the immunology department is 5.56% (Figure 2). Due to sample size restrictions, statistical analysis of vacancy rates for staff and supervisor, facility, and region could not be performed.

According the survey results, 95.4% of staff and 97.9% of supervisors in the immunology department are certified (Figure 5). Employees who work double shifts or overtime constitute 22.8% of the total workforce in the department (Figure 6). Molecular diagnostics is performed in 9.92% of the total immunology laboratories in the survey (Figure 7).

### Microbiology

The total vacancy rate for the microbiology department is 6.81% (Figure 2). The total vacancy rate for staff is 5.99%, and the total vacancy rate for supervisors is 11.8% (Figure 3 and Figure 4). By facility, the staff vacancy rate is highest in outpatient clinics, 23.1%, and lowest in hospitals with 300-499 beds, 4.3%. Analysis of supervisory vacancy data by laboratory facility and vacancy rate region were not performed as the results would be statistically insignificant.

Survey results show that 91.4% of staff and 98.3% of supervisor in the microbiology department are certified (Figure 5). In microbiology, 12.5% of employees work double shifts or overtime (Figure 6). Molecular diagnostics is performed in 37.0% of the total microbiology laboratories surveyed (Figure 7).

### Phlebotomy

The national vacancy rate yield for phlebotomy is 7.91% (Figure 2). The overall staff vacancy rate is 7.89%, and the supervisor vacancy rate is 8.20% (Figure 3 and Figure 4). Phlebotomy departments in outpatient clinics have a higher staff vacancy rate, 18.9%, compared to the other facilities in the survey. Hospitals with 300-499 beds have a lower staff vacancy rate of 6.37%. Due to sample size restrictions, statistical analysis of the vacancy rate for supervisory positions by facility could not be performed. By region, Central South West has the highest overall vacancy rate of 12.7%, and Central North East has the lowest total vacancy rate of 6.10%.

Data results show that 48.1% of staff and 82.8% of supervisors are certified in the phlebotomy department (Figure 5). Employees who work double shifts or overtime constitute 17.5% of the total workforce in the department (Figure 6).

### Anatomic Pathology

According to the survey results, 46.3% of staff and 76.6% of supervisors in the anatomic pathology department are certified (Figure 5). Employees who work double shifts or overtime

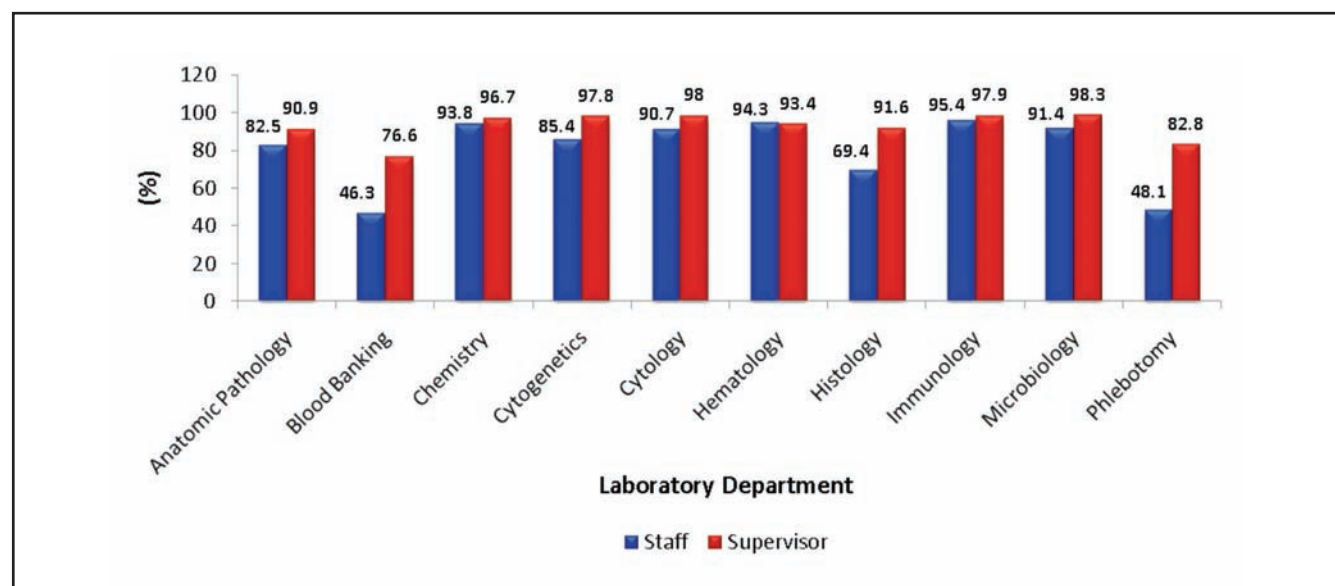


Figure 5\_Percentage of certified employees by laboratory department.

