

HEALTH PROFESSIONS

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

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University of Arkansas for Medical Sciences

Innovative Student Recruitment to MLS and MLT Programs



Disclaimer

The views expressed today are those of the presenter and do not necessarily represent the views of the University of Arkansas for Medical Sciences, the College of Health Professions, NAACLS, ASCP or other organizations

Objectives

- Discuss the current state of formal medical laboratory education in the United States
- Compare and contrast current efforts to recruit more students into the medical laboratory profession
- Discuss future strategies that individuals and groups may employ to recruit students into the medical laboratory profession

Acknowledgements

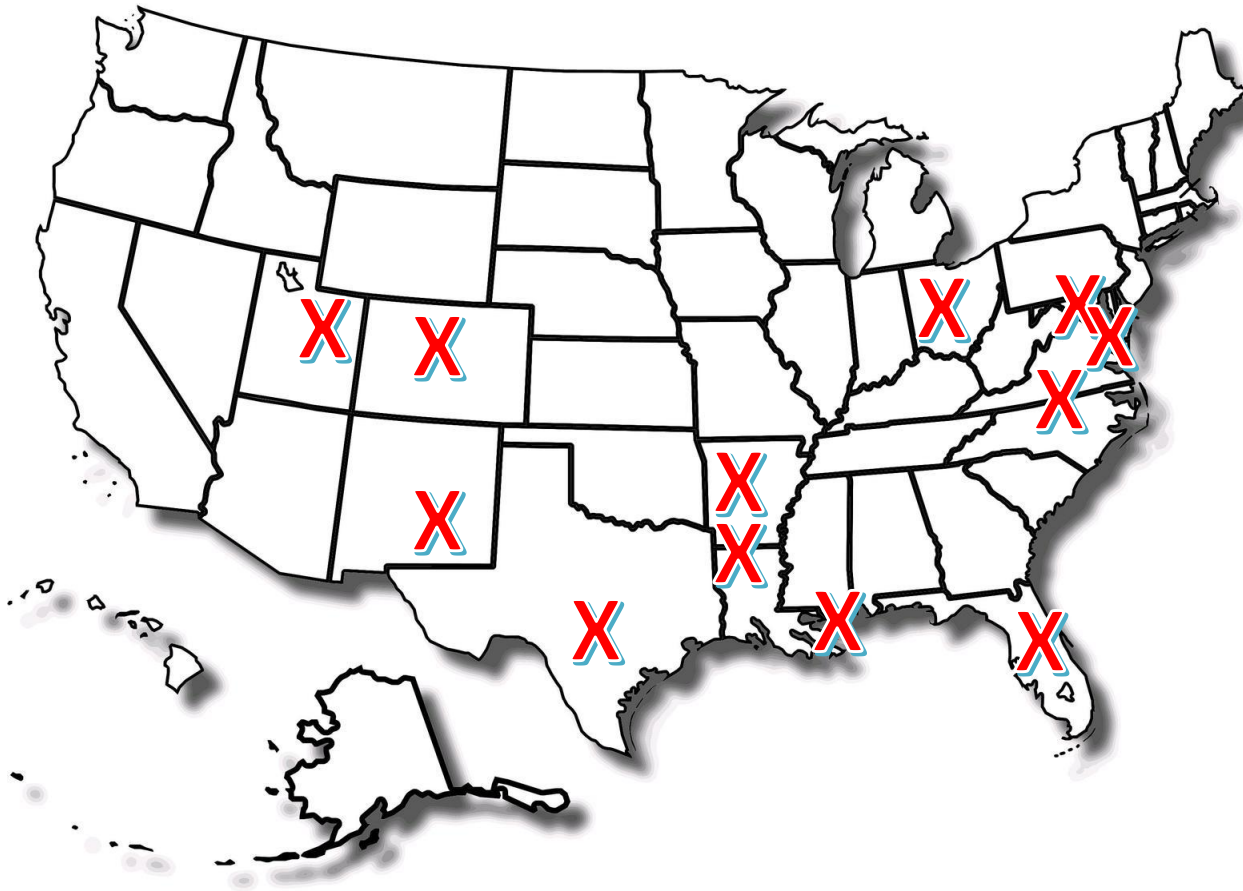
I would like to acknowledge the following for their Support

- The Dept of Lab Sciences Faculty and Staff
- The UAMS College of Health Professions

UAMS Lab Sciences



My Background



The Big Picture

- Clinical laboratories must hire personnel that meet:
 - CLIA requirements
 - State licensure requirements
 - Healthcare system internal requirements
- In almost all instances, NAACLS trained applicants who are also certified will meet requirements and are preferred due to:
 - Standardization
 - Patient Safety
 - Professionalism
- Many labs can't fill open positions with personnel who are NAACLS trained and certified

What Happens Next?

