Healthcare Workforce Partnership
Of Western Mass
Building a Skilled Workforce to Deliver Quality Care

2014

Occupational Gap Analysis Report

Clinical Lab Workforce

Medical Lab Technologists
Medical Lab Technicians
Clinical Lab Assistants

Produced by the Regional Employment Board of Hampden County, Inc. on behalf of the Healthcare Workforce Partnership of Western Massachusetts – July 2014

REB
REGIONAL EMPLOYMENT BOARD OF HAMPDEN COUNTY, INC.

Occupational Gap Analysis Report: Clinical Lab Workforce

Table of Contents

Summary 4

State of the Industry 5

Clinical Laboratory Workforce 7

Demand for Clinical Lab Workers 9

Recruiting, Hiring and Retention 12

Education and Training 14

Lab Workforce Competencies and Skill Gaps 17

Recommendations and Strategies 21

- STRATEGY #1: Support lab career pathways with clear internal clinical ladders 21
- STRATEGY #2: Increase proportion of MLTs to MTs 22
- STRATEGY #3: Increase utilization of Clinical Lab Assistants 24
- STRATEGY #4: Shorten Onboarding Process & Expand Preceptor Training 24
- STRATEGY #5: Increase lab workforce soft skills and teamwork 24
- STRATEGY #6: Provide More Accurate Career Advising Information 25

Next Steps 25

References 25

Appendices 26

Tables

Table 1: Medical Lab Occupational Overview 7

Table 2: Occupational Employment and Wage Statistics for MTs and MLTs 8

Table 3: Medical Technologist Job Vacancies as of December 15, 2013 10

Table 4: Statewide Projections (2010-2020) for Medical Lab Technologists 11

Table 5: Statewide Projections (2010-2020) for Medical Lab Technicians, MA Dept of Labor 11

Table 6: Certification and Education Requirements 14

Table 7: Skill Assessment Results for Each Occupation 18

Figures

Figure 1: Estimated number of people working in clinical labs at participating employers..... 9
Figure 2: Estimated number of new hires over 1-3 years 11
Figure 3: Employer Perceptions of Future Supply of Medical Lab Employees 12
Figure 5: Proposed Laboratory Career Ladder..... 22
Figure 6: Example of Possible Staffing Scenarios 23
Figure 7: Template Form for Developing New Staffing Ratios..... 23

This report was produced by the Regional Employment Board of Hampden County, Inc. on behalf of the Healthcare Workforce Partnership of Western Massachusetts. Funding was provided through a planning grant from the Healthcare Workforce Transformation Fund (2014). For more information about the partnership please visit www.westernmasshealthcareers.org.

Summary

The clinical lab is a critical component of any coordinated health care system. Lab testing is the highest volume diagnostic tool utilized in healthcare and an essential element in every healthcare organization's formula for achieving the Triple Aim – higher quality care resulting in improved patient outcomes at lower costs.

The clinical labs located in the Pioneer Valley and the Berkshires struggle with several business issues that could be improved by implementing workforce development strategies. The most predominant of these issues include: 1) an aging clinical lab workforce fast approaching retirement; 2) lack of a steady workforce pipeline, 3) implementation of new diagnostic technologies while using dated staffing models; 4) and cost containment pressures combined with accountability. As a result, the region's current and future supply and demand for clinical lab occupations is out of balance.

In March 2012, The Healthcare Workforce Partnership of Western Massachusetts identified medical lab technologists/scientists (MT) and medical lab technicians (MLT) as priority occupations for future research and career pathway development. From December 2013 – June 2014, the partnership conducted a formal gap analysis to 1) aggregate available labor market data, 2) better understand issues related to the lab workforce and operational challenges; 3) conduct skill analyses of current staff and 4) develop regional solutions. The gap analysis process was supported through a Healthcare Workforce Transformation Fund planning grant. This report reflects in-depth discussions with five area employers, including:

- Baystate Health
- Berkshire Medical Center
- Holyoke Medical Center
- Life Labs - Sisters of Providence
- Noble Hospital

The Partnership used a variety of methods to collect data during the gap analysis, including:

- Partnership meetings with employers, education and workforce development representatives
- Online employer survey with 5 acute care hospital employing clinical lab workers
- Review of medical lab competencies provided by national accrediting agencies
- Review of real time job postings
- Review of employer job descriptions
- Review of training and education programs
- Skill gap analysis of MLTs, MTs, lab assistants and phlebotomists

The Regional Employment Board of Hampden County, Inc. (REBHC) and Training and Workforce Options (TWO), a collaborative between Springfield Technical and Holyoke Community Colleges conducted much of the work with the assistance of employers.

This report summarizes the results of the gap analysis process, including supply and demand data. The report also contains the aggregated regional results of the laboratory skill assessment. The report concludes with identified strategies that could be used to address clinical lab workforce issues and makes recommendations for next steps.

State of the Industry

Per Chapter 224, all healthcare providers must work together to meet the state's healthcare cost growth benchmark of 3.6% which is considered the target growth rate for average total per person medical spending in the state for the calendar year (2013). Medical expenditures include all spending from public and private sources, all categories of medical expenses, all non-claims related payments to providers, all patient cost-sharing amounts and the net cost of private health insurance (Blue Cross Blue Shield Massachusetts Foundation, September 2012). Medical laboratory testing is one of the medical expenditures that must be examined.

While lab expenses including the cost of lab testing accounts for approximately 3% of total Federal health care expenditures, the procedures or actions taken as a result of lab test results account for a much higher proportion of overall healthcare costs. As such, lab testing is critical to any/all efforts to enhance quality of care and improve the cost effectiveness of care. For example, physicians need accurate, timely lab information to assess and plan a patient's treatment of care. Without them, wasteful decisions are made to duplicate tests, quality suffers and costs go up. With a broad range of varying complexity tests now available, patients and healthcare providers expect access and rapid results. Having a skilled clinical laboratory workforce available with the capacity to perform these tests is critical (ASCP, 2013).

Clinical labs have focused on cost-containment for years, but Chapter 224 requires a new examination of costs, particularly at the regional level. Labs are typically reimbursed for associated testing costs using existing fee-for service models. There has always been an incentive to make labs extremely efficient in order to break even and/or generate revenue. Cost-saving strategies that keep lab staff focused on billable tests do not typically support teaching or training of the future workforce. Using the bundled payment or ACO model, labs of all sizes must look for new efficiencies, new economies of scale and new partnerships to remain competitive.

While workforce challenges exist, employers engaged in this clinical lab workforce analysis recognize that they will make an impact if they collaborate to develop strategies that drive down costs, increase the region's testing capacity and support workforce training and education. Developing regional strategies for staffing, coordinating training and education, as well as recruitment and retention can result in economies of scale and strengthen the region's ability to compete in an ever-crowded market that includes national laboratories.

Lab Workforce Issues

Employers identified the following issues impacting both the lab and its workforce. These issues formed the basis of the employer survey and the skill assessment.

