

PRIORITY JOBS

IN SAN DIEGO COUNTY

High-Growth, High-Wage, In-Demand
Occupations for All Education Levels

MARCH 2019



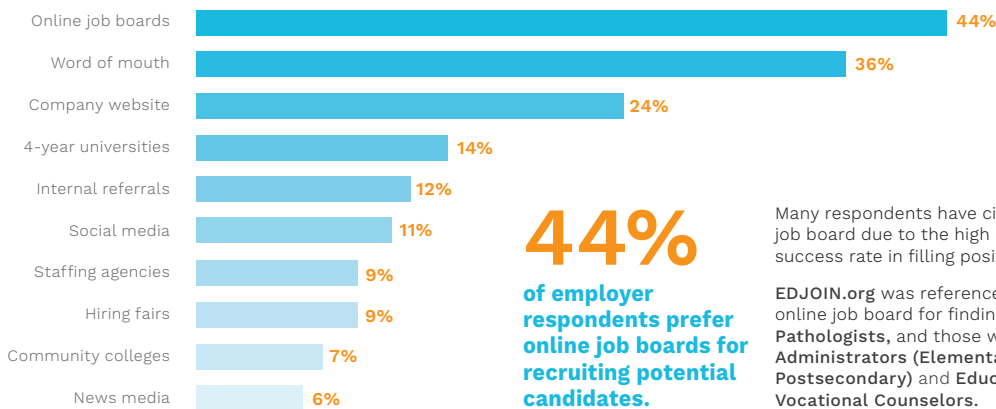
San Diego
Workforce
Partnership

Thinking about your career options and don't know where to start? The Priority Jobs report uses employer survey responses and labor market information to look at occupations that are expected to have high growth and job openings in San Diego County over the next five years. In addition, every job on this list pays at least a self-sustaining wage at the entry level (\$15.99/hr). Whether you are a student or more seasoned job seeker, use this tool to explore local professions with potential. Below are highlights from the 284 businesses surveyed.

 [Visit workforce.org/research](http://workforce.org/research) for the full report.

ARE YOU USING THE SAME JOB SEARCH TOOLS EMPLOYERS ARE USING?

Here are ways they are recruiting:¹



44%
of employer respondents prefer online job boards for recruiting potential candidates.

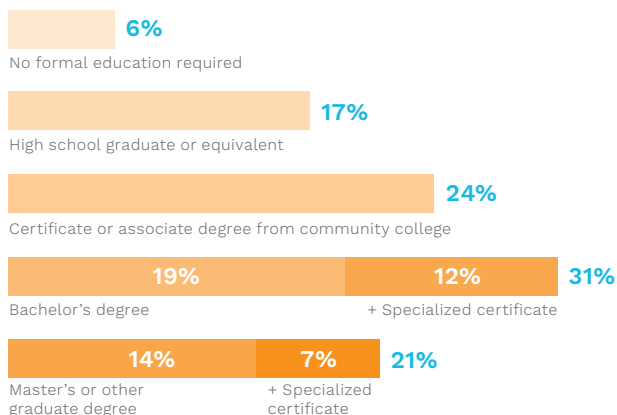
Many respondents have cited **Indeed.com** as the most useful job board due to the high quality of applicants and a high success rate in filling positions.

EDJOIN.org was referenced as a particularly valuable online job board for finding **Librarians, Speech Language Pathologists**, and those working in education—**Education Administrators (Elementary and Secondary, and Postsecondary)** and **Educational, Guidance, School, and Vocational Counselors**.

¹Percentages sum to more than 100; employers chose multiple responses.

IS YOUR EDUCATION COMPETITIVE FOR THE MARKETPLACE?

Here's what employers are expecting:²



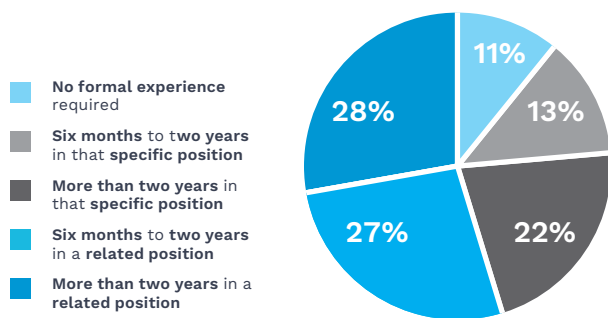
Some employer respondents suggested that certain certifications outweigh other formal education in importance. Below are occupational certifications to consider.