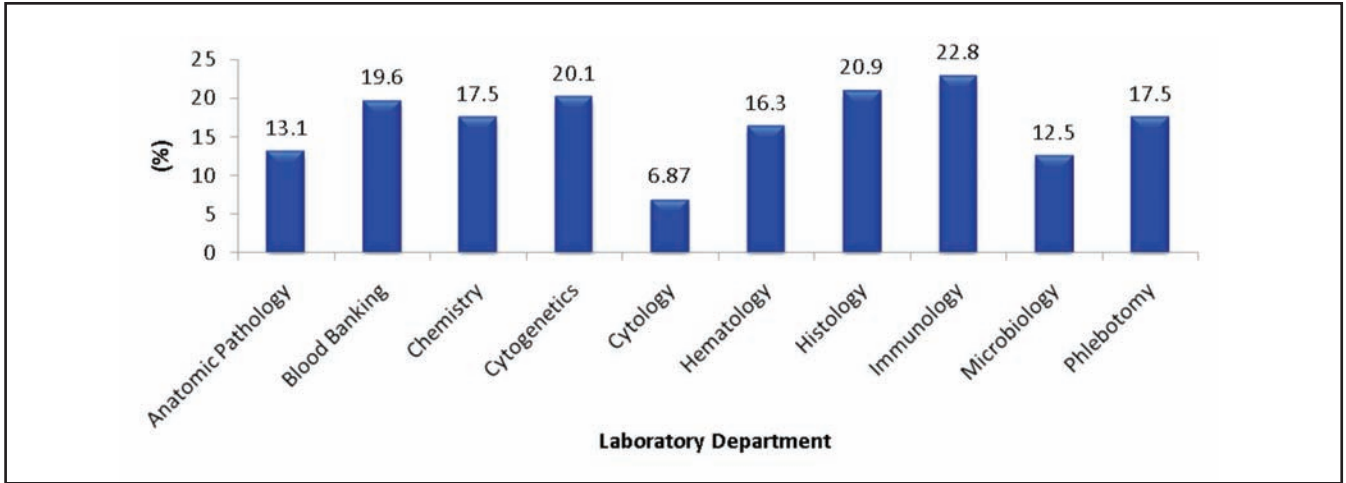


Figure 6\_Percentage of employees who work double shifts or overtime by department.

