Unmet Workforce Demand for Histotechnology Jobs in Los Angeles County

Labor Market Supply and Demand for Histotechnology

Baccalaureate of Science (B.S.) degree at

Mount San Antonio College

Prepared by: Los Angeles Center of Excellence for Labor Market Research
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Key Findings

Demand:

- Employment for *clinical laboratory technologists and technicians* has varied over the last 20 years, experiencing both grown and decline over the last two decades.
- Over the next five years, more than 600 *clinical laboratory technologist and technician* jobs are projected to be available annually in Los Angeles County.
- Average hourly wages for *clinical laboratory technologist and technician* are $0.67 higher than the average across all occupations at the 10th percentile, $1 higher at the 25th percentile, $2 higher at the median, $8 higher at the 75th percentile, and $13 more per hour at the 90th percentile.

Supply:

- Between 2019 and 2021, educational providers in the region conferred an average of 68 bachelor's degrees from programs related to histotechnology.

Gap Analysis:

- With 68 average annual bachelor's degrees issued in the county and 603 projected annual job openings for *clinical laboratory technologists and technicians*, an occupation that typically requires a bachelor's degree for entry, the potential supply gap at this level of education is 535 unfilled jobs in LA County.

Introduction

The Histotechnology Baccalaureate of Science program at Mount San Antonio College will build upon its existing Histotechnician program, which has been certified by the American Society for Clinical Pathology (ASCP) Board of Registry since 2005 and is the largest of its kind in the United States in terms of student enrollment and facilities. At this time, only five other institutions in the country offer baccalaureate degrees in Histotechnology, and none of these are in California.

Histology Technicians, or Histotechnicians, prepare thin sections of human, animal and plant tissue for microscopic examination. The Mt. SAC Histotechnician Training Program is intended to prepare students for entry level employment as histotechnicians in clinical, veterinary, forensic, marine biology, and research laboratories. The Histotechnology Baccalaureate of Science program will serve as a pathway for career advancement in specialized areas in the histotechnology profession, providing them with the opportunity to become employed as a Histotechnologist, which is a higher-level job than a Histotechnician, requiring additional education and/or work experience. Histotechnologists directly supervise the work of histotechnicians and are often the clinical manager on site.

For federal reporting purposes, employment of histotechnologists is captured within the Bureau of Labor Statistics' following standard occupational classification (SOC) code:

- ***Medical and Clinical Laboratory Technologists* (29-2011)** Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff.[1]

This occupation has slightly higher-level yet similar job duties, skills, education and/or training requirements to another SOC code: *Medical and clinical laboratory technicians* (29-2012). In this case, data from these two occupation codes have been combined into a single occupation: *Clinical laboratory technologists and technicians* (29-2018). When traditional labor market information is included in this report, the *clinical laboratory technologists and technicians* (29-2018) SOC code is used.

Histotechnology is a dynamic field with new and constantly evolving technology and methodology. In order for SOC codes to clearly distinguish similar occupations, data collection is currently underway for these related emerging occupations:

- ***Cytogenetic technologists* (29-2011.01)** Analyze chromosomes or chromosome segments found in biological specimens, such as amniotic fluids, bone marrow, solid tumors, and blood to aid in the study, diagnosis, classification, or treatment of inherited or acquired genetic diseases. Conduct analyses through classical cytogenetic, fluorescent in situ hybridization (FISH) or array comparative genome hybridization (aCGH) techniques.[2]

[1] Clinical Laboratory Technologists and Technicians (bls.gov)
[2] 29-2011.01 - Cytogenetic Technologists (onetonline.org)

- ***Cytotechnologists* (29-2011.02)** Stain, mount, and study cells to detect evidence of cancer, hormonal abnormalities, and other pathological conditions following established standards and practices.[3]
- ***Histotechnologists* (29-2011.04)** Apply knowledge of health and disease causes to evaluate new laboratory techniques and procedures to examine tissue samples. Process and prepare histological slides from tissue sections for microscopic examination and diagnosis by pathologists. May solve technical or instrument problems or assist with research studies.[4]
- ***Histology technicians* (29-2012.01)** Prepare histological slides from tissue sections for microscopic examination and diagnosis by pathologists. May assist with research studies.[5]

Real-time labor market information (also known as job postings data) is available for these emerging occupations and is included in the job postings section of this report. This group of emerging occupations is referred to as histotechnology-related jobs.