<u>Cost Containment</u>

- Increasing financial pressure to reduce costs while meeting increasing testing volume demand
- Working under the direction of physicians so financial decisions within the lab tech department are not made autonomously
- Lab consolidation trends as demonstrated by Quest Diagnostics recent acquisition of UMass Memorial Lab

<u>Technology and Testing</u>

- New diagnostic technologies
- Specific types of tests must be sent outside the region because the technology does not exist

locally
- Technological advances have increase automation and contributed to a reduction in the competency required for becoming a diagnostic technician

Workforce Planning
- Workforce and succession planning is difficult
- Aging workforce and impending retirements
- Unclear staffing mix with work task assignments to build efficiency
- Lower salary levels in comparison to equivalent allied health and nursing jobs
- High turnover rate among entry-level phlebotomists and lab assistants with few advancing to higher level occupations such as MLT or MT

Education and Training
- Complicated career pathways in lab workforce occupations
- Poor career advising, particularly as it relates to obtaining either an AS or BS degree
- Educational programs that are not always aligned with employer needs
- Limited clinical sites for student placements
- High cost programs producing few graduates
- Lack of qualified staff and dedicated time to devote to clinical education and training the future workforce

Clinical Laboratory Workforce

To begin the gap analysis process, the partnership started with a high-level overview of clinical lab occupations. The following occupations were reviewed:

- Medical lab technologist (MT)
- Medical lab technician (MLT)
- Lab assistants/phlebotomists

Clinical lab employees work in two primary types of organizations:

- Acute care hospitals
- Private laboratories

Table 1 provides an overview of available occupational data provided by the US Bureau of Labor Statistics, including job titles, description, education and certification. It should be noted that due to the overlap between job titles it is difficult to use any labor market data associated with the US Department of Labor's SOC codes. This is particularly apparent for MLTs.

Employers reviewed occupational overviews for histotechnologists and technicians and cytotechnologists as well. They determined that these occupations were out of scope for this analysis.[1]

Table 1: Medical Lab Occupational Overview

Occupation	Job Titles and Employment	Description
Medical and Clinical Laboratory Technologists (MT) SOC: 29-2011.00 Education: Bachelor's degree	**Sample of reported job titles:** Chief Medical Technologist; Clinical Laboratory Scientist (CLS); Clinical Laboratory Technologist; Histologist Technologist; Medical Laboratory Technologist (Medical Lab Tech); Medical Technologist (MT); Medical Technologist, Clinical Laboratory Scientist; Microbiologist; Microbiology Technologist; Research Assistant	Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff.
Medical and Clinical Laboratory Technician (MLT) SOC: 29-2012.00 Education: Associates degree	**Sample of reported job titles:** Medical Laboratory Technician (MLT), Medical Laboratory Technician (Medical Lab Tech), Laboratory Assistant (Lab Assistant), Laboratory Technician, Phlebotomist, Clinical Laboratory Scientist, Laboratory Supervisor, Non-Registered Technician, Laboratory Associate (Lab Associate), Toxicology Laboratory Technician	Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.

[1] While there is an acknowledged shortage of histotechnologists & histotechnicians in the region Springfield Technical Community College informed the group that creating an education program at one of the local schools is not feasible because there are not and will not be enough vacancies to absorb the number of potential graduating students. Goodwin Community College in CT has a program and Baystate provides in house training to its employees using an accredited program.

Occupation	Job Titles and Employment	Description
Phlebotomist SOC: 31-9097.00 Education: HS diploma and post-secondary certificate	Lab Assistant; Patient Service Technician PST; Phlebotomist; Phlebotomist Supervisor/Instructor; Phlebotomist, Medical Lab Assistant; Phlebotomy Director; Phlebotomy Program Coordinator; Phlebotomy Supervisor; Registered Phlebotomist-Part Time	Draw blood for tests, transfusions, donations, or research. May explain the procedure to patients and assist in the recovery of patients with adverse reactions.

Source: US Bureau of Labor and Statistics, January 2014

Current Employment

The Massachusetts Department of Labor (DOL) aggregates regional and statewide labor market data on an annual basis. Table 2 provides a breakdown of the May 3013 estimated number of workers in each occupation and county as well as median, mean and entry level salaries. It should be noted that DOL determines whether to release employer data in specific regions. DOL will restrict data when too few employers provide them with occupational data or there is only one employer with a single occupation. This is why some regions are stated as "unknown".

Table 2: Occupational Employment and Wage Statistics for MTs and MLTs

Medical and Clinical Laboratory Technologists

OC Code	Region	Employment	Median	Mean	Entry	Experienced
29-2011	Massachusetts	6,670	$67,390	$67,570	$50,950	$75,880
29-2011	Hampden County	200	$66,531	$66,121	$53,712	$72,326
29-2011	Franklin & Hampshire Counties	100	$65,119	$62,693	$50,424	$68,827
29-2011	Berkshire County	unknown	unknown	unknown	unknown	unknown
29-2011	Central Mass/Worcester	700	$65,046	$65,622	$49,775	$73,546

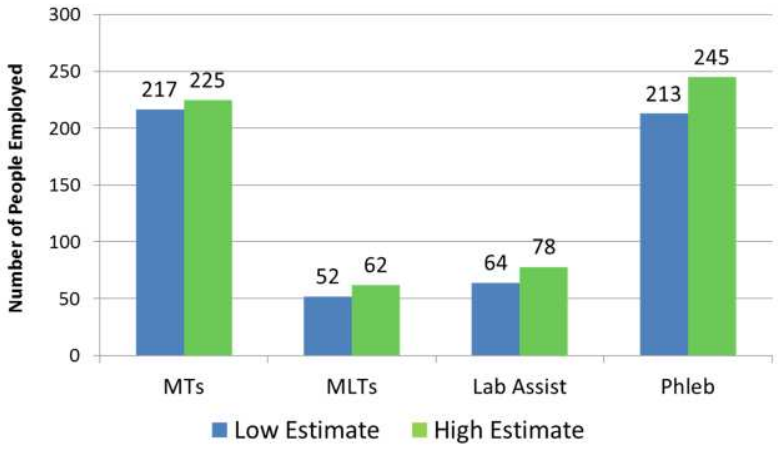
Medical and Clinical Laboratory Technicians

SOC Code	Region	Employment	Median	Mean	Entry	Experienced
29-2012	Massachusetts	5,380	$37,650	$41,000	$30,320	$46,340
29-2012	Hampden County	unknown	unknown	unknown	unknown	unknown
29-2012	Franklin & Hampshire Counties	80	$39,111	$40,490	$31,237	$45,117
29-2012	Berkshire County	unknown	unknown	unknown	unknown	unknown
29-2012	Central Mass/Worcester	370	$35,535	$39,762	$26,789	$46,249

Source: May 2013, mass.gov

As reported through the online survey, the five participating employers employ between 545 and 610 people. While this number does not represent the total number of people working in regional laboratories, it does represent a very large proportion.

Figure 1: Estimated number of people working in clinical labs at participating employers



Work Status

In terms of work status, the majority of MTs are employed full time. The majority of MLTs working in the region are employed full time, but employers do have many who have part-time status. Between 26-50% of lab assistants and phlebotomists are employed full time.

Wages

As seen in Table 2, it is important to point out the relatively large wage differential between an MT and MLT. Mean salary in Massachusetts for an MT is approximately $67,570 compared to $41,000 for an MLT. Average salaries at participating employer ranges are not quite as extreme with MTs in the range of $52,000-$62,000 and $42,000-48,000 for MLTs. As stated in Table 1, educational requirements differ but general day-to-day tasks performed by the MT and MLT do not vary significantly. This will be discussed in greater detail in the skill assessment section of this report.