Occupation	Certifications
Biological Scientists and Clinical Laboratory Technologists and Technicians	Clinical Laboratory Scientist (CLS) license
Clinical, Counseling, and School Psychologists, Healthcare Social Workers, and Marriage and Family Therapists	Certified Alcohol and Drug Counselor (CADC)
Insurance Sales Agents	Certified Employee Benefits Specialist (CEBS), Group Benefits Disability Specialist (GBDS), or Society for Human Resource Management (SHRM)
Financial Managers	Certified Public Accountant (CPA) or a real estate license

²Percentages sum to less than 100 due to rounding.

DO YOU HAVE ENOUGH WORK EXPERIENCE?

Here's what employers are looking for:



Take risks when applying for jobs! 66% of employers for these occupations don't require experience in the specific position they are hiring. Show them what you have to offer.

HOW DO LOCAL REQUIREMENTS COMPARE?



NATIONALLY
only about 15% of the profiled occupations require applicants to have formal experience



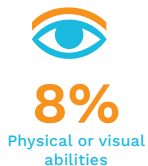
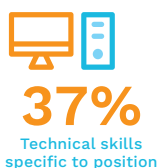
LOCALLY
about 89% of the profiled occupations require applicants to have formal experience

None of the occupations unanimously indicated requiring no work experience.

Getting early workplace experience can be invaluable to finding a job later in life. Students can really benefit from part-time jobs or summer internships in fields related to their career goals.

CAN YOU MAKE YOURSELF STAND OUT?

Here are some skills employers are having trouble finding in applicants:



100%
of twelve employer respondents found it challenging to find qualified **Medical Scientists and Physician Assistants.**

Mechanical Engineers, Physicians and Surgeons, Registered Nurses, Structural Iron and Steel Workers, and Surgical Technologists also stand out, with over 80% of respondents having difficulty finding applicants in these occupations with relevant work experience.

The need for technical skills specific to the occupation is prominent for **Computer and Information Research Scientists** and **Software Developers**, for which over 80% of respondents found it challenging to find qualified applicants.



RECOMMENDATIONS FOR JOB SEEKERS AND STUDENTS

- Be aware of the experience, education/certifications, and skills that local employers require for different occupations. For certain occupations, you may want to focus on gaining relevant work experience or appropriate certifications rather than continuing to advance your formal education.
- If you aren't able to get right into your dream job, explore opportunities that relate in a different way. A little exposure in one position may open the door to another later.

STUDENTS

Seek out internships, apprenticeships, or volunteer positions.

ENTRY-LEVEL & EARLY CAREER

Apply to entry-level positions that provide formal or on-the-job training to gain relevant experience and skills.

MID-CAREER

When looking for your next job, highlight the ways your work experience translates to other positions.

SUGGESTED TOOL

CAREER COACH

workforce.org/mycareer

- Take a career assessment
- Explore industries and occupations that match your interests
- Find San Diego-specific wage and occupation growth information
- Access real-time job postings from Indeed
- Build a resume
- Learn about educational programs that can prepare you for your dream job
- For veterans, find civilian careers related to your military occupation.

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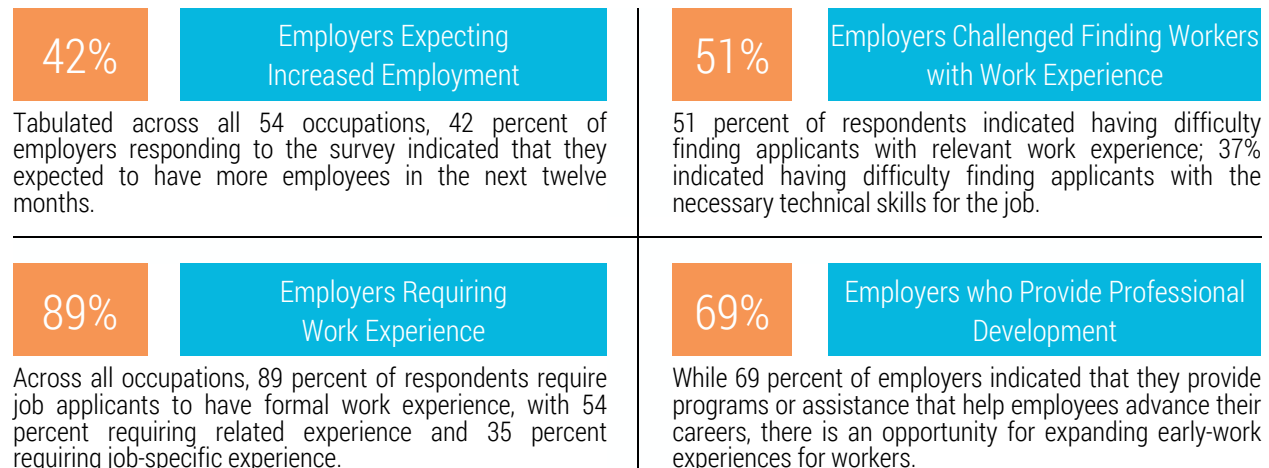
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EXECUTIVE SUMMARY