The purpose of this study is to determine whether there is demand in the statewide and regional labor market for *medical and clinical laboratory technologists* that is not being met by the supply from relevant training programs. More specifically, this report addresses the labor market components of Assembly Bill 927, which require evidence of unmet workforce needs related to Mount San Antonio College's proposed histotechnology baccalaureate degree program.[6]

[3] 29-2011.02 - Cytotechnologists (onetonline.org)
[4] 29-2011.04 - Histotechnologists (onetonline.org)
[5] 29-2012.01 - Histology Technicians (onetonline.org)
[6] AB-927 Public postsecondary education: community colleges: statewide baccalaureate degree program

Key Histotechnology Occupation

The key histotechnology occupation analyzed in this report was selected from the 2018 Standard Occupational Classification (SOC) system. *Medical and clinical laboratory technologists* are classified under the healthcare practitioners and technical occupations major group (29-0000).

Exhibit 1: Key histotechnology occupation

SOC Code	Description	Typical Entry-Level Education
29-2011	Medical and Clinical Laboratory Technologists	Bachelor's degree

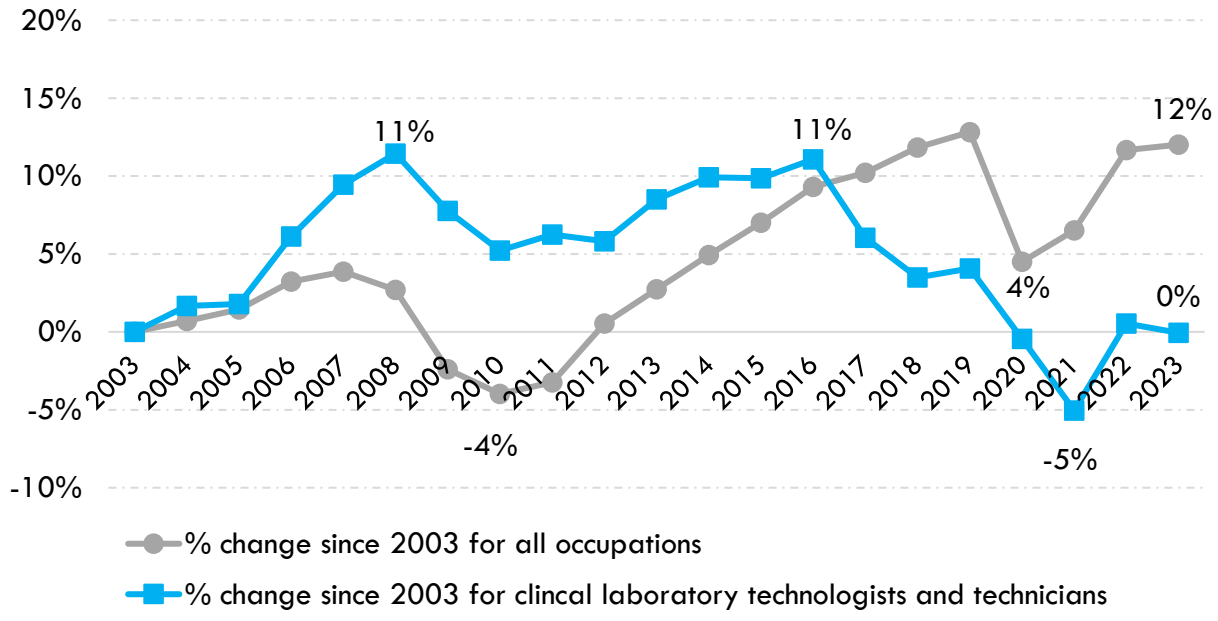
Source: 2018 Standard Occupational Classification (SOC) system

Labor Market Demand for Histotechnology Jobs

Historical employment in Los Angeles County

Exhibit 2 demonstrates that since 2003, employment for *clinical laboratory technologists and technicians* has varied over the past twenty years. *Clinical laboratory technologists and technicians* experienced a steady rate of growth from 2003 until the Great Recession (2007-2009), growing 11% from 2003-2007. Since 2016, employment in this occupation has steadily declined, bouncing back to 0% change since 2003 in 2023. All jobs across Los Angeles County dipped during the Great Recession (2007-2009), and experienced economic shock during the COVID-19 pandemic (2020-2021), which significantly decreased employment for nearly all occupations. However, the number of jobs in Los Angeles County has increased by 12% since 2003 (on average).

