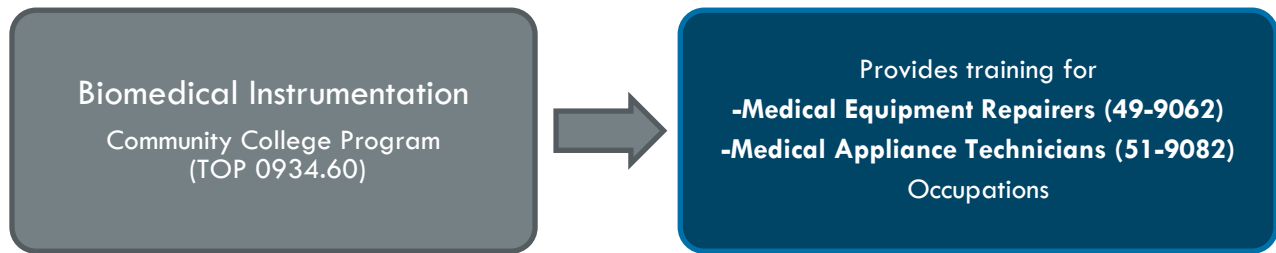


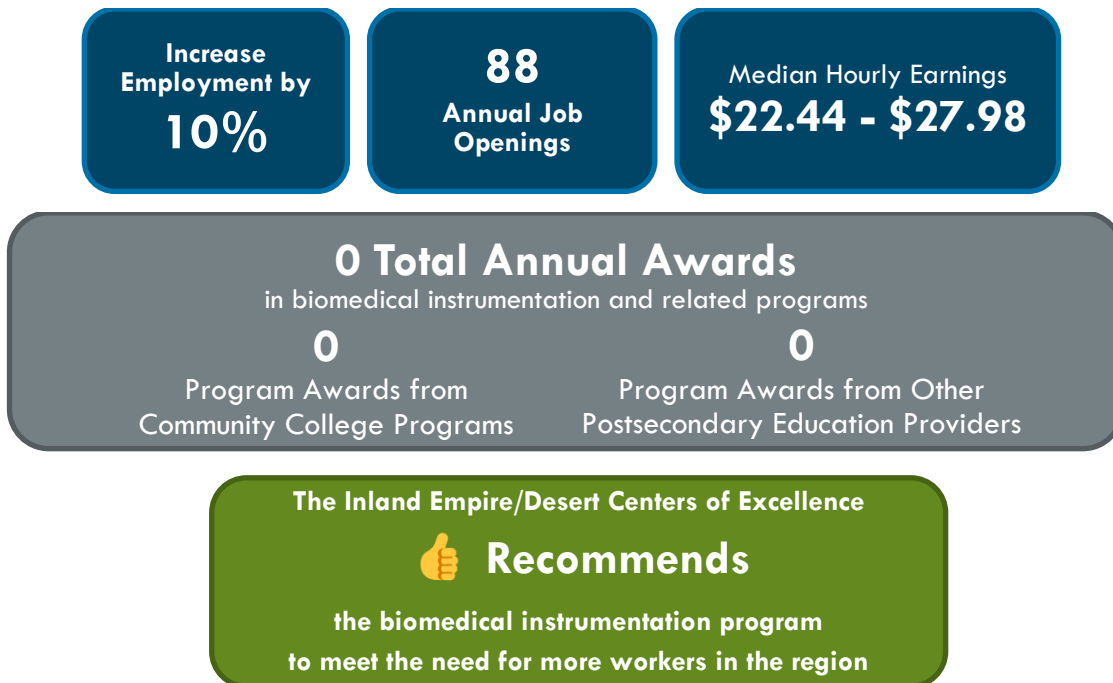
Medical Electronics Technicians/Biomedical Electronic Equipment Repair

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

Summary



Over the next five years (2022-2027), employment for the two medical appliance/equipment occupations is projected to:



Introduction

California Community College biomedical instrumentation (TOP 0934.60) programs prepare students for employment through the instruction of operation, maintenance, and installation of devices associated with biomedical measurements and medical life support (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by biomedical instrumentation and related programs lead to employment as:

- Medical Equipment Repairers (SOC 49-9062)
- Medical Appliance Technicians (SOC 51-9082)

Job Demand

In 2022, there were 698 jobs for medical appliance/equipment occupations in the Inland Empire/Desert Region. Regional employment for these occupations is projected to increase by 10% through 2027; nearly 100 job openings are projected annually. Exhibit 1 displays the job counts, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for medical appliance/equipment occupations, Inland Empire/Desert Region, 2022-2027

Occupation	2022 Jobs	2027 Jobs	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Medical Equipment Repairers	468	537	15%	295	59
Medical Appliance Technicians	230	231	1%	145	29
Total	698	768	10%	440	88

Source: Lightcast 2023.3

An online job ad search for medical appliance/equipment occupations included in this report was conducted to reveal the employers seeking these workers, including the median posting duration, earnings information, and in-demand skills. Exhibit 2 displays the number of job ads posted for these occupations over the last 12 months and the median posting duration. Over the last 12 months, there were 247 job ads posted for these medical appliance/equipment occupations in the region.

Exhibit 2. Job ads and posting duration, Inland Empire/Desert Region, December 2022 through November 2023

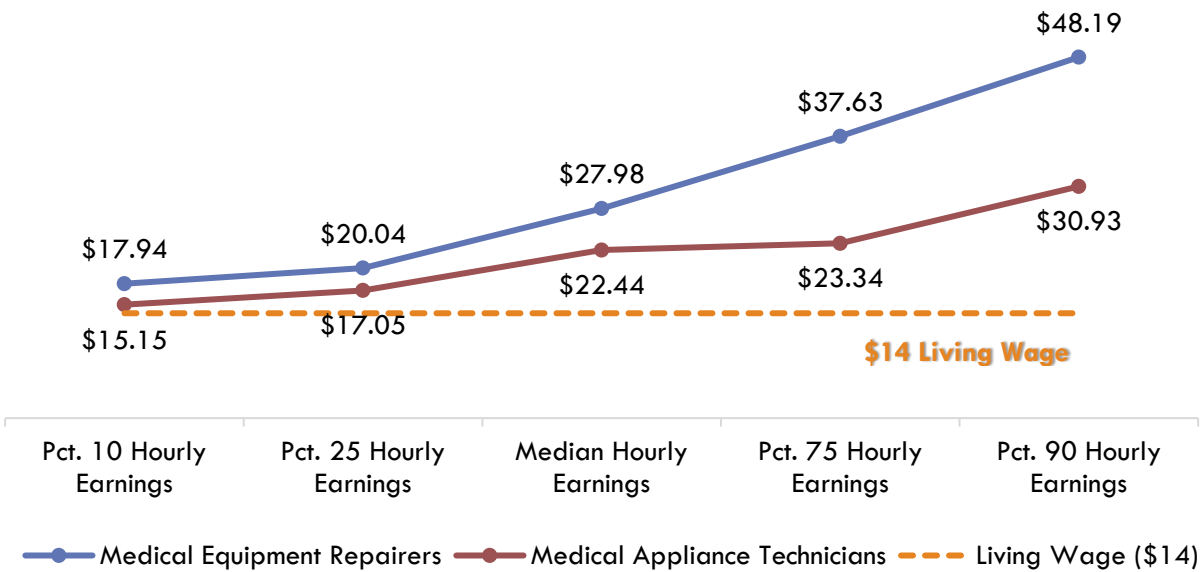
Occupation	Job Ads	Median Posting Duration (Days)
Medical Equipment Repairers	132	27 days
Medical Appliance Technicians	115	24 days
Total	247	--

Source: Lightcast 2023.3

Earnings

The living wage for one adult in the Inland Empire/Desert Region (Riverside and San Bernardino Counties) is \$14 per hour or \$29,120 annually. Exhibit 3 displays the hourly earnings for the two medical appliance/equipment occupations. Notably, both occupations have hourly wages above the regional living wage estimate of \$14/hour.