The Priority Jobs report uses employer survey responses and labor market information to identify occupations that have many job openings in San Diego County and are expected to grow over the next five years. In addition, every job on this list pays at least a self-sustaining wage at the entry level for a single adult (\$15.99/hr).¹ Based on responses to a survey of local employers, O*Net occupational profiles, and Emsi labor-market analytics, the report provides valuable insights for job seekers, employers, and workforce development professionals.²

We identified 72 priority occupations and selected a subset of 54 for employer surveying. The survey confirms that these occupations should experience growth in San Diego County, with more than 40 percent of respondents expecting to have more employees in the next twelve months and less than four percent expecting to have fewer. But local employers are finding it difficult to fill these positions. Over 50 percent of respondents had difficulty finding qualified applicants with relevant work experience, while almost 37 percent had difficulty finding applicants with the technical skills necessary for the job. This may be a result of the higher-than-typical level of experience local employers expect from applicants. While BLS data indicate that only 15 percent of the surveyed occupations require formal work experience, 89 percent of respondents require work experience, and including at least one respondent for every occupation. While 69 percent of employers indicated that they provide programs or assistance to help employees advance their careers, the most common form of professional development offered was on-the-job training (57 percent), and fewer provide other types of professional development.



Filling these priority jobs will require a concerted effort by job seekers, employers, and workforce professionals to expand and integrate career development opportunities. If San Diego employers want experienced workers, they need to provide more formal opportunities—such as paid internships, job shadowing, apprenticeships, and mentoring—for novice workers to gain experience.

To help ensure a skilled and experienced workforce responsive to the projected growth of these priority occupations, the data point to the following options for action:

- Job seekers and students should inform their career planning with data about the education, experience, certifications, and skills that local employers require for different occupations.** The broad range of requirements indicated by survey respondents suggests that there may be more opportunities for entering into many priority occupations than is often assumed.

¹ According to self-sufficiency standard developed by University of Washington. selfsufficiencystandard.org

² Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (OES) (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (ACS) (Self-Employed). OES data originates from the US Bureau of Labor Statistics; ACS data originates from the US Census Bureau. Occupational wage estimates are also affected by county-level Emsi earnings by industry.

- **Job seekers and students should establish relevant work experience.** The majority of survey respondents expected work experience in a related position rather than job-specific experience, so job seekers should look for any opportunity to gain experience that will translate to the occupation in which they want to work.
- **Job seekers and students should develop personal career development plans.** Employers, especially smaller ones, may not have the necessary infrastructure or bandwidth to actively promote an individual's development. Creating a personal career plan can help individuals advocate on their own behalf and further their professional growth.
- **Employers should expand career development opportunities.** Internships and apprenticeships are underused methods of providing work experience and helping entry-level employees develop necessary skills. Job rotation should also be considered as a way of filling priority jobs internally.
- **Workforce development professionals should ensure that programs and services are geared toward helping job seekers gain work experience.** Programs that provide internship, apprenticeship, and volunteer opportunities should be promoted and supported—as should services that assist local employers in expanding career development opportunities that help employees gain work experience.
- **Workforce development professionals should work with employers on implementing integrated career development plans.** Many local employers provide career development opportunities but may need help expanding and integrating these opportunities so they better serve the long-term growth and stability of their organizations and of the local workforce more broadly.

