

The Utility of Essential Functions in Clinical Laboratory Science Programs

MARIA E. DELOST, TERESA S. NADDER

OBJECTIVE: Essential functions (EF) define the nonacademic criteria used to determine an individual's qualifications for admission and capabilities of performing in the classroom and laboratory with or without reasonable accommodations. Directors of NAACLS approved and accredited programs were surveyed to investigate their knowledge and perceptions of EF and associations with disabilities and student behaviors.

DESIGN: This was a non-experimental survey consisting of questions related to the use of essential functions (EF) and student behaviors in NAACLS laboratory programs. SurveyMonkey was used to electronically provide the survey of 33 questions to 564 NAACLS programs.

RESULTS: Descriptive statistics were reported as aggregate data with a response rate of 267 (47.3%). EF are utilized in 95.5% of the programs; however, only 38.6% of the participants responded that EF are required by both the ADA and NAACLS. A student had never been dismissed based on EF in 80.0% of the programs. Many programs have been successful in mentoring students with disabilities to successful completion. Hearing impairment was the most reported disability (30.0%). Participants felt most comfortable referring students for academic coaching (96.2%) when compared to medical concerns (86.5%), and psychological concerns (82.7%).

CONCLUSIONS: While most programs utilized EF, many program directors were not aware that EF are required by both NAACLS and the ADA. Programs have successfully instructed and graduated students with a variety of disabilities and generally feel comfortable in referring students for assistance. Concerns with inappropriate behaviors present unique, generational challenges to faculty.

ABBREVIATIONS: EF-Essential Functions, ADA-American with Disabilities Act, NAACLS-National Accrediting Agency for Clinical Laboratory Sciences

INDEX TERMS: Essential Functions, Documented Disability, American with Disabilities Act, Reasonable Accommodation, Student behaviors

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Maria E. Delost, PhD, MT(ASCP), Youngstown State University, Department of Health Professions, Youngstown, OH

Teresa S. Nadder, PhD, MLS(ASCP)^{CM}, Department of Clinical Laboratory Sciences, Virginia Commonwealth University, Richmond, VA

Address for Correspondence: Maria Delost, PhD, Youngstown State University, Professor and Director of Clinical Laboratory Programs, Department of Health Professions, Youngstown, OH 44555, 330-941-1761, medelost@ysu.edu

INTRODUCTION

Essential functions define the nonacademic criteria used to determine whether an individual qualifies for admission and is capable of performing in the classroom and laboratory with or without reasonable accommodations. Originally mandated by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) in the 1986 Essentials, accredited and approved programs are required to establish, publish and provide these criteria to prospective students.^{1,3} The essential function requirement was developed in response to the Rehabilitation Act (1973) and the Americans with Disabilities Act (1990) to insure that academic programs develop, publish and make available to the public and prospective students these task-oriented physical and behavioral standards in which

students must engage to successfully complete a laboratory program.² NAACLS recommends that the Essential Functions address, at a minimum, the following areas: observation, communication, psychomotor skills, intellectual and cognitive abilities, behavioral and social attributes, ethical standards, and academic performance.³

The Americans with Disabilities Act of 1990 (ADA) protects qualified individuals with disabilities in the workplace. Federal Law, under Section 504 of the Rehabilitation Act of 1973 requires that no otherwise qualified person with a disability in the United States shall, solely by reason of disability, be denied the benefits of, be excluded from participation in, or be subjected to discrimination under any program or activity receiving federal financial assistance. Those postsecondary educational institutions that receive any federal financial assistance must comply with Section 504. Thus, clinical laboratory science educational programs are responsible for providing education without regard to disability while assuring that academic and technical standards are met. All students admitted to such a program must possess the skills outlined in the essential functions with or without reasonable accommodations to complete the requirements of the program.