- To meet the minimum CLIA requirements, labs have been forced to hire individuals with a science based educational background and commit to training them on the job
- Issues surrounding this practice
 - Prior education may not prepare someone for entry level positions
 - Short-staffed labs are not in a position to train effectively
- *“What Is **Hemolysis**”? – Question overheard asked by Laboratory Staff working solo in the blood bank one weekend*

What is the Cause?

- Do medical laboratory science programs need to work harder?
- Should clinical labs refuse to hire via alternate pathways?
- Do our professional societies need to do more to attract and recruit new talent into medical labs?
- Do medical laboratory staff need to do a better job, as professionals, in recruiting new talent into the medical laboratory profession?

Lack of Medical Laboratory Training Programs

- A quick of history of medical laboratory training in the United States
 - Origins
 - Growth
 - Sustainment
 - Regression – overall
 - Reduction – regional - hospital based programs
 - Stabilization

Where Are the Gaps?

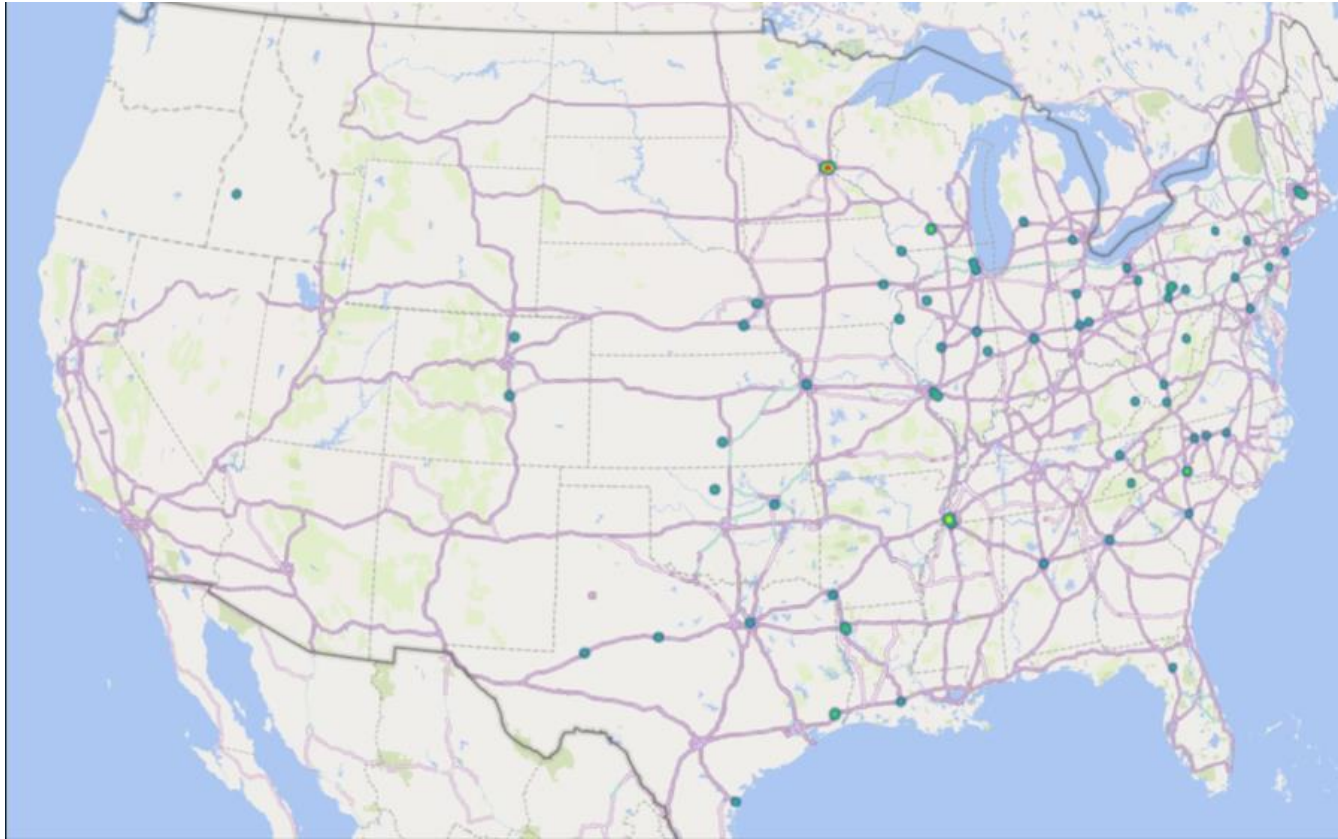


Population Density United States



Combined MLT/MLS Programs

From >700 MLS to ~250



Self-Reported Hospital Based MLS Program Closures

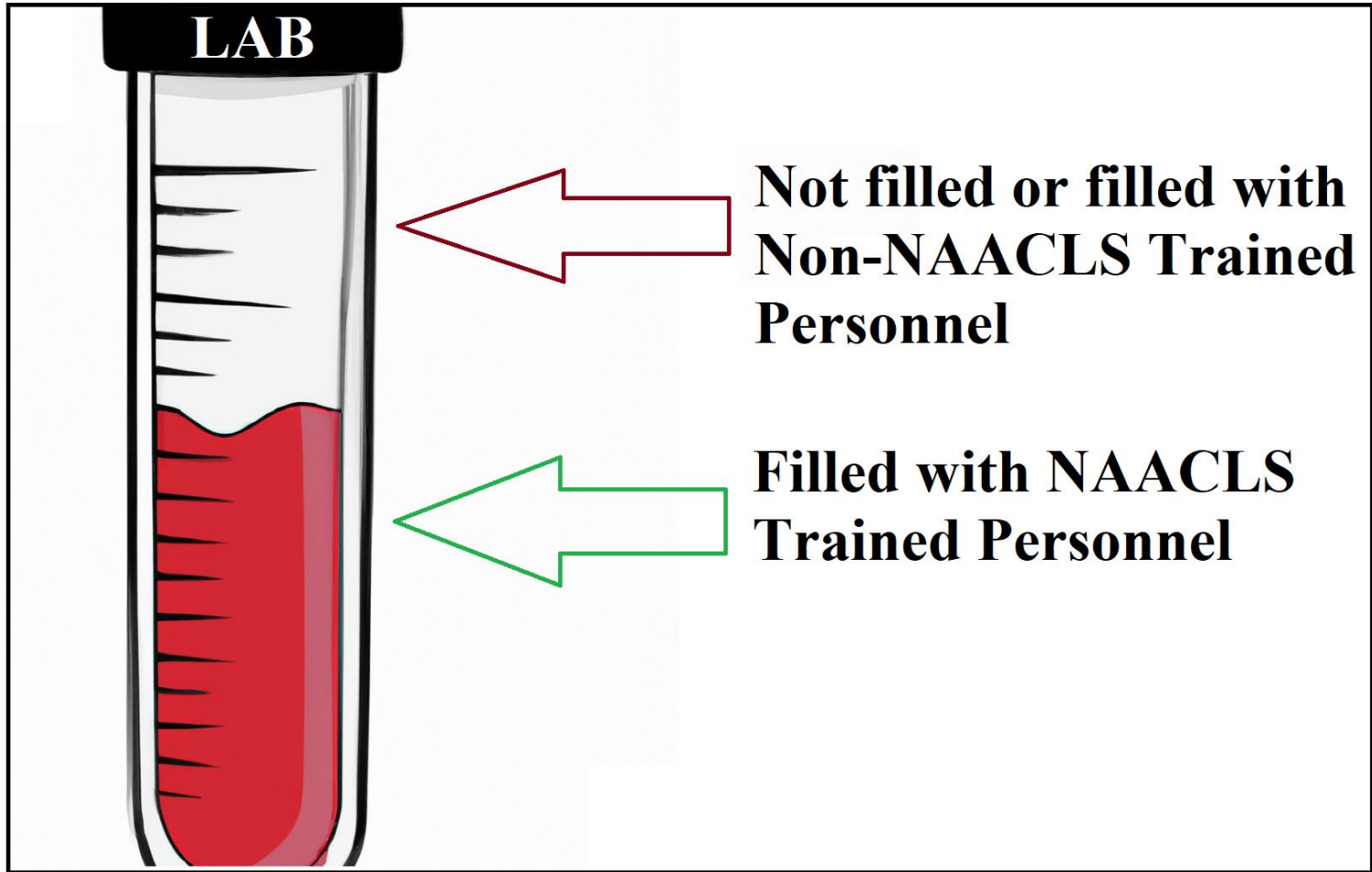
Laboratory Professional Tsunami

Workforce Model for medical laboratory workforce



LABORATORY WORKFORCE MODEL – MLS/MLT							
Throughput MLS	4000	Current Need	331700	Projected Turnover/yr %	0.05	Lab Professional Delta	9010
Throughput MLT	3500	10 year change	0.11	Projected Loss Per Year	16585		
% Change Throughput	0.01	Need +10 Years	368187				
Change Throughput	75						
Estimated MLT/MLS TP	7575						

MLS/MLT Positions



How **Bad** Is It?



	Arkansas	Louisiana	Mississippi	Total	% US
Population	2,915,000	4,530,000	2,950,000	10,395,000	3.20%
Rural Population	1,280,000	1,215,000	1,500,000	3,995,000	6.72%
% Rural	43.9%	26.8%	50.8%	38.4%	US avg 19.3%
# Hospitals	52	111	70	233	5.96%
# MLS Programs	3	9	4	16	6.43%
# MLT Programs	5	6	7	18	7.35%
Jobs Per Hosp	3.1	2.5	2.8	2.8	4.7

Dystopian Future for Clinical Labs?