Exhibit 2: Percent change in employment since 2003



Source: Lightcast, Datarun 2024.1

Projected annual job openings, 2022-2027

Exhibit 3 displays detailed 2022 job counts, projected employment figures through 2027, five-year percentage change in employment, and projected annual job openings for *clinical laboratory technologists and technicians*. In Los Angeles County, there will be more than 600 annual job openings through 2027. *Clinical laboratory technologists and technicians* is projected to grow by 5% by 2027 in LA County. In California, nearly 2,700 job openings are projected to be available annually. This occupation is expected to grow by 9% throughout the state, nearing 34,100 jobs by 2027.

Exhibit 3: Occupational demand in Los Angeles County

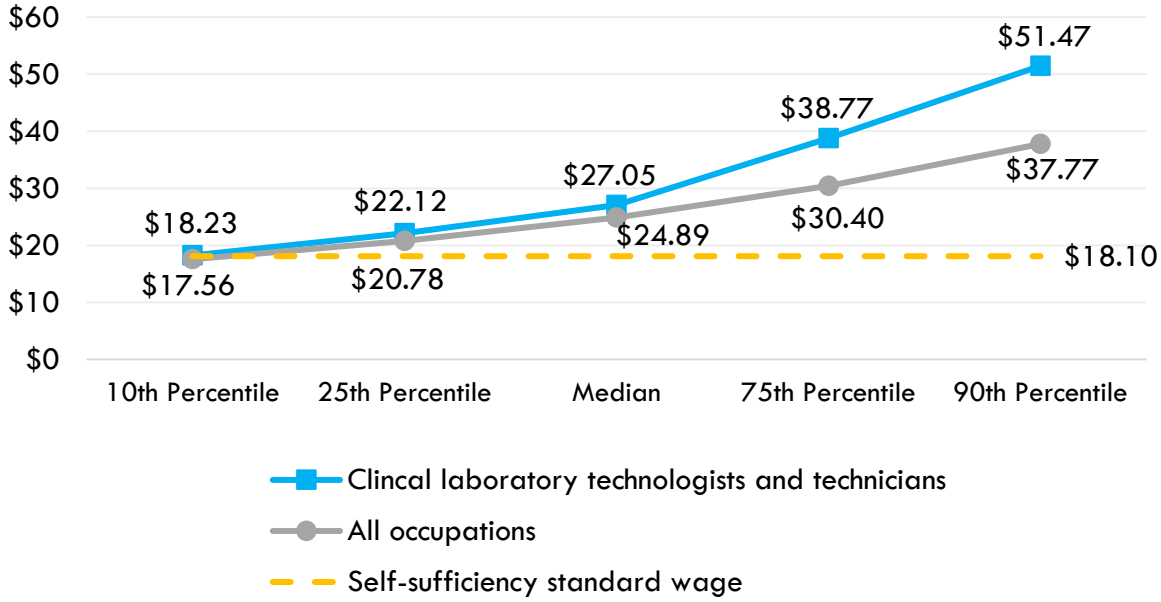
SOC	Occupation	Region	2022 Jobs	2027 Jobs	5-Year % Change	Annual Openings
29-2018	Clinical Laboratory Technologists and Technicians	Los Angeles	8,129	8,499	5%	603
		California	31,233	34,094	9%	2,657

Source: Lightcast, Datarun 2024.1

Average hourly wages for clinical laboratory technologists and technicians

The average hourly wage for *clinical laboratory technologists and technicians* in Los Angeles County at the 10th, 25th, median, 75th, and 90th percentile is displayed in Exhibit 4. At the lowest percentile available (i.e., the 10th), workers employed as *clinical laboratory technologists and technicians* earn $0.67 per hour more per hour than the regional average across all occupations. While this suggests that entry-level *clinical laboratory technologists and technicians* make average wages compared to all jobs in Los Angeles County, a benefit of being employed as a *clinical laboratory technologists and technicians* in Los Angeles County is that this gap widens among higher earners. Progressing to the 25th percentile, *clinical laboratory technologists and technicians* earn $1.34 per hour more than the average worker in the region, $2.16 more at the median level, $8.37 more at the 75th percentile, and $13.70 more per hour at the 90th percentile, on average. While earnings may vary depending on employer, industry, and city of employment, these represent average wages across Los Angeles County.

