

# Medical Laboratory Technicians

*Inland Empire/Desert Region (Riverside and San Bernardino counties combined)*

*This workforce demand report uses state and federal job projection data developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.*

## Summary

- The community college laboratory science technology and medical laboratory technology programs provided the knowledge, skills, and abilities that lead to the *clinical laboratory technologist and technician* occupation. *Clinical laboratory technologists and technicians* is an **essential critical infrastructure occupation**.
- This occupation is projected to have 156 annual job openings, increasing employment by 13% through 2024.
- The **25<sup>th</sup> percentile hourly wage** for this occupation is **\$19.99 per hour, above the regional \$19.94 per hour self-sustainable standard** for a single adult with one child.
- Regional community colleges do not offer laboratory science technology and medical laboratory technology programs—a comparable private institution issued 18 annual average awards over the last three academic years available.
- The COE **recommends** establishing laboratory science technology and medical laboratory technology programs based on the relevant occupation's high number of projected annual job openings and self-sufficient hourly wages.

## Introduction

This report provides data on programs and occupation related to medical laboratory technicians; the related California Community College programs are:

- Laboratory Science Technology (TOP 0955.00)
- Medical Laboratory Technology (TOP 1205.00)

The **laboratory science technology** program prepares students for employment through the instruction of the practical analytical applications of inorganic chemistry, organic chemistry biochemistry, and other physical and biological sciences in laboratory, testing, and quality control settings in industry and science. The **medical laboratory technology** program prepares students for employment through the application

of chemical, physical science, engineering, and technological concepts, principles, and practices to human and other living systems (Taxonomy of Programs, 2012).

The knowledge, skills, and abilities trained by **laboratory science technology and medical laboratory technology** programs lead to the *clinical laboratory technologists and technicians* occupation. This occupation is an essential critical infrastructure occupation as identified by the Public Policy Institute of California. This classification of occupations is vital in supporting California's basic health, safety, and economic needs or may have the ability to social distance (Bohn et al.).

**Clinical Laboratory Technologists and Technicians (29-2010)**

Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff. Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.

**Sample job titles:** Microbiology Technologist, Cytogenetic Technologist, Cytotechnologist, Histotechnologist, Specimen Processor, Chief Medical Technologist, Technical Specialist, Cytogenetics, Histology Technician, Medical Laboratory Technician (MLT)

*Entry-Level Educational Requirement: Bachelor's degree*

*Training Requirement: None*

*Incumbent workers with a Community College Award or Some Postsecondary Coursework: 40%*

**Job Opportunities**

In 2019, there were 1,715 *clinical laboratory technologist and technician* jobs in the Inland Empire/Desert Region. The *clinical laboratory technologist and technician* occupation is projected to have 156 annual job openings to fill new or backfill jobs that workers are permanently vacating (includes occupational transfers and retirements). This occupation is expected to increase employment by 13% through 2024. Exhibit 1 displays five-year projected job growth, and Exhibit 2 displays historical (2014 to 2019) and projected (2019-2024) jobs for this occupation.

*Exhibit 1: Five-year projections, 2019-2024*

2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
1,715	1,939	13%	938	156	22%

Source: EMSI 2020.4

Exhibit 2: Historical and projected jobs for clinical laboratory technologists and technicians, 2014 – 2024



Source: EMSI 2020.4

### Job Postings

Exhibit 3 displays the number of online job ads posted over the last five years, along with the regional and statewide average time to fill for medical laboratory technicians. Medical laboratory technician is a common job title for *clinical laboratory technologists and technicians*, and the following job advertisement information displays only the data related to the medical laboratory technician job title. Nearly two-thirds of the job advertisements for *clinical laboratory technologists and technicians* were for medical laboratory technicians. On average, local employers fill online job postings for medical laboratory technicians within 44 days, four days shorter than the statewide average of 40 days, indicating that it may be easier for local employers to fill open positions than other employers in California.

Exhibit 3: Job ads and time to fill

Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
154	44	40

Source: Burning Glass – Labor Insights

### Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide a self-sustainable income level. The Family Needs Calculator estimates that a self-sustainable wage for a single adult with one school-age child is \$19.94 per hour or \$41,475 annually in Riverside County, \$19.49 per hour or \$40,539 in San Bernardino County (Pearce & Manzer, 2018). For this study, the higher hourly wage requirement in Riverside County is adopted as the self-sufficiently standard for the region.

The 25<sup>th</sup> percentile hourly wage for *clinical laboratory technologists and technicians* is above the Family Needs Calculator self-sustainability rate, \$19.99 per hour. Wage information indicates that approximately 75% of workers earn wages above the self-sustainability rate. Exhibit 4 displays the hourly earnings by percentile.

Exhibit 4: Hourly earnings by percentile



Source: EMSI 2020.4

According to occupational guides developed by the California Labor Market Information Division, *clinical laboratory technologists and technicians* generally receive good benefits, including medical, dental, life and vision insurance, vacation, sick leave, and pension plans (Detailed Occupational Guides, 2020).

