

ASCP Board of Registry's 2001 Annual Survey of Medical Laboratory Science Programs

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Uncertainty about the supply of medical laboratory science students continues to affect program directors' opinions about the future of their programs, even though the number of program applicants and total enrollments are beginning to rise, according to a recent survey conducted by the ASCP Board of Registry (BOR). Although a number of program directors are still concerned about discontinuance of their program; many program directors now report that their recruitment efforts have provided some stability.

Every year since 1984, the ASCP BOR has conducted annual surveys of medical laboratory science programs accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The survey monitors the following:

1. The quality and quantity of the applicants to the accredited educational programs.
2. The number of program graduates and the number of graduates who find employment or enter a graduate or professional program immediately upon graduation.
3. Changes in the structure and operation of the educational programs.

Methods

Surveys were sent to program directors of NAACLS- and CAAHEP-accredited programs (both approved and pending approval) for cytotechnologists (CTs), histotechnicians (HTs), medical laboratory technicians (MLTs), medical technologists (MTs), and specialists in blood banking (SBBs). A scannable survey was used to request information regarding the program's status (active, inactive, or discontinued), the program's institutional base (eg, hospital, university, etc), the number of students enrolled and graduated, and how many of last year's class sought and found

employment. Information was also collected on changes in the program status (eg, changes in the number of clinical affiliates, number of clinical rotation positions).

When computing the "average program enrollment" or "average number of graduates," programs with no students or graduates, respectively, were not included in the statistical computation. The employment rate was based solely on those graduates seeking employment. To aid in identifying regional differences, the programs were classified into 1 of 10 geographic regions on the basis of the first digit of their zip code.