Exhibit 4: Hourly wage range for clinical laboratory technologists and technicians



Source: Lightcast, Datarun 2024.1 and the Self-Sufficiency Standard for California

Detailed median hourly and annual wages are displayed in Exhibit 5 for *clinical laboratory technologists and technicians* in Los Angeles County.

Exhibit 5: Median hourly and annual wages for clinical laboratory technologists and technicians

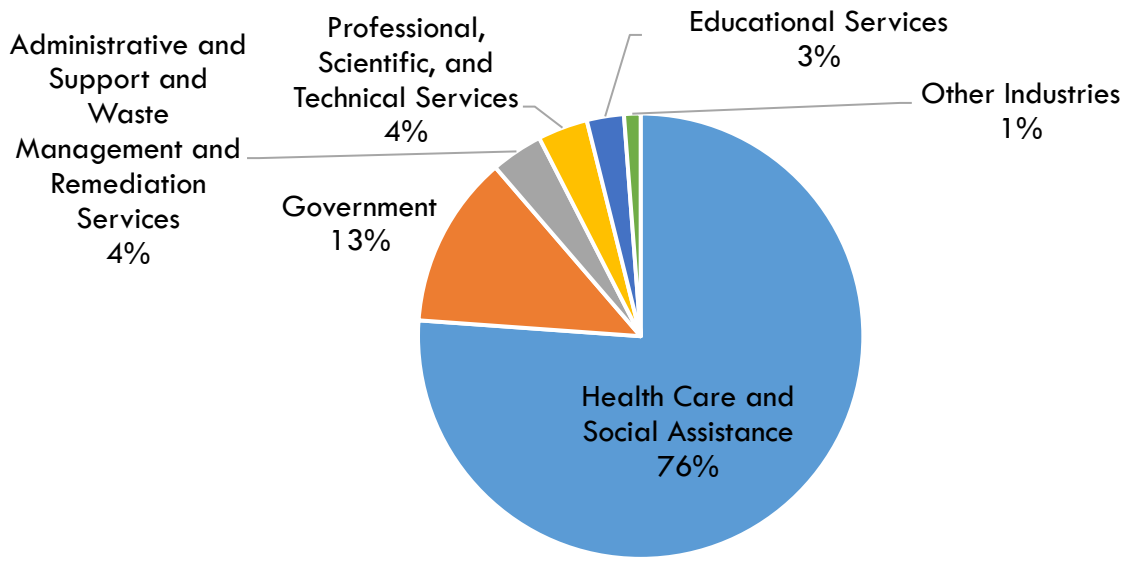
SOC Code	Description	Median Hourly Earnings	Median Annual Earnings
29-2018	Clinical Laboratory Technologists and Technicians	$27.05	$56,259

Source: Lightcast, Datarun 2024.1

Industry employment of clinical laboratory technologists and technicians

Exhibit 6 displays the portion of *clinical laboratory technologists and technicians* working within each industry sector. Unsurprisingly, the two industry sectors with the largest share of *clinical laboratory technologists and technicians* are health care and social assistance at 76%, and government (13%). Combined, these two industry sectors account for more than 89% of the employment for *clinical laboratory technologists and technicians* in Los Angeles County. Government includes industry sub-sectors such as local government hospitals (NAICS 903622), as well state government-funded hospitals (NAICS 902622).

Exhibit 6: Industry concentration of clinical laboratory technologist and technician jobs in 2022