Demand for Clinical Lab Workers

Current Job Openings

At the time of the survey, participating employers indicated they had the following job openings:

- 5-10 MT job openings
- 3-9 MLT job openings
- 2-6 CLA job openings.

There is a range of opinions among employers as to whether an adequate supply of qualified candidates exists. Some believe there is an adequate supply while others do not. Generally speaking, employers have the most difficult time hiring MTs, particularly for specific specialties and night/weekend shifts.

The general number of MT job openings in the Springfield region was validated using Help Wanted Analytics. As seen in Table 3, there were 5 active listings in December 2013. While the number of job

openings was validated employers do not think the data is particularly reliable given that the job search engine indicates 300 candidates exist in the labor market for employers to choose from. Employers currently find it difficult to hire qualified MTs.

Table 3: Medical Technologist Job Vacancies as of December 15, 2013

Alternate Location	Job Volume *	Salary Range	Candidate Supply	Posting Period	Hiring Scale
Worcester, MA	15	$52K - 77K	600	56 days	6
Boston-Cambridge-Quincy, MA	142	$62K - 79K	5,000	60 days	11
Springfield, MA	5	$68K - 77K	300	48 days	11
Providence-New Bedford-Fall River, RI	5	$60K - 78K	< 100	55 days	18
Barnstable Town, MA	2	$54K - 62K	< 100	66 days	N/A

* Note: Current open Job Volume excluding Staffing, Anonymous, and Duplicate ads.

Source: Help Wanted Analytics, December 2013

Future Demand

As the clinical lab environment changes and employers implement healthcare reform and cost containment measures, the future demand for clinical lab workers is somewhat unclear. DOL provides statewide projections for both MTs and MLTs as seen in Tables 4 and 5 on the following page. Hospitals are expected to grow MT and MLT positions by 8.9% which is estimated to equal 810 positions. MLT growth in professional, scientific and technical services is projected at 14.2% or 150 positions.

Employers expect to hire new staff due to retirements and anticipated growth. Figure 2 illustrates the number of estimated new hires over the next 1-3 years among participating employers based on their current staffing model. If employers develop new staffing models as suggested in this report, there could be an increase in the estimated number of MLTs hired and a decrease in the number of MTs hired.

Figure 2: Estimated number of new hires over 1-3 years (n=4)

Table 4: Statewide Projections (2010-2020) for Medical Lab Technologists

Medical and Clinical Laboratory Technologists in MA

Industry	2010 Employment	2010 Employment Percent Distribution	Projected 2020	Projected 2020 Employment Percent Distribution	Change 2010-2020 Number	Change 2010-2020 Percent
Total employment, all workers	6,500	100	7,100	100	600	9.3
Hospitals	4,870	75	5,310	74.7	440	8.9
Ambulatory Health Care Services	870	13.3	950	13.4	80	10.3
Professional, Scientific, and Technical Services	290	4.5	340	4.8	50	16.4
Educational Services	90	1.4	110	1.5	20	17.6
Federal Government	80	1.2	70	1	-10	-5.3

Source: Accessed on 1/15/14 from www.mass.gov.

Table 5: Statewide Projections (2010-2020) for Medical Lab Technicians, MA Dept of Labor

Medical and Clinical Laboratory Technicians in MA

Industry	2010 Employment	2010 Employment Percent Distribution	Projected 2020 Employment	Projected 2020 Employment Percent Distribution	Change 2010-2020 Number	Change 2010-2020 Percent
Total employment, all workers	6,530	100	7,220	100	690	10.5
Hospitals	4,150	63.6	4,520	62.7	370	8.9
Professional, Scientific, and Technical Services	1,050	16	1,200	16.6	150	14.2
Educational Services	100	1.6	120	1.7	20	18.4

Source: Accessed on 1/15/14 from www.mass.gov.

Retirements

Employers anticipate widespread retirements over the next five years, particularly among MTs. They provided low and high estimates regarding the % of their staff anticipated to retire. These percentages have been translated into an estimated number of FTEs.

- MT retirements = 45 to 94 FTEs from 2014-2019
- MLT retirements = 7 to 22 FTEs from 2014-2019

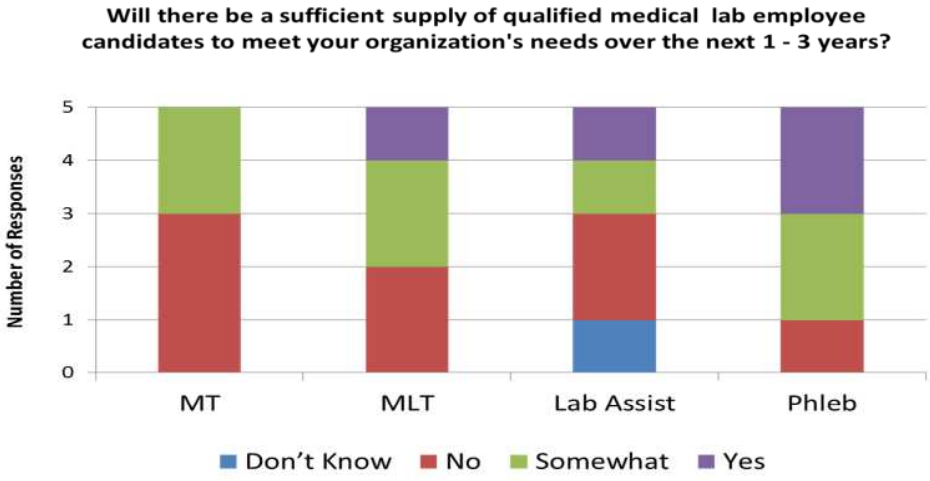
Due to the recent economic downturn, employers find it difficult to plan for retirements since staff are working longer and giving short notice when they plan to leave. When compared to the estimated new hires over the next 3 years, there could be a considerable increase in the number of open positions in 2018-2019.

Recruiting, Hiring and Retention

Recruiting

Employers were asked if they expect an adequate supply of qualified candidates over the next 1-3 years. Figure 3 illustrates their responses. Responses were varied but there is more agreement about the supply of MTs than any other profession. When employers indicated there was not an adequate supply their reasons included an inadequate number of qualified candidates or a supply pool that lacked adequate experience.

Figure 3: Employer Perceptions of Future Supply of Medical Lab Employees (n=5)



In addition, 50% of employers indicated that they think there will NOT be a sufficient supply of candidates to fill lab management positions over the next 1-3 years. The remaining 50% of employers believe there will be a SOMEWHAT sufficient supply of qualified lab manager candidates to meet organizational needs. Employers offered the following reasons why internal candidates do not desire manager positions.

- Do not want additional responsibilities
- Unwanted lifestyle – they want to come to work, do their job and go home
- No worth the minimal pay increase
- No time to work on supervisory duties.