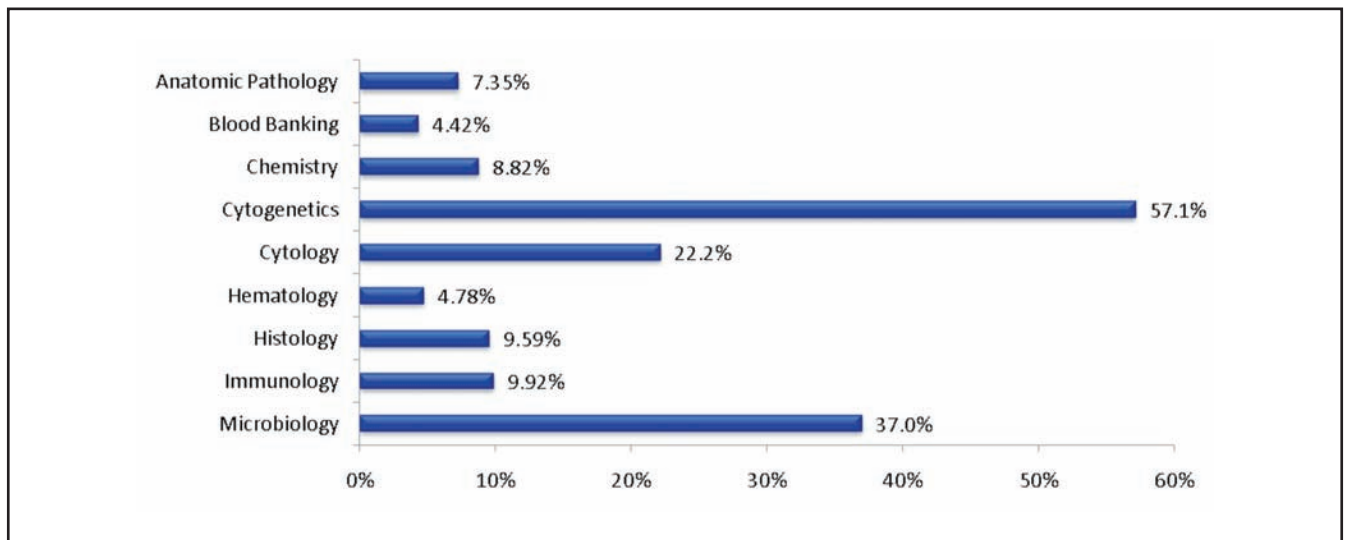


Figure 7\_Percentage of laboratories by department that perform Molecular Diagnostics.

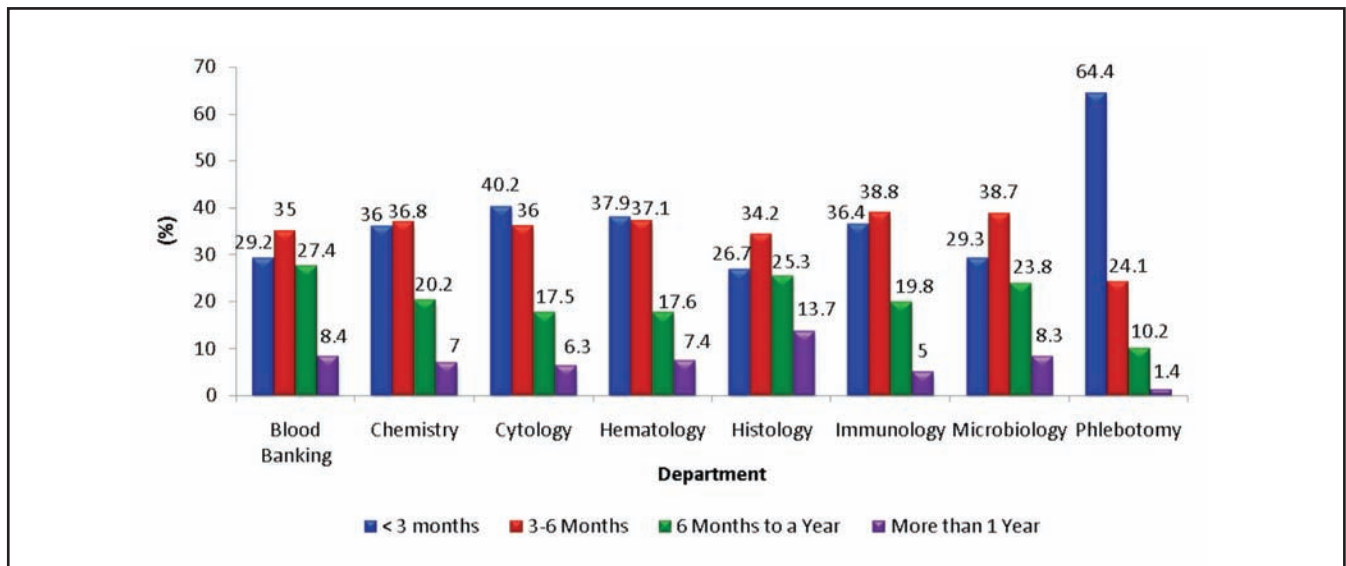


Figure 8\_Time to fill empty staff positions.



constitute 13.1% of the total workforce in the department (Figure 6). Molecular diagnostics is performed in 7.35% of the total anatomic pathology laboratories in the survey (Figure 7). Further analysis of overall vacancy rate, staff and supervisory vacancy rates, as well as vacancy rates by region and facility for anatomic pathology laboratories could not be performed as the results would be rendered statistically insignificant.

### Cytogenetics

Data show that 85.4% of staff and 97.8% of supervisors in the cytogenetics department are certified (Figure 5). Of the total employees in this department, 20.1% work double shifts or overtime (Figure 6). Molecular diagnostics is performed in 57.14% of the cytogenetics laboratories, the highest of all the laboratory departments surveyed (Figure 7). Further analysis of overall vacancy rate, staff, and supervisory vacancy rates, as well as vacancy rates by region and facility for cytogenetics laboratories could not be performed as the results would be rendered statistically insignificant.