- The current situation is non-sustainable
 - There are not enough graduates to meet needs
 - In the current scenario, only four possible paths
 - Reduce standards so personnel needs are met
 - CLIA
 - State Licensure
 - Replace current technology with “new” technology
 - Increase in-house training
 - Development of non-NAACLS programs

Is There Anything New Under the Sun?

Some ideas on possibilities for future classification, training and standards of medical technologists, expressed with the hope that a practical solution on the present shortage of medical technologists may be reached

American Journal of Clinical Pathology – Sept 1952

1952 – 15,000 practicing medical technologists and 2,000 new graduates per year

SOME IDEAS ON POSSIBILITIES FOR FUTURE CLASSIFICATION, TRAINING AND STANDARDS OF MEDICAL TECHNOLOGISTS*

EXPRESSED WITH THE HOPE THAT A PRACTICAL SOLUTION TO THE PRESENT SHORTAGE OF MEDICAL TECHNOLOGISTS MAY BE REACHED

(A Reprinted Article)

FRIEDA H. CLAUSSEN, M.T. (ASCP)

There exists in the Medical World today a serious problem . . . "the problem of progressive adjustment of the system of education to attain and maintain in proper alignment with the fundamental changes so rapidly taking place in respect to social and economic relationships and scientific advancement."

The reasons for increased need for medical services of all kinds include:

1. "Changing emphasis in medical care, in preventive medicine and public health."
2. "Advances in the field of science." (In medical technology alone such examples as Rh titres, sensitivity tests to antibiotics, prothrombin times in connection with dicumarol treatments, liver function tests in hepatitis, Papanicolaou stains for cancer cells, etc., etc.) "We cannot continue to add to the number of technics for which we are responsible without releasing some that can be carried on by less highly trained personnel."
3. "Increase in life expectancy."
4. "Increase in incidence of chronic disease."
5. "Hospital and medical care insurance."
6. "Health and welfare programs in industry."
7. "Emphasis on mental health."

"That a large group of (Medical Technologists)† with professional preparation will be needed is obvious. Because of the nature of the demands made on them their preparation must be more comprehensive than it has ever been. To use this group efficiently and economically it must be relieved of all activities which can be carried on effectively, with supervision by (Medical Technologists), with technical preparation in non-professional personnel. Thus each worker involved should be able to work at the top level of (his) capacity most of the time."

"It seems evident that at least two categories of (Medical Technologists) will be needed. First professional schools must be of a character to prepare the highly skilled, competent professional (Medical Technologists); and second, programs for (Laboratory Aides) with technical functions must be established and sup-

* Reprinted without editorial revision from *The American Journal of Medical Technology*, 18: 88-90, 1952, by permission of the author, the editor and the publisher.

The quotes are from "Education of the Nursing Technicians," by Mildred Mostag, R.N., Assistant Professor of Nursing Education, Teachers College, Columbia University, New York City, New York. (The insertions in parentheses are by Frieda Claussen.)

† The book refers to the nurse. Our problem relates to the medical technologist.

This Is Not New!

SPECIAL REPORT

Barbara M. Castleberry, PhD, MT(ASCP)
Laurie L. Wiegman, MA

1998 Wage and Vacancy Survey of Medical Laboratories

Wages Up Slightly, Vacancies on Upswing

Dr Castleberry is vice president, ASCP Board of Registry, Chicago. Ms Wiegman is vice president for Meridian International, Detroit.

Shortages in laboratory personnel have begun to resurface, according to results of a survey conducted by the American Society of Clinical Pathologists' Board of Registry (BOR). For most positions, salary increases from 1988 to 1998 were less than they had been in previous years, and overall job vacancy rates in laboratories increased.

The BOR, in conjunction with Meridian International, Detroit, conducts a biennial wage and vacancy survey of medical laboratory managers. The survey documents current wage levels for 10 medical laboratory positions, measures the vacancy rates for these positions, and compares and contrasts these data with that from 1988, 1990, 1992, 1994, and 1996 studies.

A questionnaire was mailed to 2,500 randomly selected medical laboratory managers listed with the BOR. Six hundred eighteen medical laboratories returned questionnaires for a response rate of 25%. All responses were received between July 30, 1998, and October 30, 1998. Sample returns were fully representative by type, size of facility, and geographic region of the country. The sample size provides a sampling error tolerance of 3.0%.

Wages

The beginning and average wage levels were measured for each of 10 positions commonly found in US medical laboratories:

- Three levels for medical technologists
- Two levels for cytotechnologists
- Three levels for histologic technicians/histotechnologists
- One level for phlebotomists

The measurement used for wages is the median wage. The median wage is the wage at the 50th percentile when all wages for a particular category are ordered, from lowest to highest. In other words, half

of laboratory wages are below the median and half are above the median.