Hiring

With the exception of lab assistants, all employers prefer to hire formally educated individuals from accredited programs. Industry recognized certifications are either required upon hire or can be obtained within one year of employment. Generally speaking, employers place a high level of emphasis on the following during the hiring process:

- Experience
- Certification
- Interview performance
- Demonstrated skill set
- Employment references

Two programs actively supply the region with MTs or MLTs. Berkshire Health System has an 12 month post-baccalaureate program and Springfield Technical Community College (STCC) has an MLT associates degree program. Both are very high quality programs but produce small number of graduates every year. Berkshire graduates five (5) MTs per year and typically hires 2-3. STCC graduates between 10-13 MLTs every June and between 90-100% are hired every year. STCC also has a one year Clinical Lab Assistant program but is temporarily closed due to low hiring rates by regional employers. Multiple phlebotomy programs exist in the region

All employers serve as clinical placement sites for students and view this as a very good recruiting tool as it allows them to evaluate individual skills prior to hire. This is particularly true for MLT students from Springfield Technical Community College, but also applies to some MT students from schools such as UMass Dartmouth. Berkshire Medical Center recruits MTs directly from their program.

On-Boarding New Hires

Employers maintain that it can take 2-3 years for new MTs and MLTs to reach 100% productive status. The length of the onboarding process is dependent on individual competency as well as the number and types of tests available for training purposes. Due to the lack of predictability for certain tests, employers cannot control testing volumes thus, an individual can only obtain competency after gaining experience over time. New hires are dependent on experienced staff for on-the-job training. With anticipated retirements, current replacement strategies and timelines provided by retiring staff do not allow enough overlap with new hires. Employers are concerned about lack of knowledge transfer and a loss in productivity.

Retention and Turnover

Employers report very little turnover among MTs and MLTs. In particular, many MTs have been with their current employer for an extended period of time and are part of the retirement bubble that will occur over the next 5 years. As an entry level position with minimal training requirements, phlebotomist turnover is high. Employers were not asked to provide specific turnover rates.

Education and Training

Understanding how to become a lab professional can be a complicated process. Table 6 provides education and certification requirements as stated by the ASCP Board of Certification (BOC). Education or certification requirements do not exist for lab assistants, however, a CLA certification requirement is under discussion at the national level.

Table 6: Certification and Education Requirements

Occupation	Certification and Education Requirements (Including multiple routes to certification)
Medical Lab Technician	**ROUTE 1:** An associate degree or at least 60 semester hours (90 quarter hours) of academic credit from a college/university accredited by a recognized regional or national accreditation agency, AND successful completion of a NAACLS accredited MLT program within the last 5 years; OR **ROUTE 2:** An associate degree or at least 60 semester hours (90 quarter hours) of academic credit from a regionally accredited college/university, including 6 semester hours (9 quarter hours) of chemistry and 6 semester hours (9 quarter hours) of biology, AND CLA(ASCP)* certification; OR **ROUTE 3:** An associate degree or at least 60 semester hours (90 quarter hours) of academic credit from a regionally accredited college/university, including 6 semester hours (9 quarter hours) of chemistry and 6 semester hours (9 quarter hours) of biology, AND successful completion of a 50 week U.S. military medical laboratory training course**; OR **ROUTE 4:** An associate degree or at least 60 semester hours (90 quarter hours) of academic credit from a regionally accredited college/university, including 6 semester hours (9 quarter hours) of chemistry and 6 semester hours (9 quarter hours) of biology, AND three years full time acceptable clinical laboratory experience in Blood Banking, Chemistry, Hematology, Microbiology, Immunology, and Urinalysis/Body Fluids in the U.S., Canada or an accredited laboratory*** within the last ten years.
Medical Lab Technologist	**ROUTE 1:** A baccalaureate degree from a regionally accredited college/university including courses in biological science, chemistry and mathematics, AND successful completion of a NAACLS accredited Medical Laboratory Scientist program within the last 5 years; OR **ROUTE 2:** MLT(ASCP) certification, AND a baccalaureate degree from a regionally accredited college/university, including 16 semester hours (24 quarter hours) of biological science (with one semester in microbiology), 16 semester hours (24 quarter hours) of chemistry (with one semester in organic or biochemistry), one semester (one quarter) of mathematics, AND two years of full time acceptable clinical laboratory experience in Blood Banking, Chemistry, Hematology, Microbiology, Immunology, and Urinalysis/Body Fluids in the U.S., Canada or an accredited laboratory* within the last ten years; OR **ROUTE 3:** CLA(ASCP)** certification, AND a baccalaureate degree from a regionally accredited college/university, including 16 semester hours (24 quarter hours) of biological science (with one semester in microbiology), 16 semester hours (24 quarter hours) of chemistry (with one semester in organic or biochemistry), one semester (one quarter) of mathematics, AND four years of full time acceptable clinical laboratory experience in Blood Banking, Chemistry, Hematology, Microbiology, Immunology, and

Occupation	Certification and Education Requirements (Including multiple routes to certification)
	Urinalysis/Body Fluids in the U.S., Canada or an accredited laboratory* within the last ten years; OR **ROUTE 4:** A baccalaureate degree from a regionally accredited college/university, including 16 semester hours (24 quarter hours) of biological science (with one semester in microbiology), 16 semester hours (24 quarter hours) of chemistry (with one semester in organic or biochemistry), one semester (one quarter) of mathematics, AND five years of full time acceptable clinical laboratory experience in Blood Banking, Chemistry, Hematology, Microbiology, Immunology, and Urinalysis/Body Fluids in the U.S., Canada or an accredited laboratory* within the last ten years.

*Note: Please consult ASCP for any relevant notes and anticipated changes to these requirements
Source: http://www.ascp.org/Board-of-Certification/GetCertified#tabs-1

As part of the gap analysis process, the Partnership inventoried regional educational programs. While all the following academic programs exist, it should be noted that the only two regional programs are located at Berkshire Health Systems and Springfield Technical Community College (STCC).

Medical Technologist Programs- Bachelor's degree or post-baccalaureate program

- Berkshire Health Systems
- UMass Dartmouth
- UMass Lowell
- Danbury Hospital (CT)
- Albany College of Pharm & Health Sciences (NY)
- University of New Hampshire
- University of Vermont

Over the last decade, many medical technologist programs closed in Massachusetts and across the country, including one at UMass Amherst. Lack of clinical placements and low hiring rates were the primary reasons cited for closure. Many of the region's MTs preparing for retirement graduated from programs that no longer exist. While unfamiliar to regional employers, there are a growing number of online MLT to MT programs that exist throughout the county including Universities of North Dakota and Texas.

Medical Lab Technician Programs- Associates Degree

- Springfield Technical Community College
- Mount Wachusett Community College
- Bristol Community College
- Bunker Hill Community College
- Goodwin College (CT) – Histotech program only
- Maine MLT Program Consortium
- River Valley Community College (NH)

Clinical Lab Programs- post-secondary certificate

- Springfield Technical CC – CLA certificate (temporarily closed)
- Goodwin College – phlebotomy & lab services certificate (CT)

Clinical Placements

All clinical laboratory education programs are required to provide a clinical externship to students during

their academic experience. This experience is critical to the workforce preparation process. As previously stated, all participating employers serve as clinical placement sites for the STCC MLT program. The size of the STCC MLT program is dictated by the number of clinical sites available and has not expanded its program due to limited sites. Employers were asked why they are unable to increase the number of students at their respective sites. They provided the following responses:

- Lean staffing doesn't allow staff time to teach interns
- Loss of productivity
- Staff buy-in and support for pipeline education and training
- Level of knowledge of staff isn't adequate to train interns (e.g., CLAs training students)
- Lack of single point person to monitor students through their rotation
- Physical Space in Lab
- Risk of training more students than we can hire

Career Advising

Employers suggest that more accurate information should be provided to high school career counselors to guide students into lab careers. In some cases, students are misinformed and discover after graduation that they do not have the appropriate education to secure a job. For example, a student who graduates from a science-based bachelor's degree programs may think they are eligible to become an MT. In reality, they can only obtain a lab assistant position and must return to school to obtain an associate's degree or attend a post-baccalaureate program like the one offered by Berkshire Health Systems.