## Challenges Facing the Laboratory Workforce

### Hiring Difficulties

Nationally, the majority of laboratories filled most positions within six months of posting an opening. At the staff level, vacancies in the histology and microbiology departments took longer to fill (Figure 8). At the supervisor level, histology and blood banking/transfusion medicine supervisory positions were the hardest to fill, at 24.0% and 23.0%, respectively, of laboratories across the country taking more than one year to fill a vacancy (Figure 9).

The night shift was the most difficult time slot to fill. Immunology and Phlebotomy departments however, reported difficulties in hiring for the day shift. According to the survey, the majority of laboratories across the nation state “better pay and/or benefits at other area laboratories” and “lack of necessary education and skills to perform the work” as the primary reasons for hiring and recruiting difficulties in their departments. Furthermore, most of the laboratories in the survey reported that their departments do not use any recruitment or retention initiatives to attract employees.

### Retirement

Retiring baby boomers from all departments pose yet another staffing challenge for the clinical laboratory field. According to the laboratories from the survey, Immunology has the highest percentage of employees expected to retire in the next five years. Anatomic Pathology and Phlebotomy have the lowest rates of employees expected to retire in the next five years (Figure 10).

## Summary

When hiring staff-level (non-supervisory) employees, most respondents report Medical Laboratory Scientist/Medical Technologist/Clinical Laboratory Scientist (MLS/MT/CLS) and Medical Laboratory Technician/Clinical Laboratory Technician (MLT/CLT) as the preferred credential/certification. The Phlebotomy department prefers Phlebotomy Technicians (PBTs) and Non-Certified personnel when hiring staff-level employees. Histotechnician (HT) is the credential/certification of choice in the histology department when hiring staff-level personnel. The Cytology department reports that when hiring staff-level employees, Cytotechnologist (CT) is the preferred credential/certification. Lastly, Pathologists' Assistant (PA) is the credential/

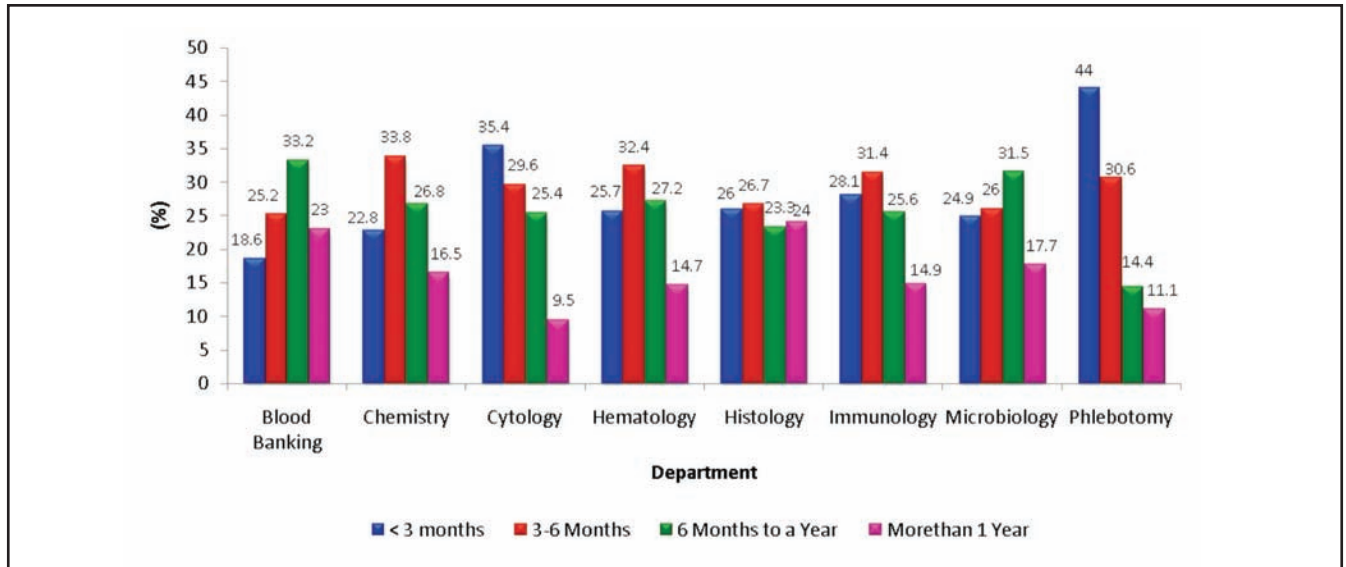


Figure 9\_Time to fill empty supervisory position.