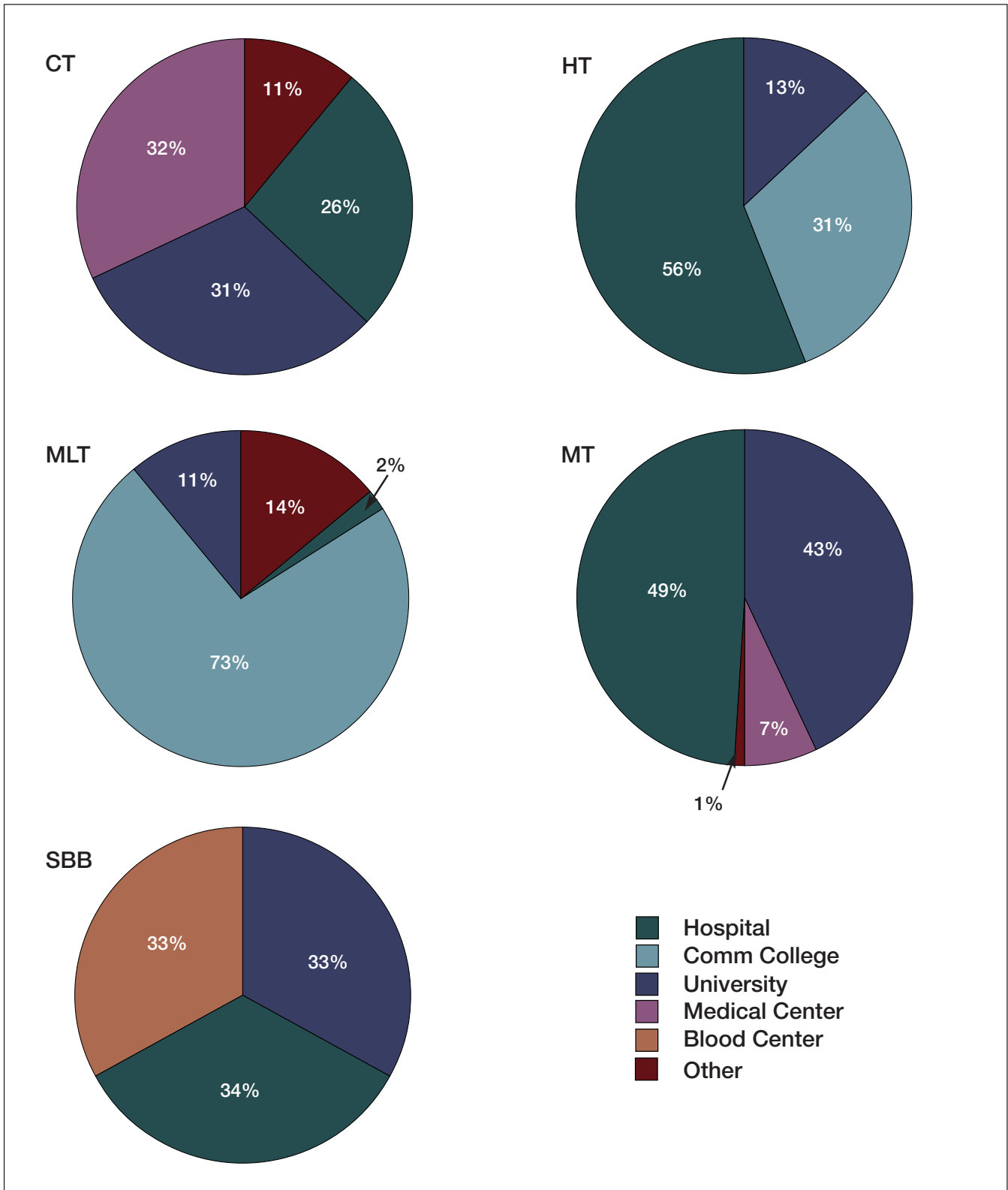
Results

Data on the number of surveys mailed, usable surveys returned, response rate by category, and the number of inactive and active programs are listed in **T1**. The overall response rate was 77%, which was lower than in the previous 4 years (89%, 87%, 86%, and 84% in 2000, 1999, 1998, and 1997 respectively).

Survey Distribution and Response Rate

	Surveys Mailed	Usable Returns	Response Rate	Inactive Programs	Active Programs
CT	55	40	73%	0	40
HT	30	20	67%	2	18
MLT	251	199	79%	17	182
MT	263	204	78%	13	191
SBB	14	9	64%	0	9
Total	613	472	77%	32	440

T1



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[F1] Percentages for each educational setting, separated for each type of accredited program.

Changes in Program Status

Change	CT (n=40)	HT (n=20)	MLT (n=199)	MT (n=204)	SBB (n=9)
Decrease in number of affiliates	2.5%	0.0%	4.5% ↓	2.0% ↓	11.0% ↑↑
Increase in number of affiliates	20.0% ↓	20.0% ↓↓	16.6%	20.6%	0.0%
Decrease in clinical rotation positions	7.5%	0.0%	12.1% ↓	4.9%	0.0% ↓↓
Increase in clinical rotation positions	10.0% ↓	30.0% ↑	11.1%	11.8%	0.0%
Decrease in total enrollment (class size)	5.0%	5.0% ↓	13.1% ↓↓	16.7% ↓	11.1% ↓↓
Increase in total enrollment (class size)	7.5% ↓↓	30.0% ↑↑	25.0% ↑	27.0% ↑	22.2% ↑↑
Discontinuation of program	0.0%	0.0%	10.1%	5.9%	0.0%
Curriculum changes	2.5% ↓	20.0%	16.1%	14.7% ↓	0.0% ↓↓
Other changes	7.5%	5.0% ↓	11.1%	9.3%	22.2% ↑↑
Decrease in the quantity of applicants	62.5%	35.0% ↓↓	48.2% ↓↓	65.2% ↓	33.3% ↓↓
Increase in the quantity of applicants	12.5% ↓↓	25% ↓	31.2% ↑↑	21.6% ↑	44.4% ↑↑
Decrease in the quality of the applicants	42.5% ↑	5.0% ↓	41.7% ↓↓	42.2%	33.3% ↓↓
Increase in the quality of the applicants	22.5% ↓	40.0% ↑	16.6%	16.7%	11.1% ↑↑
Decreased number of job openings	5.0% ↑	0.0%	1.0% ↓	3.4%	0.0% ↓
Increased number of job openings	67.5% ↓↓	75% ↓	70.4%	75.0%	33.3% ↓↓
Student recruitment needed	55.0%	55.0%	62.8% ↓↓	71.6%	44.4% ↓↓

CT indicates cytotechnologist; HT, histotechnician; MLT, medical laboratory technician; MT, medical technologist; SBB, specialist in blood banking. ↓ or ↑ indicates a 5% to 9% change from 2000. ↓↓ or ↑↑ indicates a 10% or greater change from 2000.