Career Pathways

While lab workforce career pathway models exist in theory, participating employers did not validate their existence in practice. Only one employer definitively stated that they have a defined career pathway for their lab workforce. Two other employers indicated that they have a somewhat defined career pathway and two additional employers indicated that they do not have a defined career pathway at all.

Employers cited that few phlebotomists or lab assistants continue their education to pursue an associates or bachelor's degree in order to become a MLT or MT. The Baystate Springfield Educational Partnership (BSEP) is an exception in that it trains high school students as lab assistants and has seen some students advance along the lab career ladder.

Since few MT programs exist anymore, the most common career advancement option is for MLTs to obtain a science-based bachelor's degree such as biology and subsequently sit for the certification exam to become an MT. As previously noted, few MTs express interest in advancing into lab management positions.

Lab Workforce Competencies and Skill Gaps

Skill Analysis Methodology

The Healthcare Workforce Partnership conducted a skill assessment focused on up to four (3) occupations: medical technologist, medical lab technician, lab assistants and phlebotomist. Training and Workforce Options (TWO), a collaboration between Springfield Technical and Holyoke Community Colleges, conducted the skills assessment onsite at each participating employer. Staff representing the different occupations gathered together to complete an assessment in survey format. Employees completed a survey for the occupation in which they are currently working. Managers and supervisors completed a survey for each of the occupations for which they are responsible. The assessment results rank all elements starting with those that are most important for effective job performance and also exhibit the greatest gaps between actual and required mastery level. In addition to individual organizational assessment, TWO aggregated the results in to a regional profile. As part of the skill analysis process, employers also provided job descriptions for comparison purposes.

Competencies, Skills and Tasks

A list of knowledge, technical skills and occupational and employability competencies for each occupation served as a baseline for the assessment. **Knowledge** measures one's mastery of the concepts needed to perform certain work. **Technical skill** is the learned capacity to carry out pre-determined results often with the minimum outlay of time and energy. **Competency** is the ability to perform the activities within an occupation or function to the standards expected in employment, the ability to transfer skills and knowledge to new situations, the organization and planning of work, and innovation and coping with non-routine activities.

These elements come from the American Society for Clinical Pathology and are tested for in their certification examinations. Respondents ranked each element within each occupation on a scale of 1 to 5 in regard to the following areas:

- Importance to the effectiveness and successful operation of the laboratory.
- Mastery level required to perform the job at a level that meets or exceeds expectations.
- Mastery level exhibited by experienced employees (more than 6 months) in the occupation.
- Mastery level exhibited by new hires in the occupation.

A full list of the knowledge, technical skill and competencies can be found online at www.ascp.org.

Skill Assessment Results

Each participating organization received an individualized gap analysis report based on their employee responses. The aggregated results confirm what many employers already knew about the knowledge and skill expectations for MTs vs. MLTs. Typically, laboratory managers, supervisors, and specialists are medical technologists (MTs) while medical laboratory technicians (MLTs) often remain in generalist positions.

Putting job titles aside, the skill assessment revealed that there is considerable overlap in the expected knowledge, daily tasks and routine testing performed by both MTs and MLTs. MTs are expected to have greater depth of knowledge and technical skills upon hire but overtime MLTs gain the knowledge and technical skills through on-the-job training. An illustration of this point can be seen in the comparison table provided in Appendix A listing critical knowledge and technical skills for MTs and MLTs. Managers and staff assessed the importance of 9 different technical skills for MTs and MLTs and 8/9 had a very

high level of importance for both occupations. This lack of differentiation offers employers an opportunity to figure out how to increase MLT utilization and take advantage of the STCC program.

Skill Gaps

Table 7 provides the aggregated summary of technical and nontechnical skills with the greatest gaps between mastery level expected and the mastery level exhibited. These gaps are based on the scoring completed by those in the occupation and lab managers.

Table 7: Skill Assessment Results for Each Occupation

Top Identified MT Skill Gaps (n=35)
Techincal 1. Capable of performing and interpreting standard, complex and specialized tests 2. Participates in the introduction, investigation and implementation of new procedures and in the evaluation of new instruments 3. Performs full range of IMMUNOHEMATOLOGIC laboratory procedures 4. Performs full range of CHEMICAL laboratory procedures 5. Performs full range of MICROBIOLOGIC laboratory procedures 6. Performs full range of IMMUNOLOGIC laboratory procedures
Non-Technical 1. Supervision and Management: Gives direction and guidance to technical and support personnel 2. Supervision and Management: Participates in and takes responsibility for establishing technical and administrative procedures, quality control/quality assurance, standards of practice, safety and waste management procedures, information management and cost effective measures 3. Communication: Communicates technical information such as answering inquiries regarding test results, methodology, test specificity and sensitivity and specific factors that can influence test results to other health professionals and consumers 4. Problem Solving and Analytical Decision Making: Exercises initiative and independent judgment in dealing with the broad scope of procedural and technical problems 5. Teaching and Training: Provides continuing education for laboratory personnel and maintains technical competence

Top Identified MLT Skill Gaps (n=34)
Techincal 1. Performs HEMATOLOGIC laboratory procedures that required limited independent judgment 2. Performs IMMUNOHEMATOLOGIC laboratory procedures that required limited independent judgment 3. Comprehends and follows procedural guidelines to perform laboratory tests to include: Result reporting and record documentation 4. Performs CHEMICAL laboratory procedures that required limited independent judgment 5. Performs IMMUNOLOGIC laboratory procedures that required limited independent judgment 6. Follows established procedures for collecting and processing biological specimens for analysis
Non-Technical

1. Recognizes the existence of procedural and technical problems and takes corrective action according to predetermined criteria or refers the problem to appropriate supervisor
2. Prioritizes test requests to maintain standard patient care and maximal efficiency
3. Communication: Communicates specimen requirement, reference ranges, and test results

Top Identified CLA Skill Gaps (n=25)

Techincal

1. Identify and report potential pre-analytical errors that may occur during specimen collection, labeling, transporting and processing
2. Prepare/reconstitute reagents, standards and controls according to standard operating procedure
3. Follow standard operating procedures to collect specimens
4. Prepare blood and body fluid specimens for analysis according to standard operating procedure

Non-Technical

1. Communicate (verbally and non-verbally) effectively and appropriately in the workplace
2. Use information systems necessary to accomplish job functions
3. Define the role of the clinical assistant in the healthcare delivery system
4. Use common medical terminology

Top Identified Phlebotomy Skill Gaps (n=35)