Exhibit 3. Hourly earnings by percentile for the two medical appliance/equipment occupations, Inland Empire/Desert Region, 2022

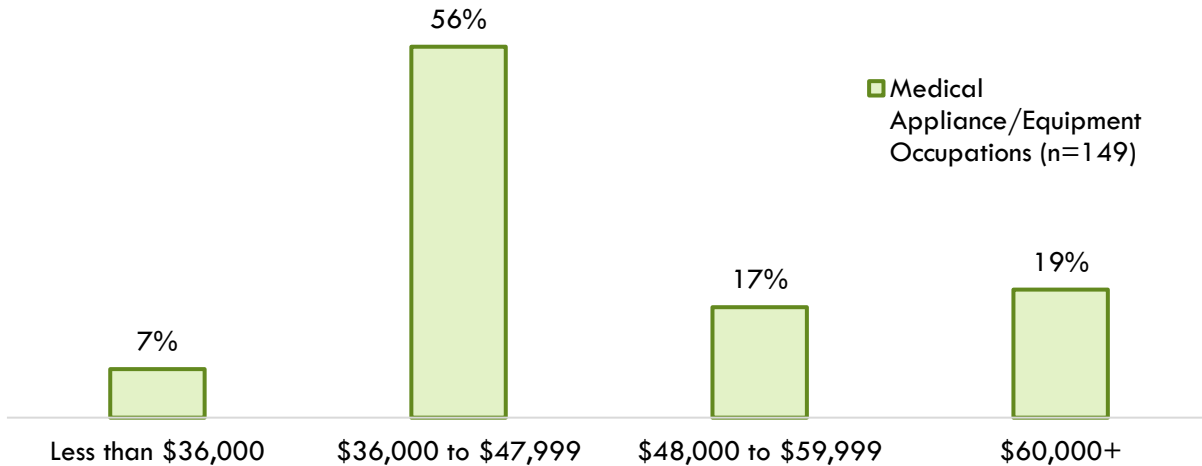


Source: Lightcast 2023.3

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the medical appliance/equipment occupations over the last 12 months. Online job ads salary information reveals that most employers (56%) advertise an annual salary between \$36,000 and \$47,999.

Exhibit 4. Online advertised salaries for the two medical appliance/equipment occupations, Inland Empire/Desert Region, December 2022 through November 2023



Source: Lightcast 2023.3

Online Job Advertisements: Job Titles, Employers, Skills, Education, & Work Experience

Exhibit 5 displays the job titles most frequently used for medical appliance/equipment-related job ads over the last 12 months. Displaying advertised job titles provides insight into the types of positions sought by employers in the region.

Exhibit 5. Job titles most frequently used in medical appliance/equipment-related job ads, Inland Empire/Desert Region, December 2022 through November 2023

Job Titles	Unique Job Ads
Medical Device Assemblers	85
Biomedical Technicians	24
Maintenance Technicians	15
Biomedical Equipment Technicians	14
Medical Equipment Technicians	13
Medical Equipment Delivery Technicians	12
Medical Assemblers	11
General Practitioners	11
Dialysis Equipment Technicians	10
Biomedical Equipment Support Specialists	10

Source: Lightcast 2023.3

Exhibit 6 displays the employers posting the most job ads for the medical appliance/equipment occupations during the last 12 months. Showing employer names provides insight into where students may find employment after completing a program. Aerotek posted the most job ads for the two medical appliance/equipment occupations over the last 12 months.

Exhibit 6. Employers posting the most job ads for the two medical appliance/equipment occupations, Inland Empire/Desert Region, December 2022 through November 2023

Top Employer	Unique Job Ads
Aerotek	45
Kelly Services	14
SMS Staffing	13
Danaher	13
Kaiser Permanente	13
Agiliti Health	11
Adapt Health	11
Universal Health Services	10

Source: Lightcast 2023.3

Exhibit 7 lists a sample of specialized and employability skills employers search for when seeking workers to fill medical appliance/equipment-related positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Common skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development.