The median wage is the base pay. The base pay represents monetary compensation the employee receives per daytime work hour and excludes other forms of compensation, such as shift pay, bonuses, and benefits. In addition, many laboratories pay above the stated beginning or "low end" rate for entry-level positions, to attract qualified candidates to vacant positions.

The median beginning wage paid to staff-level medical technologists for 1998 was \$13.00 per hour (up \$0.40 and \$0.92 compared to previous 2- and 4-year periods). This represents an annual salary of \$27,040 (\$13.00 × 2,080 hours, assuming a standard 40-hour workweek). The median average rate paid to staff-level technologists was \$16.50 per hour (\$33,280 annually), and the median top rate was \$18.50 per hour (\$38,480 annually).

Between 1994 and 1996, the beginning wage rates increased 4.3%, roughly 2.1% per year, but from 1996 to 1998 the increase was only 3.2%, or about 1.6% per year.

In 1988 and 1990, the surveys requested the top rate of pay for each position, in addition to the beginning rate. In 1992, an additional question requested the average wage rate, considered more reflective of overall wage rates. This comparison for average wage rates were made only from 1992 to 1998. The average annual percentage increases in beginning wages for each position from 1988 to 1998 is shown in Figure 1.

Nationally, trends have fluctuated by position between periods. Beginning wage increases from 1988 to 1996 were largest for cytotechnologist supervisor and staff (22.1% and 19.1%, respectively). From 1990 to 1992, beginning wage increases were largest for phlebotomist (19.0%) and cytotechnologist staff (17.4%). For all positions, with the exception of phlebotomists, wage

PROFESSIONAL PERSPECTIVES

The Future of Medical Technologists Through Surveys and Statistics

The average age of medical technologists is 40 years old. The American Society of Clinical Pathologists' Board of Registry (BOR) has conducted a series of surveys to determine the future of medical technologists. The BOR, in conjunction with Meridian International, Detroit, conducts a biennial wage and vacancy survey of medical laboratory managers. The survey documents current wage levels for 10 medical laboratory positions, measures the vacancy rates for these positions, and compares and contrasts these data with that from 1988, 1990, 1992, 1994, and 1996 studies. A questionnaire was mailed to 2,500 randomly selected medical laboratory managers listed with the BOR. Six hundred eighteen medical laboratories returned questionnaires for a response rate of 25%. All responses were received between July 30, 1998, and October 30, 1998. Sample returns were fully representative by type, size of facility, and geographic region of the country. The sample size provides a sampling error tolerance of 3.0%. The beginning and average wage levels were measured for each of 10 positions commonly found in US medical laboratories: Three levels for medical technologists, Two levels for cytotechnologists, Three levels for histologic technicians/histotechnologists, One level for phlebotomists. The measurement used for wages is the median wage. The median wage is the wage at the 50th percentile when all wages for a particular category are ordered, from lowest to highest. In other words, half of laboratory wages are below the median and half are above the median. The median wage is the base pay. The base pay represents monetary compensation the employee receives per daytime work hour and excludes other forms of compensation, such as shift pay, bonuses, and benefits. In addition, many laboratories pay above the stated beginning or "low end" rate for entry-level positions, to attract qualified candidates to vacant positions. The median beginning wage paid to staff-level medical technologists for 1998 was \$13.00 per hour (up \$0.40 and \$0.92 compared to previous 2- and 4-year periods). This represents an annual salary of \$27,040 (\$13.00 × 2,080 hours, assuming a standard 40-hour workweek). The median average rate paid to staff-level technologists was \$16.50 per hour (\$33,280 annually), and the median top rate was \$18.50 per hour (\$38,480 annually). Between 1994 and 1996, the beginning wage rates increased 4.3%, roughly 2.1% per year, but from 1996 to 1998 the increase was only 3.2%, or about 1.6% per year. In 1988 and 1990, the surveys requested the top rate of pay for each position, in addition to the beginning rate. In 1992, an additional question requested the average wage rate, considered more reflective of overall wage rates. This comparison for average wage rates were made only from 1992 to 1998. The average annual percentage increases in beginning wages for each position from 1988 to 1998 is shown in Figure 1. Nationally, trends have fluctuated by position between periods. Beginning wage increases from 1988 to 1996 were largest for cytotechnologist supervisor and staff (22.1% and 19.1%, respectively). From 1990 to 1992, beginning wage increases were largest for phlebotomist (19.0%) and cytotechnologist staff (17.4%). For all positions, with the exception of phlebotomists, wage

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LABORATORY MEDICINE VOLUME 20, NUMBER 3 MARCH 1999