The physical and mental attributes necessary to perform required essential functions (EF) play an important role in the education of students enrolled in health profession programs. These nonacademic elements in the education process contribute significantly to the student's success or failure in navigating through the pathways of education, including those found in the didactic, laboratory and clinical arenas. Additionally, criteria must be followed in order to remain compliant with the American with Disabilities Act (ADA) as well as accreditation standards outlined by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).^{1,2,4} EF can be utilized as a mechanism for self-elimination of individuals from admission to a program or subsequent dismissal if the EF cannot be met. However, the set of EF developed by a given academic program may be inadequate for capturing all nonacademic attributes that may hinder students' progression in the program. For example, inappropriate or disruptive behaviors may result in a student's dismissal from a laboratory program.

Published literature on the implementation and use of EF in allied health and nursing programs is limited. Shortly after the ADA of 1990 was instituted, a study examined the prevalence of EF in bachelor of science in nursing (BSN) programs (Davidson, 1994).⁵ In this study of 164 programs, results indicated that only 14% used an EF tool as an admission consideration. Respondents were conflicted, as how to balance the safety of patients with the rights of the disabled to participate in nursing programs. Although the ADA has now been in existence for over 20 years and while educators are aware of its implications, the connection to essential functions is not always apparent. Today EF are required as an accreditation standard for many allied health programs, including nursing, laboratory sciences, physical therapy and respiratory care as a result of the legislation in the ADA. However, other accrediting agencies, such as CoAEMSP, the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions, do not specifically require an essential function tool in the educational accreditation process but instead requires specific essential functions developed by their national registry.

The purpose of this study was to investigate the knowledge and experience of program officials in NAACLS accredited and approved programs related not only to essential functions and ADA but also to student health, student behaviors, and available student services. An additional research question relates to the implementation of the EF document and how it is used as a tool to screen and evaluate program applicants and enrolled students. We also examined the prevalence of specific student behaviors and associated consequences, as identified by program directors. The prevalence and use of student services to assist students in problematic areas were also assessed.

METHODS

The study design was a non-experimental survey consisting of questions related to the knowledge and use of essential functions (EF) in a NAACLS accredited or approved clinical laboratory sciences programs. SurveyMonkey was used to electronically provide the survey of 33 questions to 564 NAACLS programs. Questions also probed the incidence and types of students with disabilities who have completed these programs, types of student services available to an

RESEARCH AND REPORTS

institution and those utilized for student referrals, and incidence of inappropriate student behaviors. Demographic data on program type, location, annual graduate numbers, and characteristics of the program director were also collected. IRB approval for the study was received by Youngstown State University. Descriptive statistics were reported as aggregate data. Using cross tabs, responses for specific program types and locations were analyzed and reported as percentage results.

RESULTS

A summary of the survey questions with pertinent results is presented in Tables 1-3. Demographic summaries are shown in Figures 1 and 2. A discussion of relevant findings is presented below.

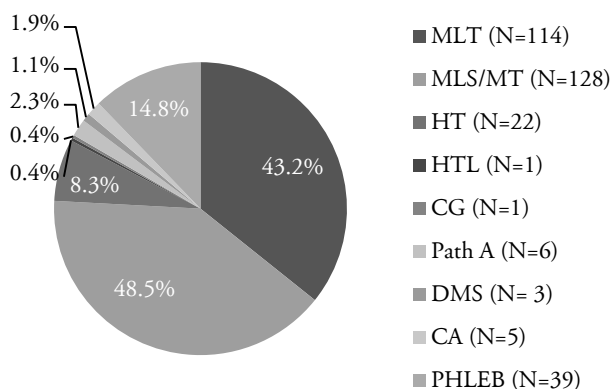


Figure 1. Program Types

Demographics. The response rate from the electronic survey was 47.3%, which included 267 responses from program directors. A total of 319 laboratory science programs accredited or approved by NAACLS were included in the survey as some program directors responded for more than one program within their institution. Figures 1 and 2 show a summary of the demographics for the programs that responded to the survey. The majority of the respondents were directors of medical laboratory technician, MLT (N=114), and medical laboratory scientist, MLS/MT (N=128), programs. Other program responses included histotechnician, HT (N= 22), histotechnologist, HTL (N=1), cytogenetics, CG (N=1), pathologists' assistant, Path A (N= 6), diagnostic molecular scientist, DMS (N=3), clinical laboratory assistant, CA (N=5), and phlebotomy, PHLEB (N=39) programs that were included in the survey (Figure 1). Approximately 37%