Source: Lightcast, Datarun 2024.1

Job postings for histotechnology-related occupations

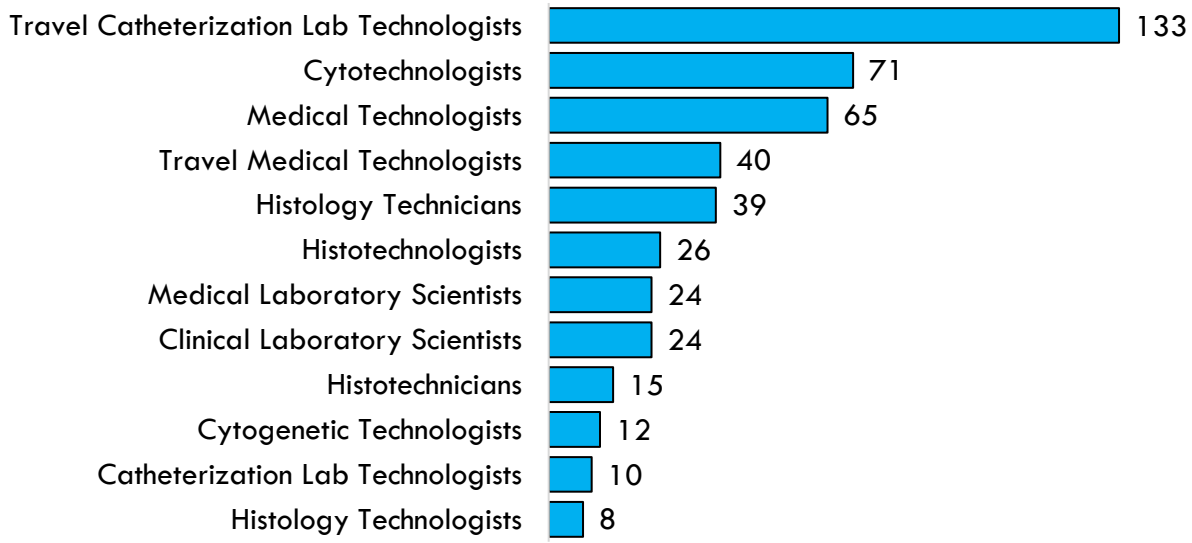
Data from job postings allows for a more niche view into the current job posting climate, as well as real-time data on emerging occupations. For this job postings section, histotechnology-related jobs will include:

- Medical and clinical laboratory technologists (29-2011)
- Cytogenetic technologists (29-2011.01)
- Cytotechnologists (29-2011.02)
- Histotechnologists (29-2011.04)
- Histology technicians (29-2012.01)

Over the last 12 months (April 2023 through March 2024), there were 639 unique online job postings for histotechnology-related occupations in Los Angeles County. The number of job postings by job title appear in Exhibit 7. The most common job titles from job postings were travel catheterization lab technologists, cytotechnologists, medical technologists, travel medical technologists, histology technicians and histotechnicians. The employers posting the most job ads during this timeframe were Siemens Healthineers, Labcorp Drug Development, Ansible Government Solutions, WestPac Labs, and Kindred Healthcare. The skills sought most frequently in these job ads were medical laboratory, catheterization laboratory, clinical laboratory science, health technology, chemistry, histology, biology, and sterile techniques and procedures. Qualifications most frequently sought by employers were American Society for Clinical Pathology (ASCP) certification, Basic Life Support (BLS) certification, Clinical Laboratory Scientist License (CLS), Advanced Cardiovascular Life Support (ACLS) certification, American Registry of

Radiologic Technologists (ARRT) certified, Certified Cytotechnologist, Certified Histotechnician (HT-ASCP), American Medical Technologists (AMT), and Certified Histotechnologist (HTL-ASCP).

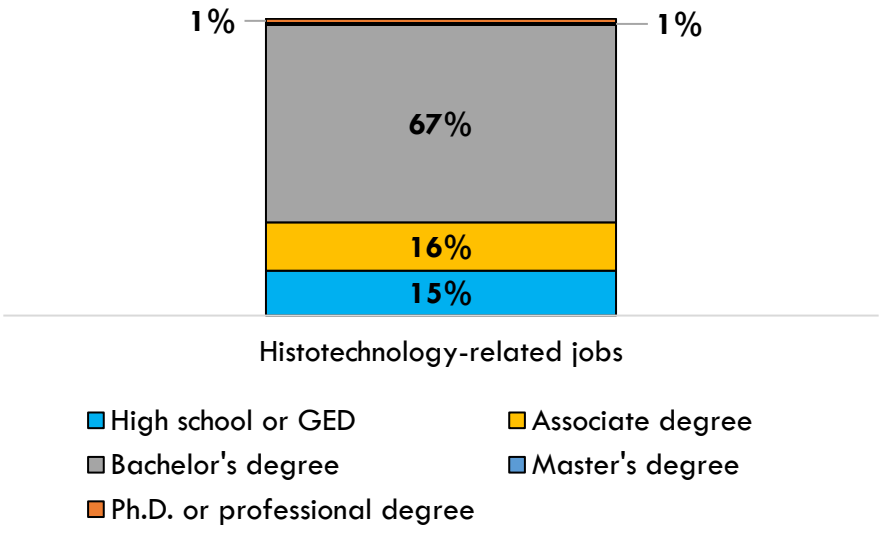
Exhibit 7: Job postings by job title (April 2023-March 2024)