In **June 16, 2000**, representatives from twelve (12) different laboratory organizations and two (2) government agencies met in Chicago to participate in the first Summit on the "Shortage of Clinical Laboratory Personnel"

special report

A Census Survey and Profile of Clinical Laboratory Scientists, University of Minnesota

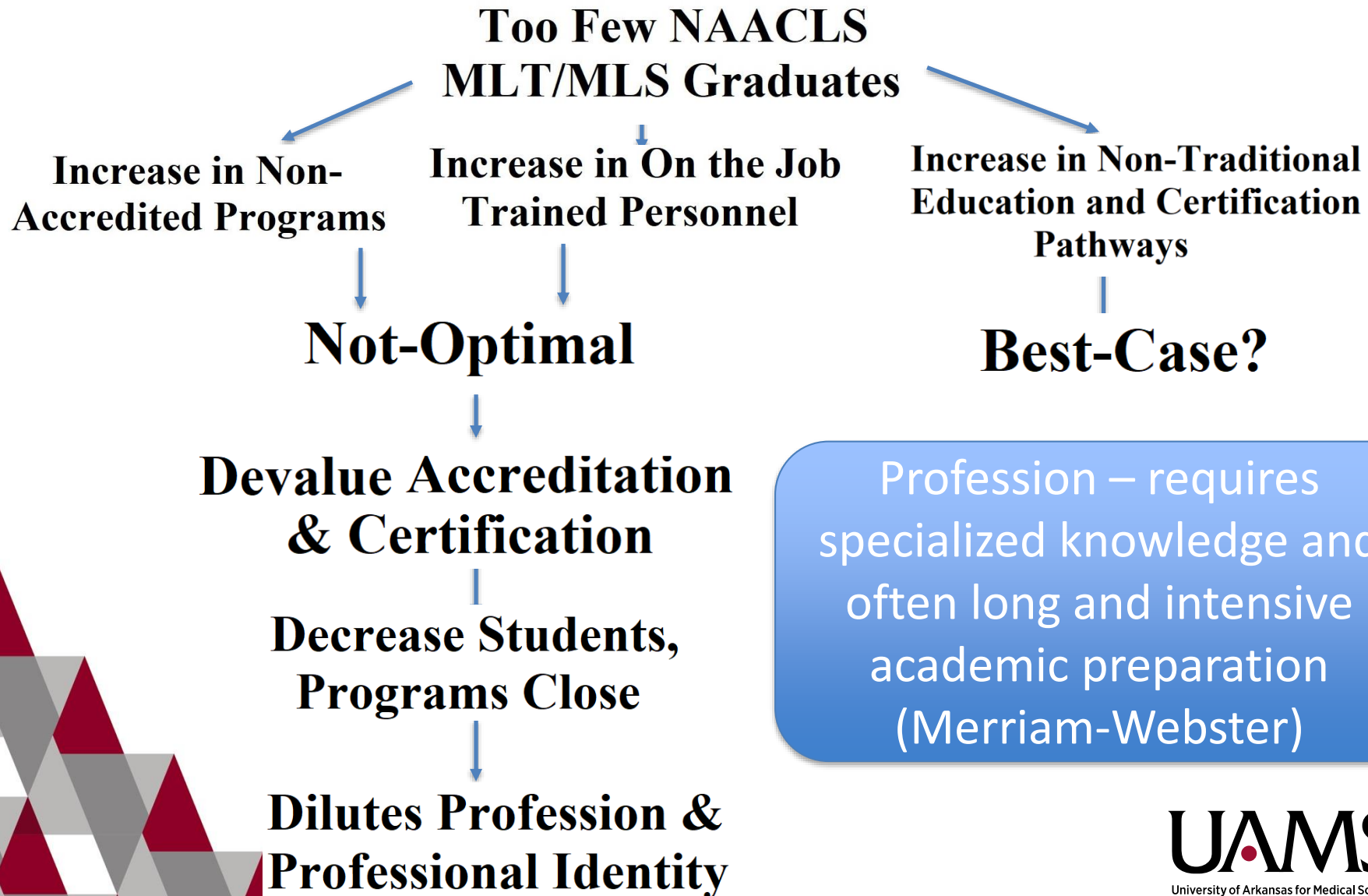
Lester K. Hightler, PhD, I. Diane P. French, MPH, I. K. Michael Pedlow, DrPH, John M. Kozlak, PhD
Laboratory Assistant Professor, San Diego State University, San Diego, CA; Laboratory Practice Assessment Branch, Centers for Disease Control and Prevention, Atlanta, GA

There is a shortage of clinical laboratory scientists... The field of clinical laboratory science is undergoing a period of rapid change... The field of clinical laboratory science is undergoing a period of rapid change... The field of clinical laboratory science is undergoing a period of rapid change...



Impact on Educational Programs

taken from NAACLS News (<https://naacclsnews.org/2023/06/15/presidents-report-educational-programs-threats-and-opportunities/>) – Dr. Maribeth Flaws



Who Has The Answers?