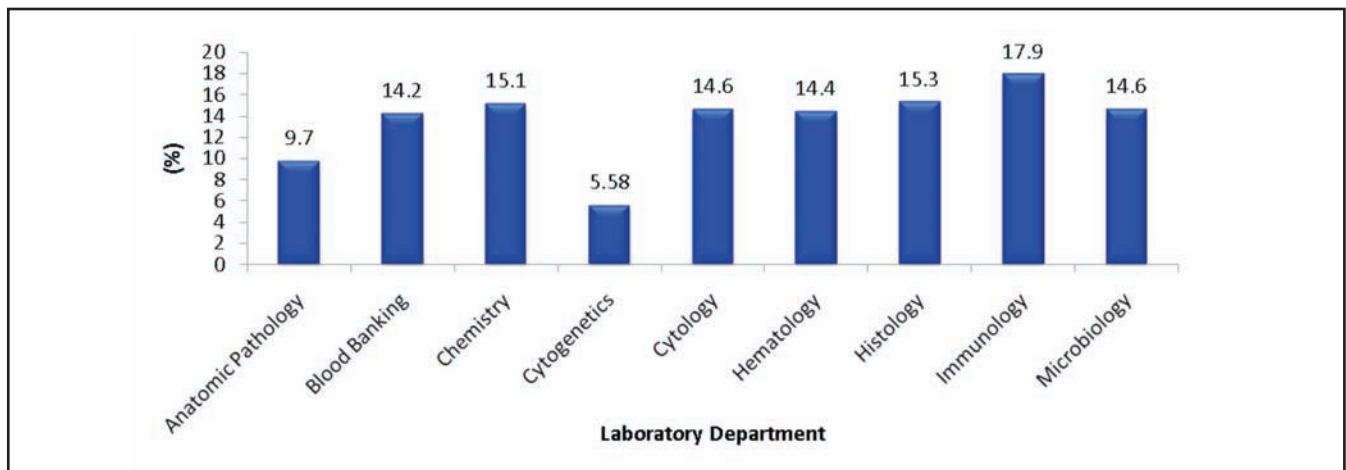


Figure 10\_Percentage of employees by department anticipated to retire in the next 5 years.

certification of choice when hiring staff-level employees in the Anatomic Pathology Department.

For the most part, laboratory departments surveyed prefer MLS/MT/CLS credential/certification when hiring supervisory employees. Some departments, however, also chose other credentials/certifications based on their laboratory’s needs. The following hire supervisory level employees with certain credentials/certifications: Anatomic Pathology – PA and HT, Blood Banking - Specialist in Blood Banking (SBB), Cytogenetics – Technologist in Cytogenetics (CG), Cytology – SCT/CT, Hematology - Specialist in Hematology (SH), Histology – HTL/HT, Microbiology - Specialist in Microbiology (SM), and Phlebotomy – Phlebotomy Technician (PBT).

The data also indicate that supervisors are more likely to be certified than staff. This suggests that employers consider certification a desirable qualification when hiring or promoting laboratory staff. Thus, individuals may find that certification increases the likelihood of advancing into managerial or supervisory roles within the laboratory.

Laboratory medicine is a rapidly evolving field. Advances in genomics and automated technology are redefining the

workforce skills necessary to meet the demand of tomorrow’s laboratory. In addition to these changes, the nation’s clinical laboratories continue to be plagued by challenges of recruiting and retaining staff. Other top issues affecting recruitment were workload stress, scheduling, limited potential for advancement/additional training, budget constraints, and commuting issues.

Unfamiliarity with the profession due to lack of public visibility and limited opportunities for advancement are also contributing factors. Changes in hiring criteria for laboratory personnel, coupled with a declining interest in laboratory medicine as a career over the past two decades has led to the closure of numerous medical technologist training programs. There are many dimensions to the current shortage of well-trained and qualified laboratory personnel, and understanding the reasons for it will be essential in planning a systematic strategy to address the issues at hand. A coordinated effort involving laboratory organizations, government agencies, clinicians, health administrators, outside stakeholders, and industry partners will be needed to formulate a long-term solution. LM