of the programs were located in community colleges, 25% in four-year universities, and 25% in hospital laboratories as shown in Figure 2. There were 26.9% of the programs that reported 7 - 10 graduates per year while 20.5% reported 11 - 15 graduates per year. The highest degree reported from the majority of the respondents was the master's degree (75.4%); 14.8% held doctorate degrees. Forty percent of the respondents had 10 years or less of experience, and 30.6% reported over 20 years of experience.

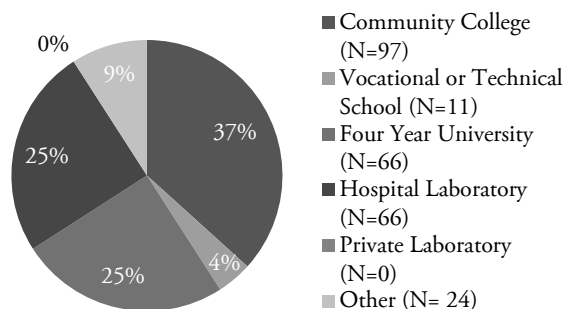


Figure 2. Program Location (N=264)

Knowledge of NAACLS and ADA Requirements for Essential Functions (Table 1). When asked if EF are required by NAACLS, the Americans Disabilities Act (ADA), both NAACLS and ADA, or neither, only 38.6% of the participants responded to the question correctly that an EF policy is required by both NAACLS and ADA (1-A). A higher percentage of participants from community college systems (49.5%), MLT programs (43.9%) and HT/HTL programs (47.8%) chose the correct answer in comparison to programs based in hospital laboratories (36.4%), universities (33.3%), or MLS/MT programs (33.6%). In addition, over 80% of the total respondents agreed with the incorrect statement that educational programs are required to ensure that students have the ability to perform skills related to essential functions in the work place once hired. (1-B). Only about 21% of respondents from university and community college programs each and 10.6% of those from hospital based programs disagreed with this statement.

Implementation of Essential Functions. Essential functions are distributed to applicants or prospective students in 95.5% (N=255) of the programs as indicated by the responses from the survey (1-C). A signed statement or attestation that the student read and

RESEARCH AND REPORTS

Table 1. Essential Functions Survey Results by Program Type and Location. Knowledge and Implementation of Essential Functions

1-A. Essential Functions are required by

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
NAACLS	49	44.7	53.1	34.8%	43.5	51.5	42.2	51.5
ADA	4	2.6	3.1	8.7%	10.3	4.5	3.1	1.5
NAACLS& ADA	39	43.9	33.6	47.8%	35.9	36.4	49.5	33.3
Neither- only for suitability	8	8.8	10.2	8.7%	10.3	7.6	5.2	13.5

1-B. As educators, it is our responsibility to ensure that students in our programs can perform essential functions in the work place once hired.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree Strongly	43.8	35.1	47.7	56.5	46.2	59.1	39.1	34.8
Agree	38.2	43.0	36.7	26.1	43.6	30.3	41.2	43.9
Disagree	13.5	15.8	13.3	17.4	5.1	9.1	15.5	16.8
Disagree Strongly	4.5	6.1	2.3	0.0	5.1	1.5	6.2	4.5

1-C. Essential functions are distributed to applicants or prospective students in our program.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	95.5	94.7	95.3	95.7	97.4	97.0	94.8	95.5
No	4.5	5.3	4.7	4.3	2.6	3.0	5.2	4.5

1-D. We require students to acknowledge receipt and understanding of essential functions through a signed statement or attestation after they have read the essential function policy of our program.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	94.4	93.0	98.4	91.3	89.7	98.5	89.7	97
No	5.6	7.0	1.6	8.7	10.3	1.5	10.3	3

1-E. Our program discusses/reviews essential functions with new students and discusses any concerns with the student.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	83.1	87.7	81.3	82.6	87.2	85.0	84.0	77
No	17.0	12.3	18.7	17.4	12.8	15.0	16	23