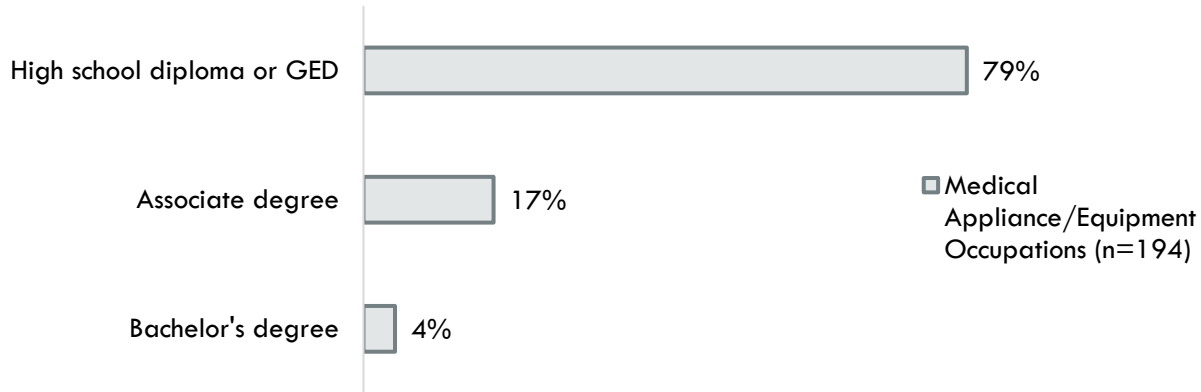
Exhibit 7. Sample of in-demand skills from employer job ads, Inland Empire/Desert Region, December 2022 through November 2023

Specialized skills	Common skills
<ul style="list-style-type: none"> • Medical Devices • Medical Device Assembly • Hand Tools • Soldering • Machinery • Test Equipment • Adhesive Bonding • Mechanical Assembly • Metal Coating • Visual Inspections 	<ul style="list-style-type: none"> • Operations • Communication • Packaging and Labeling • Customer Service • Lifting Ability • Computer Literacy • Management • Troubleshooting (Problem Solving) • Detailed Oriented • Planning

Source: Lightcast 2023.3

Exhibit 8 displays the minimum advertised education requirements for the medical appliance/equipment occupations. According to the Bureau of Labor Statistics, approximately half of incumbent workers in each of these occupations hold a community college-level of educational attainment; "some college, no degree," and an "associate degree." The majority (82%) of employer job ads included minimum education requirements. Most employer job ads (79%) sought a candidate holding a high school diploma or GED as a minimum education level requirement.

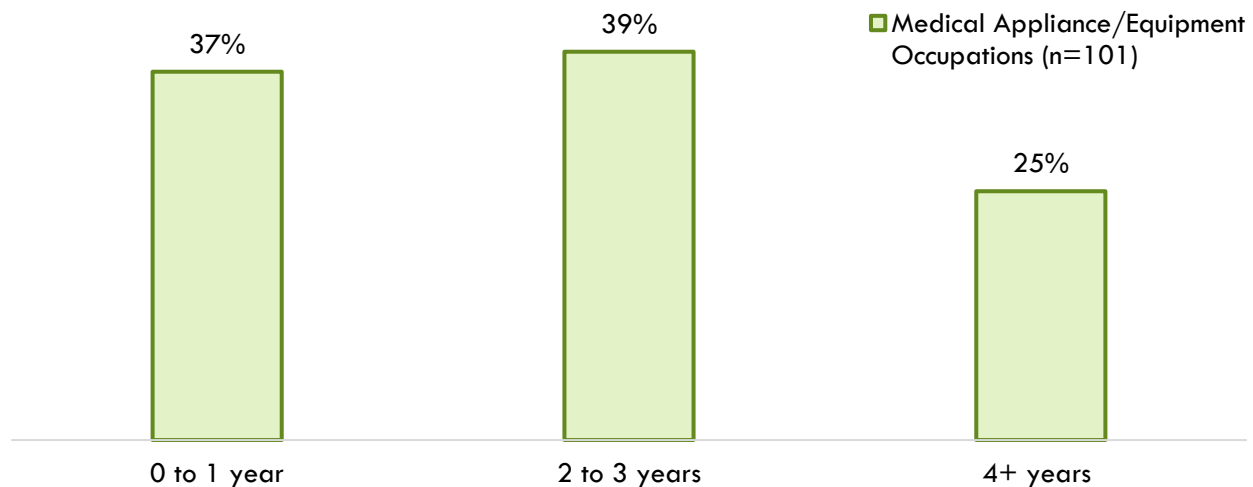
Exhibit 8. Minimum advertised education requirements, Inland Empire/Desert Region, December 2022 through November 2023