Techincal

1. Follows established procedures for collecting and processing biological specimens for analysis
2. Comprehends and follows procedural guidelines to perform laboratory tests to include: Specimen collection and processing
3. Comprehends and follows procedural guidelines to perform laboratory tests to include: Instrument operation and troubleshooting
4. A working comprehension of pre-analytical variables derived from specimen collection

Non-Technical

1. A working comprehension of the handling of laboratory tests
2. Understands basic anatomy and physiology recognizing appropriate test selection and factors that may interfere with laboratory testing
3. Maintains an awareness of and compiles with ethical standards of practice

Top Identified Lab Management Skill Gaps
Technical 1. Increased expertise in equipment and technology, instrumentation 2. Understanding all the regulations that encompass a clinical lab 3. Expert knowledge of their specific department 4. Expert computer skills for data driven information 5. Depth of clinical knowledge 6. Clinical correlation of results 7. Ability to prepare of inspections 8. LIS (lab information systems) kills 9. Quality Management
Non-Technical 1. Managing people and dealing with HR issues/policies 2. Finance and budgeting 3. Competency assessments and evaluations 4. Time management 5. Communication skills 6. Problem solving 7. Global thinking 8. Purchasing 9. Record keeping 10. Leadership

Job Descriptions

Appendix B provides a summary of the job titles provided by each employer and illustrates how larger institutions have more steps on the clinical ladder than smaller organizations. A more detailed comparison of job descriptions was provided to employers.

Recommendations and Strategies

Partners developed a list of recommendations and specific strategies to address the identified lab workforce issues identified. Below is a brief overview.

STRATEGY #1: Support lab career pathways with clear internal clinical ladders

Each organization should support laboratory career pathways with clear internal clinical ladders that enable employers to grow their own lab workforce and support new and incumbent workers to advance their career along the following pathways:

- Phlebotomy to CLA
- CLA to MLT
- MLT to MT
- MT to lab manager

Clearly defined clinical ladders offer employers a tool to document eligibility requirements, expected professional behaviors and economic incentives for each job category. Job descriptions are typically updated to integrate both clinical and leadership skills expectations. The process of creating clear clinical ladders will provide employers with an opportunity to define the differentiated skills, tasks and competencies expectations for each occupation. This is particularly necessary for MLTs and MTs since few differences exists in today's workplace. As cited by employers, MTs are tracked towards management but the current clinical ladder and monetary gains do not support advancement.

Other employers such as Inova Health and Vascular Institute (see side insert) have noted that including employees in the process of defining the clinical ladder has led to increased staff desire to improve clinical and leadership skill sets and initiated the culture change process required to implement Strategy #2: Increase proportion of MLTs to MTs. This process can also help to redefine the lab manager position so as to offer clear professional benefits for MTs.

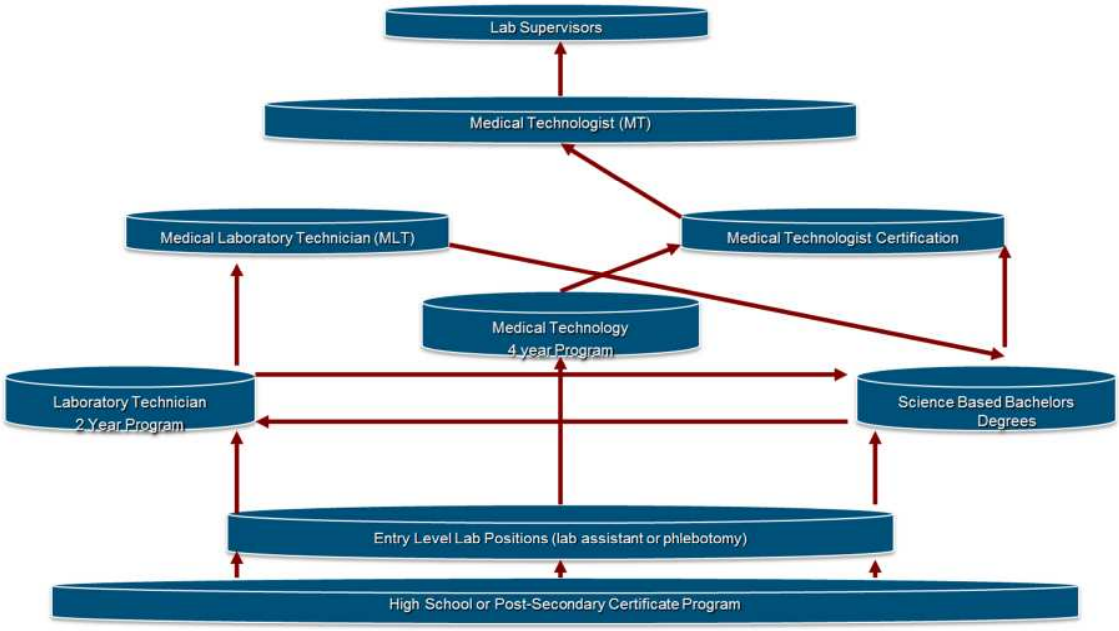
Inova Heart and Vascular Institute created defined clinical ladders and notes, "the development of the clinical ladder allowed for a collaborative partnership with our employees and empowered them to make decisions about future processes and desired outcomes… Employee retention, job satisfaction, quality improvement, empowerment and development of staff professional demeanor are exceptional. For more information visit:

http://www.cathlabdigest.com/articles/A-Clinical-Ladder-Cath-Lab-Personnel

While the progression from MLT to MT is standard within the industry, Figure 5 offers a proposed lab workforce career ladder that creates an intentional pathway for phlebotomists and lab assistants to advance towards MLT and MT. This model supports maintaining STCC's Clinical Lab Assistant program and recommends STCC develops a more seamless pathway between their existing phlebotomy and the CLA program. See Strategy #3 for more information.

Typically, laboratory managers, supervisors, and specialists are medical technologists (MTs) while medical laboratory technicians (MLTs) often remain in generalist positions

Figure 4: Proposed Laboratory Career Ladder



STRATEGY #2: Increase proportion of MLTs to MTs

Based on employer input and the results of the skill assessment, MLTs and MTs are currently performing virtually the same general lab tasks and activities. Currently, for every 1 MLT employed in Western Massachusetts there are 4 MTs working in the region. With anticipated MT retirements and the lack of replacement workers, employers need a new staffing strategy that will not compromise quality or increase costs. Western MA employers have all cited the outstanding quality of the STCC MLT program and recognize the value of maintaining a regional pipeline.