## Employers, Skills, Education, and Work Experience

Exhibit 5 displays the employers posting three or more online job advertisements for medical laboratory technicians during the last five years in the region.

*Exhibit 5: Employers posting the most online job ads*

Employers	Job Ads
Community Hospital of San Bernardino (Dignity Health)	10
Robert E. Bush Naval Hospital	9
Riverside Community Hospital (Hospital Corporation of America)	8
Kaiser Permanente	6
St. Mary Medical Center (St. Joseph Health System)	6
Desert Regional Medical Center (Tenet Health System)	6
United Health Services, Inc.	4
CSL Plasma	3
All other employers	102
<b>Total</b>	<b>154</b>

Source: Burning Glass – Labor Insights

Exhibit 6 displays a sample of specialized and employability skills employers seek when looking for workers to fill *medical laboratory technician* positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job postings may be utilized to guide curriculum development.

*Exhibit 6: Sample of in-demand skills from employer online job ads*

Specialized Skills	Employability Skills
<ul style="list-style-type: none"> <li>Quality Assurance and Control</li> <li>Laboratory Testing</li> <li>Chemistry</li> <li>Microbiology</li> <li>Laboratory Procedures</li> </ul>	<ul style="list-style-type: none"> <li>English</li> <li>Troubleshooting</li> <li>Teamwork/Collaboration</li> <li>Preventive Maintenance</li> <li>Building Effective Relationships</li> </ul>

Source: Burning Glass – Labor Insights

Exhibit 7 displays the entry-level education typically required to enter employment as a *clinical laboratory technologist and technician* according to the Bureau of Labor Statistics (BLS), educational attainment for incumbent workers with "some college, no degree" and an "associate degree" according to the U.S. Census (2016-17) and the real-time minimum advertised education requirement from employer job ads for medical laboratory technicians. Please note that 71% of online job advertisements did not include minimum education requirements.

*Exhibit 7: Typical entry-level education, educational attainment, and minimum advertised education requirements*

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
			Number of Job Ads	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Clinical Laboratory Technologists and Technicians	Bachelor's degree	40%	45	24%	47%	29%

Source: EMSI 2020.4, Burning Glass – Labor Insights

\*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework

Exhibit 8 displays the work experience typically required for *clinical laboratory technologists and technicians* and the real-time work experience requirements from employer job ads for medical laboratory technicians. The majority of employers sought candidates with zero to two years of previous work experience.

*Exhibit 8: Work experience required and real-time work experience requirements*

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of Job Ads	0 – 2 years	3 – 5 years	6+ years
Clinical Laboratory Technologists and Technicians	None	83	90%	10%	-

Source: EMSI 2020.4, Burning Glass – Labor Insights

## Certifications

All of the job advertisements included in this report required candidates with a certified medical laboratory technician (MLT) certification. The California Department of Public Health (CDPH) Laboratory Field Services (LFS) requires that individuals complete an associate degree related to clinical laboratory science with specific course requirements related to biological sciences, chemistry, and biology before licensure. For more information regarding MLT licensure, please visit the CDPH website (CDPH, 2020).

## Advertised Salary

Exhibit 9 displays advertised salary data for medical laboratory technicians over the last five years. Advertised salary information reveals that employers are willing to pay medical laboratory technicians \$57,000 annually, above the \$42,475 (\$19.94 hourly) required annually for a family of one adult with a school-age child to be self-sufficient in Riverside County (\$40,539 annually in San Bernardino County). Consider the salary information with caution since only 9% (14 out of 154) online job postings for these occupations provided salary information. The salary figures are prorated to reflect full-time, annual wage status.

Exhibit 9: Advertised salary information

Number of job postings	Real-Time Salary Information				Average Annual Salary
	Less than \$35,000	\$35,000 to \$49,999	\$50,000 to \$74,999	More than \$75,000	
14	22%	7%	64%	7%	\$57,000

Source: Burning Glass – Labor Insights

## Student Completions and Program Outcomes

Regional community colleges do not currently offer medical laboratory technician programs or other programs coded within laboratory science technology (TOP 0955.00) and medical laboratory technology (TOP 1205.00). However, one private educational institution in the region provides medical laboratory technician training. Awards granted from private educational institutions are displayed in Exhibit 10 and the relevant CIP code. These programs have issued a combined total of 18 awards annually over the last three academic years.

Exhibit 10: Annual average private educational institution awards from clinical laboratory science/medical technology/technologists programs in the Inland Empire/Desert Region

51.1005 – Clinical Laboratory Science/Medical Technology/Technologist	Bachelor's degree	Private Educational Institutions Annual Average Certificates or Other Credit Awards (2014-17)
Loma Linda University	18	18
<b>Total annual average other awards</b>	<b>18</b>	<b>18</b>

Source: IPEDS

## Recommendation

The laboratory science technology (TOP 0955.00) and medical laboratory technology (TOP 1205.00) programs provide the knowledge and skill that lead to the *clinical laboratory technologist and technician* occupation. This occupation is considered an essential critical infrastructure occupation. Despite the ongoing pandemic, employment demand should continue due to this occupation's critical health and safety services.