What Our Labs Are Telling Us

- They need more staff
- They have no real plan to get these staff
- Could I please send them several new graduates....yesterday!



What Are The Lab Professionals Reporting

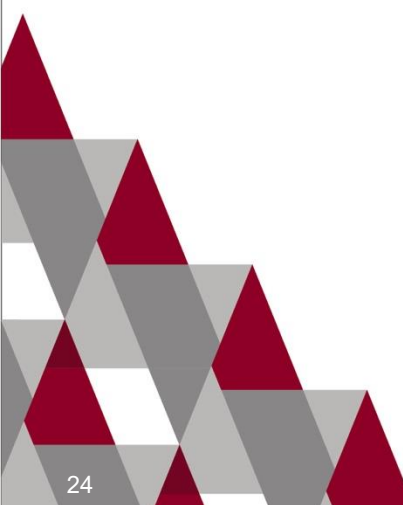
- Popular Lab Facebook Page with ~40,000 members asked if their lab was overstaffed?
 - 332 responded
 - 95% of rural laboratorians replied their lab was understaffed
 - 88% of urban/suburban laboratorians replied their lab was understaffed
- No one said their lab was overstaffed!

Analysis for Laboratory Educators

- There is no doubt that we are in the midst of a workforce shortage
- Where will this workforce come from?
 - Increase in formal lab training programs?
 - Non-NAACLS programs?
 - Non-traditional paths to meet CLIA requirements?
 - Shifting non-clinical roles to non-technical staff?
 - Importing technical staff?
 - “Travel techs” dilute the current talent pool and do not represent an increase
 - “MLT to MLS” graduates are not increasing the number of NAACLS trained staff who can perform high-complexity testing

Regional Variation in Programs

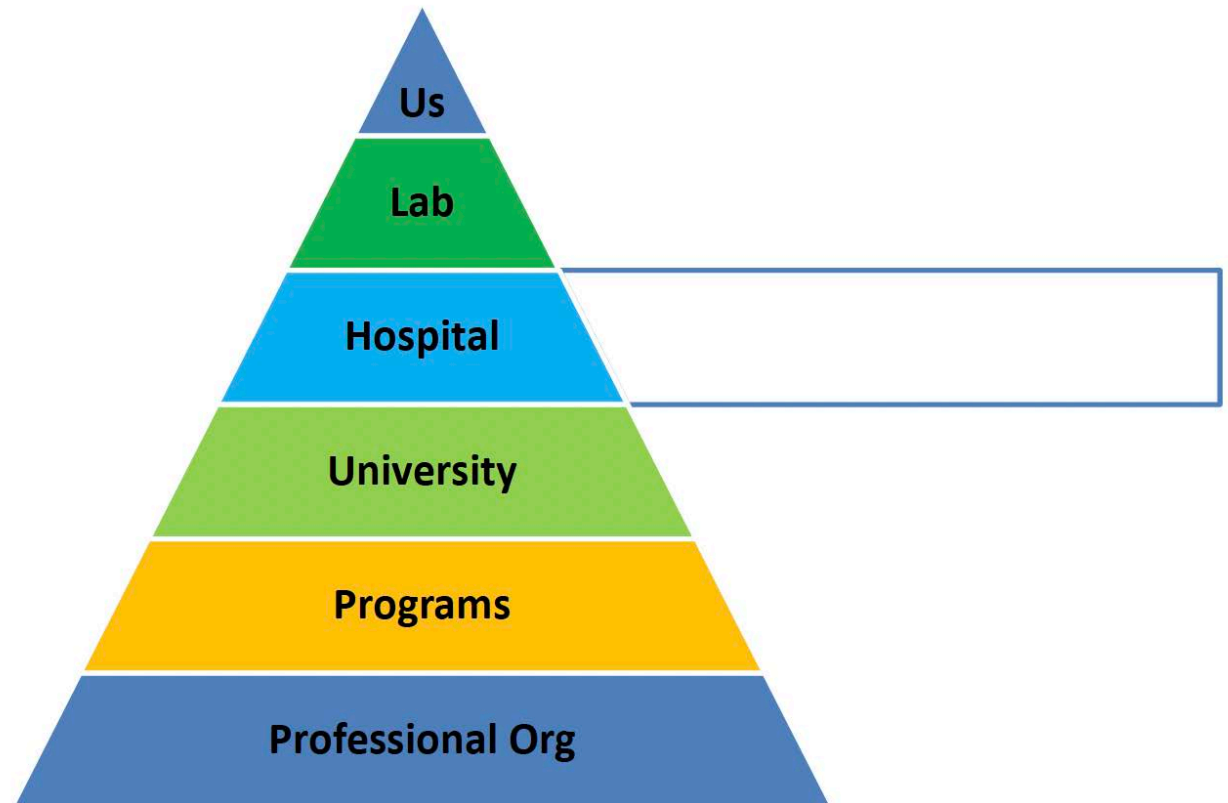
- There is wide variation in the number of programs that serve geographic areas
- Example – California, the average age of MLS is >50, but only 11 NAACLS MLS programs and 5 MLT programs=16 programs
 - California - 0.4 programs for every 1 million in population
 - US Average - 1.5 program per 1 million
 - Arkansas – 2.7 programs per 1 million
 - North Dakota - ~5 programs per 1 million