Source: Lightcast, Datarun 2024.1

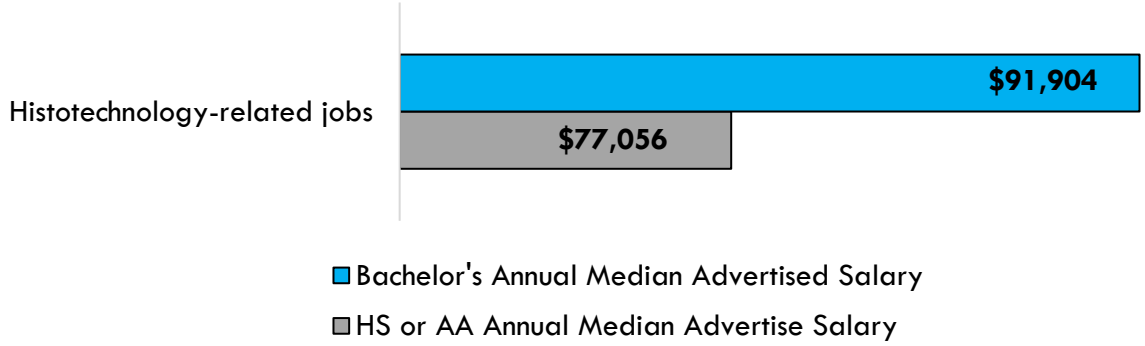
Of all the job postings that listed a minimum educational requirement, the majority of employers were seeking candidates with a bachelor's degree (67% of total), demonstrating that employers postings job ads prefer candidates with a bachelor's degree for these jobs. Exhibit 8 shows a breakdown of education levels listed in job postings for histotechnology-related jobs. While 31% of job postings desired a candidate with an associate degree or high school diploma, 69% desired a candidate with a bachelor's degree or more education.

Exhibit 8: Education breakdown in job postings



Taking a closer look at job postings that listed a bachelor's degree as the required level of education versus postings that listed a high school diploma or associate degree, employers seeking candidates with a bachelor's degree for histotechnology-related jobs are advertising annual salaries that are nearly $15,000 higher per year than those seeking candidates with a high school diploma or associate degree. Exhibit 9 demonstrates that regional employers posting job ads for histotechnology-related occupations are willing to pay a higher salary to candidates with a bachelor's degree than for candidates with a high school diploma or associate degree.

Exhibit 9: Annual median advertised salary by education level



Source: Lightcast, Datarun 2024.1

Educational Supply: Training Programs for Histotechnology

Bachelor's degrees related to histotechnology

In Los Angeles County, one program related to histotechnology at one 4-year college has issued bachelor's degrees in a related CIP code. (see Exhibit 10 below for summary data and Appendix for details). Between 2019 and 2021, there was an annual average of 68 bachelor's degrees awarded form this program. Please note that this particular program offered by CSU Dominguez Hills is focused on cytotechnology, not histotechnology specifically.

Exhibit 10: LA County bachelor's degrees, 2019-2021

Program (CIP)	2019-20	2020-21	2-Year Average
Clinical Laboratory Science/Medical Technology/Technologist (51.1005)	49	86	68

Source: National Center for Education Statistics' Integrated Postsecondary Education Data System

In California, bachelor's degrees related to histotechnology have been issued in two related programs at three different 4-year colleges (see Exhibit 11). Between 2019 and 2021, there was an average of 125 bachelor's degrees awarded annually. The program with the most awards

was Clinical Laboratory Science/Medical Technology/Technologist (51.1005), conferring 99% of the histotechnology-related bachelor's degrees in the state (123 awards).

While there are two CIP codes that are specific to histotechnology, there are currently no educational institutions in California that have recently conferred awards in these programs: Histologic Technology/Histotechnologist (51.1007) and Histologic Technician (51.1009).