INTRODUCTION

The San Diego Workforce Partnership empowers job seekers, through access to meaningful employment, to meet the needs of regional employers for a skilled workforce. The Priority Jobs report uses employer survey responses and labor market information to look at occupations that are expected to have high growth and numbers of job openings in San Diego County over the next five years. In addition, every job on our list pays at least a self-sustaining wage at the entry level for a single adult (\$15.99/hr). This report can inform job seekers of promising career options, while also supporting workforce interventions informed by employer hiring needs. The report consists of the following sections:

- **San Diego's Priority Jobs** – A list of the 72 priority jobs and additional information about them.
- **Survey Methodology** – An overview of the sampling method and the development and deployment of the survey.
- **Research Findings** – An analysis of survey responses within the context of occupation-specific data from Emsi. General observations about expected employment are followed by more specific takeaways targeted at specific audiences:
 - **Takeaways for Students and Job Seekers** – Looks at recruitment methods used by local employers, employers' expectations of job applicants' education and work experience, and the relative importance of soft skills.
 - **Takeaways for Employers** – Examines career development opportunities provided by local employers, and employer awareness of employee career ladders.
 - **Takeaways for Workforce Development Professionals** – Explores the challenges local businesses face hiring in priority occupations and how the workforce development system can support them.
- **Implications and Next Steps** – An assessment of the most significant implications of the research findings and an outline of possible steps that could be taken to help address local workforce needs and to fulfill demand for top jobs.

Additionally, **Appendix A** offers a Career Options pullout that organizes top priority occupations by education level and provides useful information on these occupations for job seekers. The remaining appendices provide additional charts and tables of data referenced throughout the report.

SAN DIEGO'S PRIORITY OCCUPATIONS

There are countless strategies for examining labor market demand, and an endless list of variables that could be incorporated when determining the most urgent workforce development priorities in our region. For the purposes of this list, three criteria were applied to occupations in San Diego County. To be considered a priority job, the occupation must:

- be projected to have **higher than average five-year growth**. This means growth must be higher than 6.5 percent, the weighted average across all San Diego occupations from 2017–2022.
- be projected to have **higher than the median number of annual openings**. This means that, including new jobs created, retirements and other departures, each occupation must have greater than 63 openings each year.
- pay at least **\$15.99 at the entry level**. This means that 90 percent of people working in the occupation make at least that amount, which is considered to be a self-sufficient wage in San Diego County.³

³ According to self-sufficiency standard developed by University of Washington. selfsufficiencystandard.org

The following list includes all 72 occupations that met our three criteria, categorized by typical entry-level education.

No formal educational credential			
Plasterers and Stucco Masons	\$17.70		
High school diploma or equivalent			
Information and Record Clerks, All Other	\$16.16	Insurance Sales Agents	\$17.39
First-Line Supervisors of Protective Service Workers, All Other	\$16.27	Structural Iron and Steel Workers	\$17.93
Court, Municipal, and License Clerks	\$16.71	Police, Fire, and Ambulance Dispatchers	\$19.69
Transportation Security Screeners	\$17.03	Electrical Power-Line Installers and Repairers	\$25.40
Postsecondary nondegree award			
Computer User Support Specialist	\$18.17	Surgical Technologists	\$20.09
Licensed Practical and Licensed Vocational Nurses	\$19.36		
Associate degree			
Clinical Laboratory Technologists and Technicians	\$16.28	Radiologic Technologists	\$21.56
Physical Therapist Assistants	\$19.12	Industrial Engineering Technicians	\$22.47
Paralegals and Legal Assistants	\$19.73	Dental Hygienists	\$34.16
Aerospace Engineering and Operations Technicians	\$21.17		
Bachelor's Degree			
Child, Family, and School Social Workers	\$16.05	Software Developers, Applications	\$26.66
Fundraisers	\$16.81	Biomedical Engineers	\$27.53
Chemists	\$19.09	Mechanical Engineers	\$27.81
Cost Estimators	\$19.59	Database Administrators	\$27.86
Elementary School Teachers, Except Special Education	\$21.99	Budget Analysts	\$27.93
Middle School Teachers	\$22.26	Engineers, All Other	\$28.90
Secondary School Teachers, Except Special and Career/Technical Education	\$22.53	Industrial Engineers	\$30.46
Operations Research Analysts	\$23.03	Information Security Analysts	\$30.85