F1 depicts the educational settings for each type of accredited program. Medical centers and universities were the most common sites for CT programs. The most common site for HT programs was hospitals. Community colleges were the most common location for MLT programs. The MT programs were found nearly equally divided, but slightly more at hospitals than universities, whereas there were nearly equal numbers of SBB programs located in blood centers, universities, and hospitals.

The program directors' report of the changes in program status is summarized in **T2**. Summaries of the number of programs eliminated or on hold, total enrollment, average enrollment, average number of graduates, and percentage of graduates seeking employment who found employment are broken out by geographic region of the country in **T3A-T3E**.

Discussion

The 2001 survey data indicate some significant positive changes which translates to an overall increase in enrollments that should lead to more graduates in all programs within the next 2 years. In addition to a boost in the number of applicants and total enrollment for all categories, clinical sites appear to be more willing to provide clinical rotation sites. In fact, less than 5% of all programs except SBB reported a decrease in the number of clinical affiliations compared to the number of sites in 2000.¹ It is noteworthy that total enrollment and the average number of students enrolled in all programs are up for all categories. Although many program directors are reporting increases in the number of

students enrolled, the number of graduates in 2001 held steady. In some cases (ie, HT and MLT), the average number of graduates actually continued to decline slightly. The only category not showing a significant increase in enrollment this year compared to last year was CT. The CT programs experienced significant increases in new students last year, compared to HT, MLT, MT, and SBB. The quantity of applications were significantly increased for MLT, MT, and SBB, while fewer program directors reported decreases in the quantity of applicants for HT, MLT, MT, and SBB in 2001. Another positive finding is that fewer program directors reported a decrease in the quality of the applicant pool in 2001. In fact, HT and SBB program directors reported significant increases in the quality of the applicants. This finding should result in better student retention for the next several years. Contrary to these encouraging findings, some program directors are still having difficulty recruiting students and thus are still fearful that their program will be discontinued, owing to unfilled classes.

Another significant change from 2000 is the slowing of program closures. Further, there were no significant declines in the number of programs compared to 2000.¹ Many program directors attribute the upswing in program enrollments and the decline in discontinued programs to their intensive recruitment efforts. Program directors from all types of programs have been devoting more resources to recruitment, both in time and money. Meanwhile, clinical sites are beginning to expand for some programs because the affiliates need to recruit graduates to fill clinical laboratory vacancies.² Further, some program directors reported that their clinical affiliates

Enrollment, Graduation, and Employment Rate by Region and Category: 1999, 2000, and 2001 Compared

T3

3A. Cytotechnologist

Region	Programs Responding			Programs Eliminated or on Hold			Total Enrollment			Average Enrollment			Average Number of Graduates			% of Graduates Employed		
	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01
0	5	6	6	0	0	0	26	26	47	5	4	8	5	5	5	96	96	100
1	5	6	6	0	0	0	38	39	65	8	7	11	7	8	7	91	100	98
2	6	5	5	1	0	0	35	27	53	7	5	11	4	4	5	84	100	100
3	4	5	2	0	0	0	24	28	28	6	6	14	6	8	7	95	97	100
4	6	5	5	0	0	0	26	27	50	5	5	10	5	4	5	100	100	100
5	6	7	5	1	2	0	26	28	55	5	6	11	4	5	5	100	100	100
6	3	4	2	0	1	0	11	17	17	4	6	9	4	4	7	91	100	100
7	6	5	5	0	0	0	29	23	60	6	6	12	5	5	6	89	100	100
8	2	2	2	0	0	0	12	13	27	6	7	14	5	6	7	80	100	100
9	3	2	2	0	0	0	12	12	14	4	6	7	5	6	5	100	91	100
All	46	47	40	2	3	0	239	240	416	6	6	11	5	5	6	94	98	100

3B. Histotechnician

Region	Programs Responding			Programs Eliminated or on Hold			Total Enrollment			Average Enrollment			Average Number of Graduates			% of Graduates Employed		
	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01
0	3	3	2	1	1	0	7	9	17	4	5	9	3	2	4	100	100	88
1	5	5	2	0	0	0	34	39	14	7	8	7	4	5	3	79	84	100
2	2	2	1	0	0	0	13	12	13	7	6	13	9	6	3	100	100	100
3	1	2	2	0	2	1	15	NA	9	15	NA	9	3	NA	2	100	NA	100
4	7	6	5	0	1	0	53	50	110	8	10	22	7	10	8	100	100	100
5	3	3	3	0	0	0	26	51	77	9	17	26	5	6	8	100	100	100
6	1	1	1	0	0	0	2	2	4	2	2	4	2	2	3	100	100	100
7	4	2	3	0	1	0	12	5	17	3	5	6	3	3	3	88	100	100
8	1	1	1	1	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	100	100	NA
9	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
All	27	25	20	2	6	2	163	168	261	7	9	12	5	5	4	96	98	99

are starting to offer loan forgiveness programs for students who are willing to stay as an employee after graduation.