Exhibit 11: California bachelor's degrees, 2019-2021

Program (CIP)	2019-20	2020-21	2-Year Average
Cytotechnology/Cytotechnologist (51.1002)	-	4	2
Clinical Laboratory Science/Medical Technology/Technologist (51.1005)	84	161	123
Histologic Technology/Histotechnologist (51.1007)	-	-	0
Histologic Technician (51.1009)	-	-	0
Total	**84**	**165**	**125**

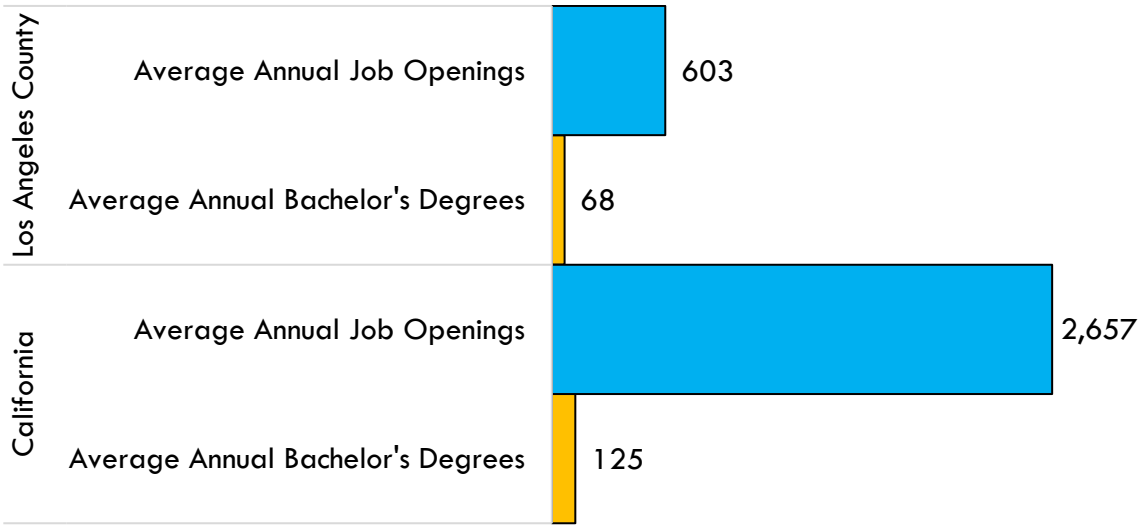
Source: National Center for Education Statistics' Integrated Postsecondary Education Data System

Gap Analysis

Breaking down the educational supply and occupational demand for histotechnology-related jobs in Los Angeles County yields a clear pattern (see Exhibit 12). With 68 average annual bachelor's degrees for histotechnology-related programs issued in the county, no current bachelor's programs specifically for histotechnology, and 603 projected annual job openings for *clinical laboratory technologists and technicians* that typically require a bachelor's degree for entry, the potential supply gap at this level of education is 535 unfilled jobs. This projected workforce shortage facing Los Angeles County requires the attention of all regional education and training providers.

In California as a whole, there is a more pronounced gap between the average annual job openings and the annual bachelor's degrees awarded. While 2,657 *clinical laboratory technologist and technician* jobs are projected to be available annually in California, there are only 125 annual bachelor's awards conferred in related programs and currently no specific histotechnology bachelor's-level programs. Therefore, a statewide projected workforce shortage of 2,532 unfilled annual job openings for *clinical laboratory technologists and technicians* is certainly a cause for conversation and planning among education and training providers.

Exhibit 12: Supply and demand gap analysis related to histotechnology



Source: Lightcast, Datarun 2024.1; California Community Colleges Chancellor's Office Management Information Systems Data Mart; National Center for Education Statistics' Integrated Postsecondary Education Data System

Recommendations & Discussion

This report demonstrates that the demand for projected jobs related to histotechnology occupations is unmet by the talent supply from related education and training programs over the next five years, both in Los Angeles County and California as a whole. While this is a great starting point to engage in meaningful discussion about the prospects of a community college baccalaureate program helping to bridge the gap between talent supply and occupational demand in the labor market, it is not sufficient based on legislation.