Special Education Teachers, Secondary School	\$23.21	Registered Nurses	\$31.18
Biological Scientists, All Other	\$23.63	Electrical Engineers	\$31.18
Probation Officers and Correctional Treatment Specialists	\$24.39	Aerospace Engineers	\$31.30
Civil Engineers	\$24.64	Software Developers, Systems Software	\$32.06
General and Operations Managers	\$24.74	Financial Managers	\$33.09
Special Education Teachers, Kindergarten and Elementary School	\$25.19	Architectural and Engineering Managers	\$44.76
Management Analysts	\$25.70	Natural Sciences Managers	\$48.50
Medical and Health Services Managers	\$25.92		
Master's degree			
Marriage and Family Therapists	\$17.16	Physician Assistants	\$29.82
Healthcare Social Workers	\$17.47	Occupational Therapists	\$31.44
Educational, Guidance, School, and Vocational Counselors	\$18.60	Statisticians	\$32.20
Instructional Coordinators	\$22.00	Education Administrators, Elementary & Secondary School	\$34.09
Librarians	\$22.24	Computer and Information Research Scientists	\$34.61
Speech-Language Pathologists	\$28.60	Nurse Practitioners	\$40.33
Education Administrators, Postsecondary	\$29.14		
Doctoral or professional degree			
Postsecondary Teachers	\$18.88	Physical Therapists	\$31.19
Clinical, Counseling, and School Psychologists	\$24.04	Family & General Practitioners	\$35.42
Biochemists and Biophysicists	\$28.92	Dentists, General	\$37.96
Veterinarians	\$29.52	Physicians & Surgeons, All Other	\$54.43
Medical Scientists, Except Epidemiologists	\$30.66		

What Does “All Other” Mean?

The Standard Occupational Classification (SOC) system is used by the U.S. Bureau of Labor Statistics (BLS) to categorize occupations and collect data about them. This system is vast—encompassing over 750 distinct occupations—but not complete, as there are thousands of distinct job titles in the labor force. There are several occupations that are too specialized to warrant their own SOC code, and in these cases an “All Other” code is used to capture data about them. In some cases, we only understand the occupation in context of what it is *not*:

Priority Occupation Description	Does <i>not</i> include
First-Line Supervisors of Protective Service Workers, All Other	<ul style="list-style-type: none"> • First-Line Supervisors of Correctional Officers • First-Line Supervisors of Police and Detectives • First-Line Supervisors of Fire Fighting and Prevention Workers
Information and Record Clerks, All Other	<ul style="list-style-type: none"> • Interviewers, Except Eligibility and Loan • Library Assistants, Clerical • Loan Interviewer and Clerks • New Accounts Clerks • Order Clerks • Human Resources Assistants, Except Payroll and Timekeeping • Receptionists and Information Clerks • Reservation and Transportation Ticket Agents and Travel Clerks

For some “all other” occupations on the priority jobs list, the BLS provides examples of occupations that *do* fall into those categories. These are highly specialized subsets of occupation types:

Priority Occupation Description	Does include
Engineers, All Other	<ul style="list-style-type: none"> • Biochemical Engineers • Validation Engineers • Energy Engineers • Manufacturing Engineers • Mechatronics Engineers • Microsystems Engineers • Photonics Engineers • Robotics Engineers • Nanosystems Engineers • Wind Energy Engineers • Solar Energy Systems Engineers
Biological Scientist, All Other	<ul style="list-style-type: none"> • Bioinformatics Scientists • Molecular and Cellular Biologists • Geneticists
Physicians & Surgeons, All Other	<ul style="list-style-type: none"> • Allergists and Immunologists • Dermatologists • Hospitalists • Neurologists • Nuclear Medicine Physicians • Ophthalmologists • Pathologists • Physical Medicine and Rehabilitation Physicians • Preventative Medicine Physicians • Radiologists • Sports Medicine Physicians • Urologists

SURVEY METHODOLOGY

The San Diego Workforce Partnership contracted Hoffman Clark + Associates (HCA) to survey San Diego County employers regarding 54 occupations that had been identified as high priorities based on current labor market data. A primary stratified sample was drawn from 31,702 San Diego County businesses with five or more employees, with representation from different size businesses across 16 industry categories proportionate to their disposition in the population. The sample was expanded purposively as the survey was deployed to ensure a minimum of 5–10 responses from each of the 54 occupations.

HCA worked closely with the Workforce Partnership in designing the survey instrument to capture data on current and projected employment, recruitment practices, requirements and expectations of employee education, skills, and experience, and career development metrics. The survey was pre-tested on a panel comprised of evaluators and industry representatives and piloted on a 10 percent sub-sample of the primary sample prior to full deployment.