Nearly 100% of the graduates who sought employment immediately upon graduation found employment. The only exceptions were a few graduates who were unwilling to relocate. This high entry-level practitioner employment rate is most likely indicative of the need for trained clinical laboratory personnel to fill vacancies.

Although more than 55% of all program directors point to a need to continue to actively recruit students, many have hypothesized that their increased applicant pool in 2001 was related to a downturn

in the nation's economy and personal knowledge of more competitive salaries owing to demand for their graduates. According to a recent report in the *Chicago Tribune*, colleges are seeing surges in enrollments.³ Not only are colleges seeing growth in the numbers of 18- to 24-year-olds, a second trend centers on the older students who find themselves driven back to college because of a limping economy.³ Some program directors also stated that more recent public awareness about the shortages and modest entry-level salary increases now being offered to graduates may also be a factor associated with renewed interest in careers in medical laboratory science.

Enrollment, Graduation, and Employment Rate by Region and Category: 1999, 2000, and 2001 Compared

3C. Medical Laboratory Technician

Region	Programs Responding			Programs Eliminated or on Hold			Total Enrollment			Average Enrollment			Average Number of Graduates			% of Graduates Employed		
	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01
0	23	23	18	1	2	4	117	117	174	5	7	12	6	4	3	92	100	93
1	23	21	17	2	3	3	152	138	286	7	8	20	6	6	4	89	88	86
2	30	34	28	1	2	3	277	409	565	10	13	23	7	7	6	97	99	100
3	38	37	29	0	3	2	359	490	820	10	14	30	8	8	7	88	89	89
4	35	32	27	6	5	3	208	262	567	7	10	24	6	6	7	93	96	96
5	23	24	21	1	1	1	190	306	584	9	14	29	7	7	8	95	95	100
6	19	19	11	0	1	0	131	178	247	8	10	22	7	7	5	97	94	100
7	32	38	32	0	1	1	235	948	1119	8	28	36	8	18	19	100	94	99
8	9	7	3	2	0	0	49	79	17	7	13	9	6	5	2	97	100	100
9	8	8	5	1	1	0	65	157	140	9	22	28	11	16	8	98	99	94
All	240	243	191	14	19	17	1783	3084	4519	8	14	23	7	9	7	94	96	96

3D. Medical Technologist

Region	Programs Responding			Programs Eliminated or on Hold			Total Enrollment			Average Enrollment			Average Number of Graduates			% of Graduates Employed		
	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01
0	28	30	15	3	6	0	314	275	452	13	12	30	11	13	12	93	95	89
1	29	29	23	3	6	4	173	155	343	7	9	18	8	8	8	95	96	96
2	25	23	22	0	1	2	241	266	495	10	12	25	9	10	9	96	97	100
3	30	28	24	6	1	0	239	227	423	9	9	18	7	8	7	95	97	100
4	34	36	32	4	5	4	235	226	403	8	8	14	8	8	7	96	100	98
5	23	23	22	2	2	0	174	201	449	8	10	20	8	8	9	99	83	100
6	28	26	25	4	3	2	205	184	418	8	9	18	8	8	8	100	100	99
7	35	32	23	1	3	0	362	287	476	11	10	21	8	9	10	97	96	100
8	8	11	8	0	1	0	93	91	141	12	9	18	9	13	8	100	98	100
9	16	15	10	3	3	1	112	96	162	9	9	18	7	9	7	97	96	100
All	256	253	204	26	31	13	2148	2008	3762	10	10	20	8	9	9	97	96	98

Although many programs are starting to experience increased numbers of applicants, others have indicated that they have had difficulty in recruiting students. This was reported most frequently by HT and MLT program directors. Others are still struggling to acquire clinical affiliations for their students. The increased demands on the current laboratory workforce are cited by the program directors as a rationale for the disinterest in health care facilities to provide clinical instruction. A number of programs now send students to multiple clinical facilities to complete their student practicum. Rotations cited most difficult to find are blood bank and microbiology. To help alle-

viate the need for hands-on clinical practice, program directors and faculty are changing the curriculum to include more student laboratory experiences and less clinical practice experience. Some programs have actually been shortened by reducing the number of credit hours required to complete some programs.