Therefore, this report can be used as a launch board to validate these findings from traditional labor market information and job postings with regional employers and training providers in an effort to assess that the following are true (sub-bullets summarize key points of support from this report):

- **Evidence that employers are having difficulty filling positions that require a baccalaureate degree.**
    - With nearly 639 job postings for histotechnology-related jobs in Los Angeles County over the last year, there is strong evidence that regional employers are actively seeking qualified individuals for these jobs.
- **Evidence that employers are willing to pay baccalaureate degree holders more than those with a related associate degree or no postsecondary degree.**
    - Regional employers seeking candidates with a bachelor's degree for histotechnology-related jobs are advertising annual salaries that are over $15,000 higher per year than those seeking candidates with a high school diploma or associate degree.
- **Evidence that employers prefer candidates with the proposed baccalaureate degree.**
    - The majority of regional employers were seeking candidates with a bachelor's degree (67% of total), demonstrating that employers postings job ads prefer candidates with a bachelor's degree for these jobs.
- **Evidence of job placement and/or promotion opportunities for candidates with a baccalaureate degree.**
    - The most common job titles from job postings were technologist-level jobs, which typically require a bachelor's degree: travel catheterization lab technologists, cytotechnologists, medical technologists, and travel medical technologists.
- **Evidence that the occupation/field the proposed baccalaureate degree is in will provide for higher-wage job opportunities.**
    - Average hourly wages for *medical and health services managers* are $0.67 higher than the average across all occupations at the 10th percentile, $1 higher at the 25th percentile, $2 higher at the median, $8 higher at the 75th percentile, and $13 more per hour at the 90th percentile.

Methodology

This report has three primary objectives:

1. Assess and quantify the labor market demand for histotechnology-related occupations in Los Angeles County and California that typically require a bachelor's degree for entry.
2. Assess and quantify the educational supply for such jobs.
3. Calculate the potential unmet workforce demand for these jobs.

For the first objective, the most recent datarun (2024.1) from Lightcast was analyzed using 2022 as a base year and a five-year projection period through 2027. This five-year period approximates the time it takes for a typical community college training program to be developed, approved, and for the first cohort of students to enroll, complete the program, and enter the workforce. The average annual job openings for *clinical laboratory technologists and technicians* that typically require a bachelor's degree for entry was the primary metric analyzed for this objective.

The second objective was calculated using the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS). This dataset was queried for the number of bachelor's degrees issued from educational institutions in Los Angeles County and California during the most recent two academic years available (2019-20 and 2020-21). Reporting in IPEDS is organized by Classification of Instructional Programs (CIP).

The third objective was achieved by calculating the difference between the sum of annual job openings related to *clinical laboratory technologists and technicians* and the number of baccalaureate awards issued from related programs. This calculation determines whether there is demand in the labor market is not being met by the supply from educational programs that align with the relevant occupation.

Appendix

Table A: Los Angeles County bachelor's awards issued related to histotechnology

CIP - Program	Institution	2019-20 Awards	2020-21 Awards	3-Year Average
51.1005 – Clinical Laboratory Science/Medical Technology/Technologist	CSU-Dominguez Hills	49	86	68
	Grand Total/Average	**49**	**86**	**68**

Table B: California bachelor's awards issued related to histotechnology

CIP - Program	Institution	2019-20 Awards	2020-21 Awards	3-Year Average
51.1002 – Cytotechnology/ Cytotechnologist	Loma Linda University	-	4	2
51.1005 – Clinical Laboratory Science/Medical Technology/ Technologist	CSU-Dominguez Hills	49	86	68
	Loma Linda University	-	41	21
	National University	35	34	35
	Grand Total	**84**	**165**	**125**

About the Centers of Excellence for Labor Market Research

The Centers of Excellence (COE) is a statewide initiative supported by the California Community Colleges' Economic and Workforce Development program. The COE research team represents expertise in labor market analysis with a focus on research design, educational and training program mapping, and identifying skill sets for emerging occupations as well as geospatial analysis. The COE maintains strategic alliances with research organizations whose relationships and technical expertise enhance COE research efforts and with industry associations that assist in validating research findings, ensuring that the most recent industry and labor market conditions are captured. COE studies are used to inform policy discussions, industry-wide legislative efforts, and regional workforce and economic development strategies, as well as guide program and resource development efforts by the California Community Colleges. These reports can be accessed at **www.coeccc.net**.