Current and Historical Efforts

- Target students years in advance of career choices
- Target students closer to decision time
- College campus recruitment efforts
- Social media
- Leverage current events (e.g. Covid)
- Sum of efforts = **too few programs** = **too few students**

What Can We Do?



What Can Professional Organizations Do?



- Advocate for the profession at all levels
- Provide support for medical laboratory educators and students
- Help those who want to volunteer in recruitment
- Serve as an information resource hub for individuals who are interested in the profession or want to return to work
- Provide data and analysis to support growth of programs
- Support alternate pathways to help alleviate shortage while maintaining professional standards

Examples of What Professional Organizations Can Do

- ASCP: Provides scholarships and grants to medical laboratory educators and students
- ASCLS: Provides specialized conference (CLEC) for laboratory educators and tailored message boards for information dissemination
- NAACLS: Provides individualized help for hospitals or educational institutions that want to start an accredited program

What Can MLS & MLT Programs Do?



- Fill every current training seat
- Expand program capacity
- Grow new faculty
- Share resources with other programs
- Help start new programs

Example of What A MLT Program Can Do

- Very supportive administration
- Ongoing dialogue with end users (e.g. hospital labs)
- Doubling Seat Capacity
- Offering part-time classes to accommodate working adults
- Better alignment of program's instrumentation to make for an easier transition to clinical training
- Supplement clinical micro rotations with robust in-house micro simulation experience

Example of What an Online MLT Program Can Do

- Provide access to high quality medical laboratory training no matter where the student lives as long as there is a supporting lab
- Provide total online support for prerequisites at a reasonable price

Example of What A MLS Program Can Do

- Target areas of need and provide novel alternative methods of delivery
- Provide help to establish MLT programs in areas of need
- Target areas that have an excess of MLS applicants for training opportunities

University/College Efforts



- Support current programs
- Start new programs
- Ensure “pre-health” advisors know about the laboratory profession
- Provide guidance to students who are interested in a profession in the medical laboratory
- Encourage visits from existing programs

Example of What A University Can Do

- Providing open access to MLS/MLT programs to promote and work on opening new University-based program
- Identify “target majors” (e.g. biology, chemistry) and ensure they know about the laboratory profession

What Can Hospitals Do?



- Support growth of new hospital-based programs (e.g. CEO talk to President)
- Provide support/time to transition those hired without formal training to meet requirements for categorical certification
- Promote professionalism at all levels (e.g. support for current staff – education, training, certification, etc.)

Example of What A Hospital Can Do

- Start a new hospital based program and train enough to support your hospital/system
- Provide the template for others to follow

What Can Labs Do?



- ~249 NAACLS MLS Programs
- Volunteer to be a clinical site
- Students needs funding
 - Student Jobs
 - Tuition \$\$ now in lieu of sign-on bonus
- Help find students

What Else Can Labs Do?



- 245 NAACLS MLT Programs
- Volunteer to be a clinical site
- Students needs funding
 - Student Jobs
- Help find students
- Online MLT Programs
 - Weber State
 - North Ark
 - More available

Example of What A Lab Can Do

- Volunteer to take on more than the usual number of students, especially in the areas of need (e.g. micro)
- Identify medical personnel who might make good entry level medical laboratory professionals and help them

Example of What A Lab Can Do - Mailroom Model

- High School graduate with potential – hired as phlebotomist
- After PBT certification, becomes MLA – attains MLA certification
- Enrolls in online MLT program while continuing to work as MLA
- After MLT certification, enrolls in online MLT to MLS Bridge program
- Example - enter the lab at age 18, by age 28 – MLS with 10 years of experience working in the lab

***There are several online MLT programs (e.g. Weber State University, NorthArk College, etc...)



What Can Laboratorians Do?



- Support your programs
- Help start a new program
- Consider a position as faculty or adjunct
- Volunteer as a tutor
- Teach the younger and less experienced staff
- Promote professionalism
- Help us find new students

Example of What A Laboratorian Can Do

- Talking to high school students about careers in the laboratory profession, specifically MLT
- Talking to individuals in community colleges and universities about MLS programs
- Coordinating shadowing events for interested students
- Making the personal connection and assisting the student make connections with programs

Who Is Responsible?

We All Are!



Questions



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