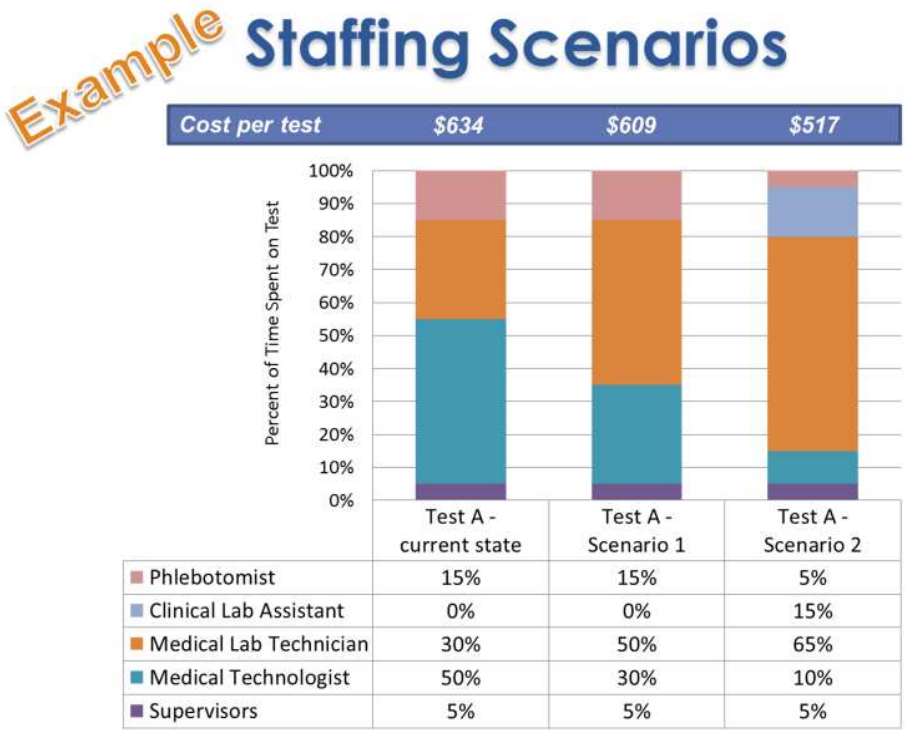
It is recommended that employers increase the proportion of MLTs to MTs as a replacement strategy for some MTs. Increasing the number of MLTs hired into the lab will also result in some cost reductions since the median salary is lower than MTs. It should be noted, however, that some employers expressed a desire to increase the lab salaries so that as to be more competitive with other allied health occupations.

Employers are encouraged to create new staffing models that shift a higher percentage of specific type of testing to MLTs. Figure 6 provides an example of different staffing scenarios that demonstrates the change in cost per test aligned with increased utilization of MLTs. Figure 7 provides a possible template employers can use to begin developing a new staffing model. The template uses testing volumes and labor costs to provide employers with a sense of where costs could be reduced.

Employers noted that any change in an organization's staffing model must be supported by a culture change strategy if staff is to support and implement.

If staffing models justify increasing production of MLTs then STCC may consider multiple graduation cycles or year round clinical placements to accommodate more students and MLTs and allow for staggered hiring.

Figure 5: Example of Possible Staffing Scenarios



	Test A - current state	Test A - Scenario 1	Test A - Scenario 2
Phlebotomist	15%	15%	5%
Clinical Lab Assistant	0%	0%	15%
Medical Lab Technician	30%	50%	65%
Medical Technologist	50%	30%	10%
Supervisors	5%	5%	5%

Figure 6: Template Form for Developing New Staffing Ratios

Review of Testing Volume and Use of Labor

				% of time spent on task per week					% of Total Labor
Task	Vol	# of hours per week to complete task	Error Rate Requiring Additional time	Sup	MT	MLT	CLA	PHLB	%
Test A - current state	100	20	5%	5%	50%	30%	0%	15%	100%
Test A - Scenario 1	100	20	5%	5%	30%	50%	0%	15%	100%
Test A - Scenario 2	100	20	2%	5%	10%	65%	15%	5%	100%
CBC									
Chem Panel									
Complete U/A									
Urine c/sens									
Type and Cross									
Hep Screen									

During the course of the gap analysis process, there was some discussion among employer partners about identifying opportunities for regionalization of lab services as a strategy to address consolidation and takeover by private labs. In particular, it was suggested that a regionalized approach among hospital partners could help support increased staff specialization and support off-shift staffing gaps

that currently exist. There was no consensus on next steps regarding regionalization, however, aggregating testing volumes as previously discussed is a first step towards better understanding the feasibility of increased regionalization.

STRATEGY #3: Increase utilization of Clinical Lab Assistants

Generally speaking, lab assistants are high school graduates that most employers train using informal on-the-job training or in the case of two employers use a more formalized in-house training program. Yet some employers would like to see increased utilization of formally trained clinical lab assistants for certain lab procedures and a developed pipeline into the STCC CLA certification program.

NAACLS accredited CLA programs are growing across the country, but the STCC NAACLS accredited CLA program is currently on hiatus due to low level hiring and lack of student interest. Lack of student interest is blamed on low hiring rates. As previously mentioned, NAACLS is considering establishing a certification for CLAs that will allow for multiple routes into the occupation. STCC faculty will serve on the national certification committee and provide feedback to regional employers.

While developing a new staffing model as suggested in Strategy 2, employers could increase CLA utilization for certain functions and revise job requirements to include formal training through the STCC CLA program. Furthermore, employers could create pathways from phlebotomy to lab assistant and support incumbent phlebotomists to attend the STCC CLA program.

To remain open, STCC must accept students no later than Fall 2015. If employers determine their need for CLAs and commit to hosting clinical placements, then STCC will conduct a self-study in Spring 2015. Employer commitment to hire new graduates and support incumbent workers is necessary.

STRATEGY #4: Shorten Onboarding Process & Expand Preceptor Training

To address the long period of time it can take for both a MTs and MLTs to become fully functional in the workplace and to reduce onboarding costs, it is recommended that employers develop a formal on-the-job training (OJT) model that utilizes trained preceptors. Formalized OJT is an earn while you learn approach that rewards staff with increased wages after demonstration of identified competencies. The Baystate Nurse Residency program serves as an example that other employers may want to consider. Employers can work with the Regional Employment Board of Hampden County to take advantage of available funding to offset the cost of training and dedicated preceptors. The OJT program is ideal when an employer hires a student after their clinical experience and upon graduation.

Employers suggest that preceptors/clinical faculty who work with students receive more training in order to 1) enhance the new hire and student clinical experience and 2) recognize investment required to train the future workforce. The new staffing model as suggested Strategy 2 could allow for staff time to teach.

STRATEGY #5: Increase lab workforce soft skills and teamwork

Based on the skill assessment, the current lab workforce at all levels needs to improve soft skills and capacity to work as a team. STCC is currently integrating affective behavior objectives into their MLT curriculum that includes more focus on safety, work practices and organization, cooperation and teamwork, ethics and professionalism. The purpose is to foster strong ethical behaviors and

professionalism. Each student will be evaluated mid-term and at the end of the semester and meet directly with clinical preceptors to review observed student behaviors.

In addition, employers can integrate these soft skills expectations and competencies into the formal OJT program as mentioned in Strategy 4. Employers suggested reviewing in-house leadership development to ensure the specific non-technical skills needed to serve in lab management (see Table 7) are incorporated.

STRATEGY #6: Provide More Accurate Career Advising Information

Employers would like to see greater effort to inform high school students about the available pathways into lab occupations, particularly MTs and MLTs. The region's healthcare careers website www.westernmasshealthcareers.org should be updated with more specific information about lab pathways and distributed to HS guidance counselors. Employers are encouraged to allow lab personnel participate in high school healthcare career awareness events.

Next Steps

The partner organizations engaged in the clinical lab workforce analysis decided not to pursue additional grant funding from the state's Healthcare Workforce Transformation Fund to support education and training related to the implementation of Chapter 224 cost containment legislation.