1-F. A student enrolled in our program was advised to seek another education program based on concerns related to essential functions.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes								
1-3 times	30.3	41.2	21.9	52.2	30.8	10.6	39.2	34.8
Never	69.7	58.8	78.1	47.8	69.2	89.4	60.8	65.2

RESEARCH AND REPORTS

Table 1. (Continued)

1-G. We have removed a student from our program based on problems in performances or tasks outlined in our essential functions document.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes								
1-3 times	20.2	27.2	16.4	21.7	30.8	9.1	24.7	28.8
Never	79.8	72.8	83.6	78.3	69.2	90.9	75.3	71.2

1-H. Our program is reluctant to fully enforce the requirements outlined in our essential functions because of fears of violating ADA regulations.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree Strongly	1.5	2.6	0.8	0	2.6	0	2.1	3.0
Agree	16.9	28.1	5.5	17.4	23.1	6.1	26.8	10.6
Disagree	56.9	55.3	60.2	65.2	56.4	56.1	58.1	60.6
Disagree Strongly	17.2	9.6	23.4	13.1	15.4	19.7	10.3	24.2
NA - No disabilities office	7.5	4.4	10.2	4.3	2.6	18.2	2.1	1.5

1-I. Our disabilities office has encouraged us to admit a student into our program even when we had concerns about limitations identified through our essential functions or physical examination documents.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree strongly	4.1	5.3	1.6	4.3	7.7	1.5	7.2	3.0
Agree	9.7	14.9	4.7	17.4	23.1	3.0	15.4	9.1
Disagree	45.3	57.0	36.7	52.2	46.2	27.3	56.7	45.5
Disagree Strongly	20.3	14.9	24.2	17.4	12.8	12.1	15.5	37.9
NA - No disabilities office	20.6	7.9	32.8	8.7	20.3	56.1	5.2	4.5

1-J. Students are required to complete a physical examination as an admission requirement to our institution.

	TOTAL	PROGRAM TYPE				PROGRAM LOCATION		
	%	MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	54.7	50.0	57.0	70.0	48.7	68.2	50.5	47.0
No	43.4	49.1	41.4	30.0	48.7	30.3	48.5	50.0
Unsure	1.9	0.9	1.6	0.0	2.6	1.5	1.0	3.0

Key :

MLT = Medical Laboratory Technician, N= 114

MLS/MT = Medical Laboratory Science/Medical Technology, N=128

HT/HTL = Histotechnician (N=22)/Histotechnologist (N=1), N=23

PHLEB = Phlebotomy, N=39

HOSP = Hospital Based Program, N= 66

CC= Community College Program, N= 97

UNIV= University Based Program, N=66

understood the EF policy of the program (1-D) is required by 94.4% (N=252) of the programs, with the lowest percentage observed in programs in community colleges (89.7%) and in phlebotomy programs (89.7%). Fewer number of programs (N=222) indicated that the EF policy (1-E) is discussed with newly admitted students. Community college programs (84.0%), phlebotomy programs (87.2%) and hospital-based programs (85.0%) review the EF policy more often with

their students in comparison to university-based programs (77.0%). Further, 30% of the respondents indicated that at least once, a student was advised to seek another educational program based on concerns related to essential functions (1-F), with the highest percentage from the community college (39.2%) and HT/HTL (52.2%) programs. Approximately 20% of the total respondents reported dismissing 1-3 students from the program based on essential functions

RESEARCH AND REPORTS

requirements (1-G). The highest percentages for dismissing students based on the EF requirements were from phlebotomy (30.8%) and university based (28.8%) programs.

Fewer than 20% of the respondents indicated that their program is reluctant to fully enforce the requirements outlined in their EF policy because of fears of violating ADA regulations (1-H). Community colleges (28.9%) and MLT programs (30.7%) concurred most frequently with this statement. In general, programs were not encouraged to admit students into programs (1-I) when there were concerns about the applicant's limitations as identified through the EF tool or physical assessment with only 13.8% of the respondents agreeing with this statement. However, respondents from phlebotomy programs (25.1%) and MLT programs (20.2%) agreed more frequently with this statement than those from other programs, especially MLS/MT (6.3%).