Source: Lightcast 2023.3

Exhibit 9 displays the work experience typically required from employer job ads for the medical appliance/equipment occupations. Most employers (39%) listing minimum experience requirements sought candidates with two to three years of previous work experience.

Exhibit 9. Real-time work experience requirements, Inland Empire/Desert Region, December 2022 through November 2023



Source: Lightcast 2023.3

Student Completions and Programs Outcomes

Community College Supply: No award completion data is available for Biotechnology and Biomedical Technology (TOP 0430.00) and Biomedical Instrumentation (TOP 0934.60) programs in the Inland Empire/Desert Region.

California program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 10.

Exhibit 10. TOP 0934.60 – Biomedical Instrumentation strong workforce program outcomes, Inland Empire/Desert Region, most recent academic year

Strong Workforce Program Metrics: 0934.60 – Biomedical Instrumentation	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2021-22)	N/A	89
Completed 9+ career education units in one year (2021-22)	N/A	47%
Students who attained a noncredit workforce milestone in a year (2021-22)	N/A	N/A
Students who earned a degree, certificate, or attained apprenticeship (2021-22)	N/A	21
Job closely related to the field of study (2019-20)	N/A	80%
Median annual earnings (all exiters) (2020-21)	N/A	\$60,972
Median change in earnings (all exiters) (2020-21)	N/A	24%
Attained a living wage (completers and skills-builders) (2020-21)	N/A	81%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Non-Community College Supply: No award completion data is available for Biomedical Technology/Technician (CIP 15.0401) programs in the Inland Empire/Desert Region.

Summary of Findings & Recommendation

Over the next five years, the two medical appliance/equipment occupations are projected to have 88 annual job openings and increase employment by 10% in the Inland Empire/Desert Region. Both occupations have wages above the living wage estimate, which is \$14 per hour. Over the last 12 months, there were 247 job ads posted for the two medical appliance/equipment occupations in the region.

According to data from the California Community Colleges Chancellor's Office (Datamart) and IPEDS, no community college or non-community college institution in the region conferred any awards in the programs that have historically trained for the occupations included in this report.

Based on the 88 annual job openings (demand) and the zero awards conferred (supply), there appears to be an undersupply in the region. Due to this, the Centers of Excellence finds that there is a regional need for programs that train for the medical appliance/equipment occupations included in this report. Colleges considering this program should partner with applicable employers to document their demand for medical appliance technicians and medical equipment repairers, as well as the skills/certifications required for students to earn a living wage after exiting the program.

Contact

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December 2023

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Appendix: Methodology

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS) administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Table 1. 2022 to 2027 job growth, wages, entry-level education, training, and work experience required for the two medical appliance/equipment occupations in the Inland Empire/Desert Region (Riverside and San Bernardino Counties combined)

Occupation (SOC)	2022 Jobs	5-Year Change	5-Year % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10 th to 90 th percentile)	Median Hourly Wage (50 th percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Medical Equipment Repairers (49-9062)	468	69	15%	59	\$17.94 to \$48.19	\$27.98	\$63,000	Associate degree & Moderate-term	None
Medical Appliance Technicians (51-9082)	230	2	1%	29	\$15.15 to \$30.93	\$22.44	\$49,000	High school diploma or equivalent & Moderate-term	None
Total	698	70	10%	88	-	-	-	-	-

Source: Lightcast 2023.3