Other curricular changes that have been employed, especially for MT programs, are an increase in management, molecular diagnostics, and research courses. Many program directors indicated that they have implemented these changes to reflect the NAACLS standards approved last year.⁴ Another major program change is the

Enrollment, Graduation, and Employment Rate by Region and Category: 1999, 2000, and 2001 Compared

3E. Specialist in Blood Banking

Region	Programs Responding			Programs Eliminated or On Hold			Total Enrollment			Average Enrollment			Average Number of Graduates			% of Graduates Employed		
	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01	99	00	01
0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	2	2	2	0	0	0	5	5	11	3	3	6	4	3	4	100	100	100
3	2	3	NA	1	2	NA	1	2	NA	1	2	NA	1	1	NA	100	100	NA
4	2	2	2	0	0	0	1	6	5	1	3	3	4	0	3	100	NA	100
5	NA	NA	1	NA	NA	0	NA	NA	5	NA	NA	5	NA	NA	5	NA	NA	100
6	1	1	1	0	0	0	5	5	3	5	5	3	3	5	0	100	100	NA
7	5	5	2	0	1	0	5	5	15	2	1	8	2	2	3	88	100	100
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	NA	2	NA	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
All	12	15	8	1	5	0	17	23	39	2	3	5	2	2	3	98	100	100

*Regions: 0, PR, ME, VT, MA, NH, CT, RI, and NJ; 1, PA, NY, and DE; 2, NC, SC, VA, WV, MD, and DC; 3, TN, MS, AL, GA, and FL; 4, MI, IN, OH, and KY; 5, MT, ND, SD, MN, WI, and IA; 6, IL, MO, KS, and NE; 7, TX, OK, AR, and LA; 8, ID, WY, CO, NM, AZ, UT, and NV; 9, AK, HI, CA, OR, WA.

NA (not applicable) indicates that there were no responses from that region.

incorporation of a parallel phlebotomy training program in MLT divisions. Many program directors stated that the introduction of the phlebotomy track has helped to boost enrollment for their programs.

Another major trend that is continuing to emerge is the cooperation of multiple programs, especially within the same state. Standardized curriculums have been mandated for MLT programs in several states. Other MLT programs have voluntarily developed program consortiums, so that courses can be shared through distance learning. In fact, all program types are reporting development and/or further reliance on online courses to assure greater enrollments and to leverage faculty resources. Similar to what was reported in 2000, MLT program directors have commented that their program will be merging with other programs. As reported in the 2000 survey, some program directors report that continuance of their program has been dependent upon delivery of Web-based courses and sharing of resources with other institutions. Distance learning has also been most recently used for SBB programs. This program change has contributed to a significant increase in enrollment in some of the SBB programs. Other program changes cited to assist with boosting enrollments is the offering of categorical chemistry, hematology, and microbiology tracks.

Although recruitment of qualified applicants still continues to be a problem in 2001 for a number of programs, it appears that for many programs in 2001, recruitment efforts have begun to have an impact on both the numbers of applicants and the current enrollment. Although some program directors believe that the future survival of their program looks brighter, many program directors continued to express concern over the lack of public image for careers in the medical laboratory. Once again it was suggested by a

number of program directors that professional medical laboratory societies intensify their efforts to educate the public about careers in medical laboratory science. Program directors continue to point out that low beginning salaries for trained laboratory personnel continue to deter applicants. Although a few program directors have noticed an increase in entry-level salaries for their graduates, many program directors indicated that entry-level salaries need to continue to improve in order to attract and retain qualified applicants.

Although enrollments are beginning to increase and applicant pools are expanding, low salaries, low public awareness about the profession, and budget constraints in both the academic and the laboratory environments continue to threaten program closures for both hospital- and university-based programs. Intensive recruitment efforts, increased salaries, and heightened awareness about the growing workforce shortage must continue to be addressed to maintain current and future laboratory staffing needs.

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