Student Behaviors (Table 2). Approximately 42% of the respondents had concerns of inappropriate student behavior in the classroom (2-A), with 31.8% reporting an increase in this behavior in the last five years (2-B). Respondents reported that 26.5% personally felt threatened by a student's behavior (2-C). Threatening student behavior was reported the least by hospital-based programs (12.1%) and highest in phlebotomy programs (35.9%), the community college setting (35.1%), and by MLT programs (32.5%). Inappropriate behavior in the clinical sites (2-D-E) resulted in removal from the rotation or probation of at least one student in 42.3% and 40.1%, respectively, of the programs surveyed. Hospital based programs placed the lowest percentage of students on probation (24.2%) when compared to other programs (2-E). Programs in community colleges (58%) and phlebotomy programs (64.1%) had removed students from rotations more often when compared to the other programs. However, greater than 86% of the programs received institutional support with student behavioral concerns (2-F).

Student Services (Table 3). The following services (3-A) are available to students at the respondents' institutions: disability (74.9%), mental/psychological (73.4%), medical/student health (55.1%), and academic tutoring (84.6%). Students with the following disabilities (3-B) were reported to successfully complete the respondents'

programs: vision (16.9%), hearing (30.0%), mobility (19.9%), and mental/psychological (23.2%). Other types of disabilities (46.1%) reported included learning disabilities, attention deficit disorder, communication problems, and the use of only one arm or hand.

More than 96% of the respondents felt comfortable referring students to student services for academic coaching, 86.5% for medical services, and 82.7% for counseling or psychological testing. Indeed, within the last two years 72.7% of the respondents recommended academic tutoring to their students, 52.1% reported sent students to psychological/mental health services, 35.6% to student health, and 34.1% to the institution's disability office.

DISCUSSION

In our study, only 38.6% of the respondents correctly indicated that an EF document is both an accreditation and ADA requirement for clinical laboratory science programs. Most respondents incorrectly responded that EF are only a NAACLS requirement to meet accreditation standards. While essential functions are required by accreditation for some allied health programs, they are not universally mandatory for all programs. To meet accreditation standards and ADA requirements for essential functions, students of clinical laboratory science programs must be informed of the program's physical and behavioral requirements and that these requirements must be met to succeed in the program. These task-oriented expectations must be developed, published and made available to all students, prospective applicants, and the general public. Essential functions must be applied objectively and consistently to all students and include criteria related to vision, communication skills, physical and motor skills, psychological stability, and behavioral, intellectual and integrative skills. These functions must be either possessed by students or attained by students while in the program and are written with outcome based verbs to delineate the required attributes. It is also important to note that it is a common misconception that EF must reflect those attributes necessary for successful employment when in fact the EF are applicable only to the educational program.

Another method to ascertain if an applicant possesses the required health and safety to meet the program essential functions is through a physical examination. While not an accreditation requirement, a physical

RESEARCH AND REPORTS

Table 2. Student Behaviors Survey Results by Program Type and Location

2-A. We have had concerns with inappropriate behavior in the classroom which might lead to aggressiveness or violence.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	42.4	47.4	37.5	47.8	43.5	22.7	49.5	51.5
Never	57.7	52.6	62.5	52.2	56.4	77.3	50.5	48.5

2-B. There has been an increase in the amount of inappropriate behavior by students in the last five years.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree strongly	3.0	2.6	1.6	8.7	5.1	0	3.1	3.0
Agree	28.8	37.7	21.9	30.5	28.2	16.7	37.1	28.8
Disagree	52.8	51.8	56.2	39.1	61.6	48.5	53.6	60.6
Disagree strongly	15.4	7.9	20.3	21.7	5.1	34.8	6.2	7.6