The survey was conducted in part to validate Emsi labor market data showing employment trends for local priority occupations. The survey findings are not totally representative of all employers but provide feedback in a regional context that can help inform various workforce development professionals, employers, and job seekers.

743 surveys were conducted online and by telephone between August 6 and September 7, 2018, resulting in 284 completes. The final disposition of surveys completed from the sample can be found in Appendix B. Response numbers by occupation can be found in Appendix C. Additional occupational data was gathered from the O*Net Online, and Emsi labor market analytics.

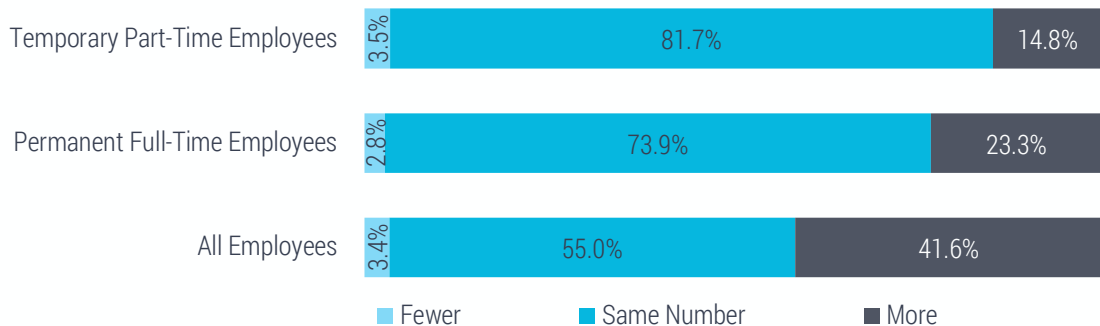
RESEARCH FINDINGS

The priority jobs survey showed expected increases in employment in most of the 54 occupations covered. Employer respondents reported education, experience and skill requirements for these occupations and revealed challenges finding job applicants with relevant work experience and the necessary technical skills specific to particular positions. Survey responses also indicated that online job boards are the most common form of job recruitment and showed that while the majority of employers offer some career development opportunities, there is a lack in structured offerings to support early-career experience. These findings are detailed below.

Employment Expectations

Employers were asked if they expected to have fewer, more or the same number of employees twelve months from now. More than one-third (n=105) of all respondents expected to have more employees and more than half (n=157) expected to have the same number, while relatively few (n=9) expected to have fewer employees twelve months from now. Permanent, full-time employees are expected to account for the majority of increased employment. See Figure 1 for employment expectations of respondents by percentage across all occupations, including expectations for permanent, full-time employees and temporary, part-time employees.

Figure 1. Employment expectations by respondents across all occupations



Occupations for which the highest percentage of respondents expected increased employment include Electrical Engineers, Clinical Laboratory Technologists, Physical Therapist Assistants, Mechanical Engineers, Physician Assistants, and Reinforcing Iron and rebar Workers. Electrical Engineers in particular are in demand, with respondents expecting to hire more than 500 employees in this field in the next twelve months—far more than the 281 annual openings predicted by Emsi. Aerospace Engineering stands out as the one occupation for which a greater number of local employers expect to have fewer employees in twelve months than those expecting to have more. See Appendix D for responses by occupation regarding expected employment in the next twelve months.

Takeaways for Students and Job Seekers

Job seekers can focus their job search efforts around the most common methods of employee recruitment, even more so if they know this information for specific occupations. Knowing the level of education and work experience that local employers require for particular occupations informs current job seekers of positions for which they are qualified and enables students to plan for future employment. Attention to the importance of developing soft skills such as problem-solving and attention to detail can give students and job seekers a leg up in the job market and help workers advance in their careers.