However, partners committed to the following next steps in order to advance identified regional strategies to address clinical lab workforce issues:

- Convene human resource subject matter experts from partner organizations to review gap analysis findings
- Reconvene partner organizations after individual staffing models have been developed and new staffing ratios considered
- Provide regional feedback to STCC regarding future demand for clinical lab assistants and future programming
- Provide regional feedback to STCC regarding future demand for MLTs and the implications for increasing MLT class size and commitment to clinical placements
- Utilize the Regional Employment Board's on-the-job training (OJTs) program to extend the orientation timeline for new hires

References

American Society of Clinical Pathology (ASCP) Task Force on the Laboratory Professionals Workforce. *Building a Laboratory Workforce to Meet the Future*. October 2013.

Regional Comparison - MT and MLT Knowledge

Item	Knowledge	MT Importance to Job	MT Mastery Level Required	MT Current Employee Ability	MT New Hire Ability	Knowledge	MLT Importance to Job	MLT Mastery Level Required	MLT Current Employee Ability	MLT New Hire Ability
1	Recognize the numerous causes of discrepant test results (patient and laboratory)	4.8	4.7	4.2	3.1					
2	A general comprehension of the many factors that affect health and disease	4.3	4.1	3.9	3.1					
3	Applies business and economic data in decision making	3.4	3.5	3.1	2.2					
4	Recognizes deviations of test results	4.9	4.7	4.4	3.1	Recognizes deviations of test results				
5	Understands ethics including result confidentiality	4.8	4.8	4.5	4.2	Understands ethics including result confidentiality				
6	Determines validity of test results and need for additional tests	4.7	4.6	4.2	3.1	Determines validity of test results and need for additional tests				
7	Uses statistical methods	4.0	4.0	3.5	2.9	Uses statistical methods				
8	Has an appreciation of the roles and interrelationships of paramedical and other health-related fields	3.9	3.7	3.4	2.8	Has an appreciation of the roles and interrelationships of paramedical and other health-related fields				
9	Follows the ethical code of conduct for the profession	4.9	4.8	4.6	4.3	Maintain an awareness of ethical standards of practice	4.8	4.6	4.5	4.0
10	Understanding of the underlying scientific principles of laboratory testing as well as the technical procedural and problem-solving aspects	4.8	4.6	4.2	3.1	A working comprehension of the technical and procedural aspects of laboratory tests	5.0	4.7	4.4	3.3
11	Understands and enforces safety regulations	4.8	4.7	4.4	3.9	Maintain an awareness of safety regulations	4.8	4.6	4.6	4.0
12	Understands and enforces regulatory requirements	4.7	4.6	4.3	3.2	Maintain an awareness of and complies with regulatory requirements	4.5	4.4	4.2	3.3
13	Recognize the importance of proper test selection	4.6	4.5	4.3	3.1	Understands basic physiology recognizing appropriate test selection and abnormal test results	4.5	4.5	4.0	3.2
14	Correlates abnormal laboratory data with pathologic states	4.4	4.4	3.9	3.0	Correlates laboratory tests to disease processes	4.1	4.0	3.8	2.9
	Knowledge elements not included in the ASCP MLT certification, but which Sue Schneider feels are important at the MLT level.									
	Source: American Society for Clinical Pathology (ASCP), Board of Certification									

Regional Comparison - MT and MLT Technical Skills

#	Technical Skill	MT Importance to Job	MT Mastery Level Required	MT Current Employee Ability	MT New Hire Ability	Technical Skill	MLT Importance to Job	MLT Mastery Level Required	MLT Current Employee Ability	MLT New Hire Ability
1	Participates in the introduction, investigation and implementation of new procedures and in the evaluation of new instruments	4.3	4.4	3.8	2.6					
2	Participates in the evaluation of new techniques in the laboratory	4.1	4.3	3.8	2.6	Follows established procedures for collecting and processing biological specimens for analysis	4.9	4.8	4.7	3.8
3	Understands quality assurance sufficient to implement and monitor quality control programs	4.6	4.6	4.2	3.1	Comprehends and follows procedural guidelines to perform laboratory tests to include: Quality control monitoring	4.8	4.5	4.5	3.4
4	Capable of performing and interpreting standard, complex and specialized tests	4.8	4.7	4.2	2.9	Comprehends and follows procedural guidelines to perform laboratory tests to include: Specimen collection and processing	4.8	4.6	4.6	3.8
5	Performs routine lab analysis: hematologic, immunohematologic, chemical, microbiological, immunologic	4.9-4.3	4.75 - 4.5	4.6 -4.1	3.3-2.9	Performs routine lab analysis: hematologic, immunohematologic, chemical, microbiological, immunologic	5.0-4.9	4.7-4.4	4.4.- 4.2	3.4-3.1
6	Understands and uses troubleshooting, validation, statistical, computer, and preventative maintenance techniques to insure proper laboratory operations	4.6	4.5	4.1	3.0	Understands and uses troubleshooting, validation, statistical, computer, and preventative maintenance techniques to insure proper laboratory operations	4.6	4.5	4.1	3
7	Evaluates computer-generated data and troubleshoots problems	4.4	4.3	3.8	2.8	Comprehends and follows procedural guidelines to perform laboratory tests to include: Result reporting and record documentation	5.0	4.8	4.6	3.6
8	Comprehends and follows procedural guidelines to perform laboratory tests to include: Instrument operation and troubleshooting					Comprehends and follows procedural guidelines to perform laboratory tests to include: Instrument operation and troubleshooting	4.6	4.5	4.0	2.9
9	Comprehends and follows procedural guidelines to perform laboratory tests to include: Computer applications					Comprehends and follows procedural guidelines to perform laboratory tests to include: Computer applications	4.3	4.1	4.1	3.4

Source: American Society for Clinical Pathology (ASCP), Board of Certification

Technical skills not included in the ASCP MLT certification, but which employers feel are necessar MT technical skills

Appendix B – Job titles as provided by participating employers

	Baystate	Berkshire	Holyoke	LifeLabs
Supervisors				
Medical Technologist	Medical Laboratory Scientist I	General Medical Technologist	Medical Technologist	Medical Technologist
	Medical Laboratory Scientist II			Medical Technologist (Non-Cert)
	Lead Medical Laboratory Scientist			
Medical Lab Technician	Clinical Laboratory Technician I	Medical Laboratory Technician	Medical Laboratory Technican	Medical Lab Technician
	Clinical Laboratory Technician II			
	Clinical Laboratory Technician III			
	PREP TECH I TRANSFUSION MEDICINE			
Clinical Lab Assistant	LAB ASSISTANT I TRANSFUSION MEDICINE	Clinical Laboratory Assistant (A/P)	Clinical Laboratory Assistant	Lab Aide
	LAB ASSISTANT II TRANSFUSION MEDICINE	Clinical Laboratory Assistant		
	LAB ASSISTANT LEVEL I OSP			
	LAB ASSISTANT LEVEL II OSP			
	LAB ASSISTANT LEVEL I LCRI			
	LAB ASSISTANT LEVEL II LCRI			
	LAB ASSISTANT LEVEL I Whitney Ave/Cytology/Histology			
	LAB ASSISTANT LEVEL II Whitney Ave/Cytology/Histology			
	LAB ASSISTANT LEVEL II PSC			
	LAB ASSISTANT III, Generalist			
	Preparatory Technician I			