2-C. I have personally felt threatened by a student's inappropriate behavior.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree strongly	3.7	5.3	2.3	13.0	5.1	1.5	5.2	4.5
Agree	22.9	27.2	18.0	17.4	30.8	10.6	29.9	27.3
Disagree	44.6	47.3	43.8	34.8	36.7	31.8	47.4	45.5
Disagree strongly	28.8	20.2	35.9	34.8	33.3	56.1	17.5	22.7

2-D. We have had to remove a student from a clinical site or rotation based on his/her inappropriate behavior.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	42.3	54.4	29.7	56.5	64.1	12.1	58.0	45.5
Never	57.7	45.6	70.3	43.5	35.9	87.9	42.0	54.5

2-E. A student has been placed on probation based on his/her inappropriate behavior in the classroom or clinical site.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Yes	40.1	47.4	33.6	56.5	51.3	24.2	45.4	43.9
Never	59.9	52.6	66.4	43.5	48.7	75.8	54.6	56.1

2-F. My institution supports me when I have concerns with a student's inappropriate behavior.

	TOTAL (%)	PROGRAM TYPE				PROGRAM LOCATION		
		MLT (%)	MLS/MT (%)	HT/HTL (%)	PHLEB (%)	HOSP (%)	CC (%)	UNIV (%)
Agree strongly	33.0	32.4	32.8	26.1	33.3	36.3	39.2	27.3
Agree	53.2	54.5	52.4	43.5	61.6	45.5	48.4	62.2
Disagree	2.6	2.6	2.3	13.0	5.1	1.5	3.1	4.5
Disagree Strongly	1.9	2.6	0.8	4.4	0	0	2.1	1.5
NA	9.4	7.9	11.7	13.0	0	16.7	7.2	4.5

Key :

MLT = Medical Laboratory Technician, N= 114
 MLS/MT = Medical Laboratory Science/Medical Technology, N=128
 HT/HTL = Histotechnician (N=22)/Histotechnologist (N=1), N=23
 PHLEB = Phlebotomy, N=39

HOSP = Hospital Based Program, N= 66
 CC= Community College Program, N= 97
 UNIV= University Based Program, N=66

RESEARCH AND REPORTS

Table 3. Student Services Survey Results by Program Type and Location

3-A. My institution has the following services available for students. Mark all that apply.

	TOTAL		PROGRAM TYPE			PROGRAM LOCATION		
	N	MLT N	MLS/MT N	HT/HTL N	PHLEB N	HOSP N	CC N	UNIV N
Disability Services	200	105	75	20	31	19	91	65
Mental Health								
Counseling/- Psychological	196	70	106	19	26	51	57	62
Medical - Student Health	147	36	97	13	14	43	26	60
Academic Coaching -Tutoring	226	110	97	18	38	43	92	58

3-B. I have recommended the following services to my students in the past two years. Mark all that apply.

	TOTAL		PROGRAM TYPE			PROGRAM LOCATION		
	N	MLT N	MLS/MT N	HT/HTL N	PHLEB N	HOSP N	CC N	UNIV N
Disability Services	91	54	32	8	15	1	46	37
Mental Health -								
Counseling/ Psychological	139	57	73	10	22	28	4	43
Medical - Student Health	95	28	62	6	10	21	18	42
Academic Coaching -Tutoring	194	99	75	15	30	31	82	51
Other	35	8	22	6	6	18	9	3

Key :

MLT =Medical Laboratory Technician, N= 114
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assessment is useful in evaluating the health status of potential students. A general health history, health screen, and immunization status will assist the program to determine if the applicant's health will permit them to meet the essential functions of the program. Physical assessments were required by 54.7% of the programs that participated in the study.

If a deficiency in meeting an essential function is identified in a student or applicant, the disability must be documented through the appropriate agency or department at the institution, for example, at the academic disability services office or other student services office. If the student has a documented disability, he or she may request modifications, accommodations, or auxiliary aids.³ In our study, only a small percentage of the respondents indicated that they advised a student to seek another program based on the

results of the EF (30.3%) or from problems discovered through the EF tool (20.2%).