*Clinical laboratory technologists and technicians* are projected to have 156 annual job openings, increasing employment by 13% through 2024. This occupation offers a 25th percentile hourly wage of \$19.99 per hour, above the \$19.94 per hour self-sustainability standard for a single adult with one child in the region. This occupation typically requires a bachelor's degree to enter employment; about 71% of employer online employer job ads seek a candidate with an associate degree (47%) or a high school diploma or vocational training (24%) as a minimum educational requirement.

Regional community colleges do not offer laboratory science technology and medical laboratory technology programs—a comparable private institution issued 18 annual average awards over the last three academic years.

The COE **recommends** establishing laboratory science technology and medical laboratory technology programs based on the relevant occupation's high number of projected annual job openings and self-sufficient hourly wages. Colleges considering this program should partner with relevant employers to document the required knowledge, skills, abilities, and certifications needed to gain employment in the region.

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## References

Bohn, S., Cuellar Mejia, M., Lafortune, J. (2020). Essential Workers and COVID-19 - Public Policy Institute of California. Retrieved from <https://www.ppic.org/blog/essential-workers-and-covid-19/>

Burning Glass Technologies. (2020). *Labor Insights/Jobs*. Retrieved from <https://www.burning-glass.com/>

California Community Colleges Chancellor's Office. LaunchBoard. (2020). *California Community Colleges LaunchBoard*. Retrieved from <https://www.calpassplus.org/Launchboard/Home.aspx>

California Community Colleges Chancellor's Office. LaunchBoard. (2020a). *Strong Workforce Program Metrics Data Element Dictionary*. Pg. 3. Retrieved from <https://www.calpassplus.org/MediaLibrary/calpassplus/launchboard/Documents/SWP-DED.PDF>

California Community Colleges Chancellor's Office. (2020). *Chancellor's Office Curriculum Inventory (COCI)*, version 3.0. Retrieved from <https://coci2.ccctechcenter.org/programs>

California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. (2020). *Data Mart*. Retrieved from <https://datamart.cccco.edu/datamart.aspx>

California Community Colleges Chancellor's Office, Curriculum and Instructional Unit, Academic Affairs Division. (2012). *Taxonomy of Programs, 6<sup>th</sup> Edition, Corrected Version*. Retrieved from <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Digital-Innovation-and-Infrastructure/Research/Files/TOPmanual6200909corrected12513.ashx?la=en&hash=94C709CA83C0380828415579395A5F536736C7C1>

California Department of Public Health (CDPH). (2020). *New Guidelines for California CLS/MLT Licensure*. Retrieved from [https://www.cdph.ca.gov/Programs/OSPHLD/LFS/CDPH%20Document%20Library/CLS\\_MLT\\_Licensure%20Guideline\\_1.3.pdf](https://www.cdph.ca.gov/Programs/OSPHLD/LFS/CDPH%20Document%20Library/CLS_MLT_Licensure%20Guideline_1.3.pdf)

Carnevale, A. P., Jayasundera, T., & Repnikov, D. (n.d.). Understanding Online Job Ads Data. Retrieved from <https://cew.georgetown.edu/wp-content/uploads/2014/11/OCLM.Tech.Web.pdf>

Economic Modeling Specialists International (EMSI). (2020). *Datarun 2020.4*. Retrieved from <https://www.economicmodeling.com/>

Labor Market Information Division. Employment Development Department of California. (2020). *Detailed Occupational Guides*. Retrieved from <https://www.labormarketinfo.edd.ca.gov/OccGuides/Search.aspx>

National Center for O\*NET Development. (2020). *O\*NET OnLine*. Retrieved from <https://www.onetonline.org/>

Pearce, D., Manzer, L. Center for Women's Welfare at the University of Washington. (2018). Retrieved from <https://insightcced.org/2019-family-needs-calculator/>

## Appendix: Program Completion and Outcome Methodology

Job postings data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job postings often do not reveal the hiring intentions of employers; it is unknown if employers plan to hire one or multiple workers from a single online job posting, or if they are collecting resumes for future hiring needs. A closed job posting may not be the result of a hired worker.

Table 1: 2019 to 2024 job growth, wages, education, training, and work experience required, Inland Empire/Desert Region

Occupation (SOC)	2019 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage Range (25 <sup>th</sup> to 75 <sup>th</sup> percentile)	Median Hourly Wage (50 <sup>th</sup> percentile)	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Clinical Laboratory Technologists and Technicians (29-2010)	1,715	224	13%	156	\$19.99 to \$36.55	\$25.60	\$60,200	Bachelor's degree & None	None

Source: EMSI 2020.4