Educators may have concerns regarding an accommodation, which provides an "unfair" advantage for a student with a disability. An additional concern is that a program may be in violation of ADA regulations if they do not accept a student with a documented disability who does not meet the essential functions of the program. In fact, the study found that that 13.8% of the programs were encouraged to accept a student although a concern was noted in the EF document. In reality, it may be difficult to define "reasonable accommodation" for a student with a disability, especially in a health care program. It is necessary to protect the health and safety of faculty and patients, as well as students. An accommodation is not reasonable if it presents a direct threat to the health or safety of others or if the disability prevents the student from

RESEARCH AND REPORTS

providing appropriate quality care. Also, an accommodation is not reasonable if it results in a significant change to the components of the curriculum.⁶

Another concern is the inability of the student to perform in the clinical setting or as a health care professional once employed. Perhaps reasonable accommodations in the academic setting cannot be equated during the clinical experience or in the work place. As educators, it is our goal to prepare qualified entry level laboratory professionals to practice in the clinical or anatomical laboratory settings upon graduation. However, it is not the responsibility of educators to ensure that students in our programs can perform essential functions in the work place once hired. Only 18.0% of the participants correctly responded to this question.

Negative student behaviors can affect the student's performance in the classroom and in the clinical rotation. Affective performance, as documented through objectives and evaluations, is an integral component of education and is a required curriculum component for accreditation. It is important for educators to evaluate the student's attitudinal performance and to be knowledgeable of appropriate resources for the student. Study results revealed that although EF instruments are distributed in almost all responding programs, issues with student performance related to essential functions, physical assessment, and behavior led to students being placed on probation and removed from programs. Our study showed that in NAACLS approved and accredited programs, 42 % of the respondents had concerns with inappropriate behavior and that almost one-third reported an increase in such behaviors in the last five years. Interestingly, there was no distinction in respondents based on their years of experience as an educator. Also, almost half of the program respondents stated that they had at least one concern with inappropriate behavior that would lead to aggressive behavior or violence.

Study limitations include that this was a self-report of data that could be affected by the subjective nature of some of the questions. Some of the questions may not have been answered by some of the respondents because there was no suitable response. For example, questions referring to a disabilities office could not be answered by

those whose institution lacks such an office. Because this was a descriptive study with reporting of categorical data, inferences cannot be made.

Additional studies might probe the utilization of essential functions and student behaviors in other allied health programs to determine if our results are unique to laboratory education. It would also be useful to determine how student retention and graduation rates are affected by students who are removed from laboratory programs based on essential function or behavioral concerns.

CONCLUSIONS

This study investigated the perceptions of program directors of NAACLS approved and accredited programs regarding essential functions, students with disabilities, and student behaviors. While most programs were aware of the need for EF documents, many were not aware of the association with ADA regulations. Additionally, although almost all programs have an EF document, it seems to be viewed as an accreditation requirement and not an active instrument to evaluate student admission and progression through the programs. If students are not aware of what is required and if program directors are reluctant to proactively apply the EF tool, students may have to be subsequently removed from the program. In our survey, almost all (95.5 %) programs use an EF tool, 94.4% document receipt of the EF tool by the student, and 83.1% review and discuss concerns with the applicant. However, almost one-third (31.3%) of the respondents indicated that a student enrolled in their program was advised to seek another program based on concerns related to essential functions. Also, in 21.2% of the programs, a student was removed based on problems in performance of tasks outlined in the EF document. Though ensuring that students in our programs can perform essential functions in the work place once hired, is not an ADA requirement, 82.0% of the respondents feel that educators have that responsibility.

Student retention and graduation rates are important components of all outcomes-based program assessment. This becomes particularly significant when college and hospital administrators justify the expense of laboratory education programs. Engaging students actively in the essential function requirements of a program can enhance their chances of success if they are fully

RESEARCH AND REPORTS

cognizant of the physical, psychomotor, psychological, and behavioral expectations.

Programs have successfully instructed and graduated students with a variety of disabilities, and faculty are comfortable referring students for academic, behavioral and medical services. It is important for educators to link the requirements of the ADA with those of accrediting agencies so that programs can provide applicants and students with legitimate expectations.

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