Recruitment

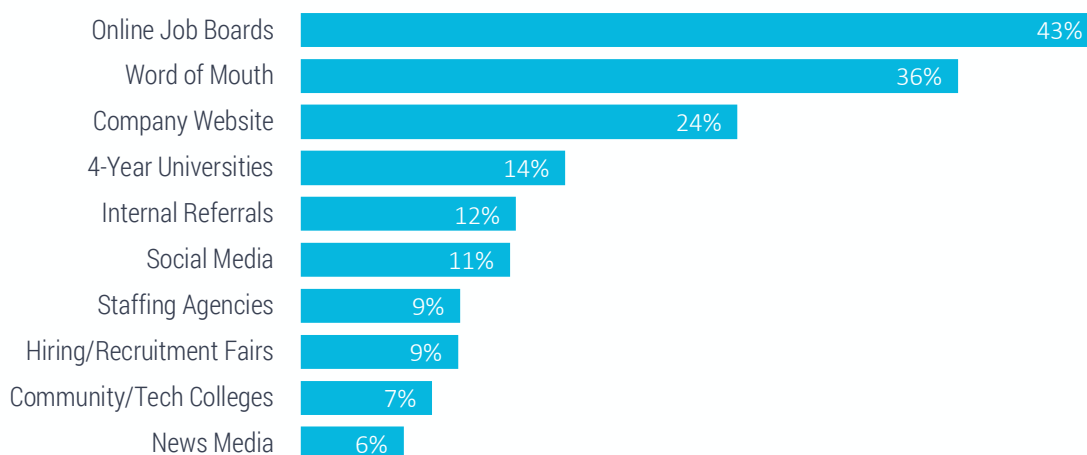
As shown in Figure 2, 43 percent of all employer respondents reported that online job boards are the most common forms of recruitment their organizations use to fill priority jobs. In particular, respondents called out Indeed.com as the most useful job board due to the high quality of applicants and a high success rate in filling positions. Word-of-mouth was identified as a successful form of recruitment by 36 percent of respondents, highlighting the importance of developing and maintaining a healthy professional network.

EDJOIN.org

Interested in a career in education? Employers cited EDJOIN.org as a particularly valuable online job board for these priority occupations:

- Librarians
- Speech Language Pathologists
- Education Administrators (Elementary, Secondary, and Postsecondary)
- Educational, Guidance, School, and Vocational Counselors

Figure 2. Employer Recruitment Methods



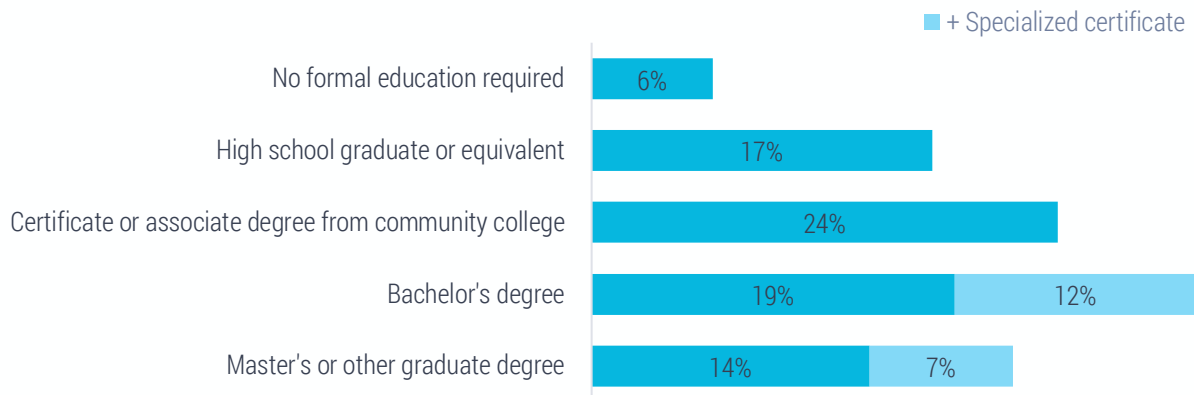
While it is no surprise that traditional news and broadcast media are no longer widely used forms of recruitment, it is interesting that social media, including LinkedIn, is not particularly popular. It is used most in the field of education—Education Administrators and Educational, Guidance, School, and Vocational Counselors—where together with postings on company websites it is favored over online job boards and word of mouth. Employer respondents who hire Physician Assistants strongly favor recruiting through 4-year colleges and universities (83 percent), while those who hire Nurse Practitioners favor hiring and recruitment fairs (44 percent). Reinforcing Iron and Rebar Workers are recruited by employer respondents primarily through staffing agencies (43 percent). Percentages of respondents using different methods of recruitment for all occupations can be found in Appendix E.

Education and Experience

Across all occupations, more than 75 percent of employers require some sort of degree or certificate and more than 50 percent require a 4-year degree or higher. As shown in Figure 3, less than 18 percent require only a high school education, and only about 6 percent require no formal education. Not surprisingly, occupations like Physicians and Surgeons, Family and Medical Practitioners, Biochemists, and Dentists require an advanced degree and often a specialized certification. Cost Estimators and Police, Fire, and Ambulance Dispatchers are two standout priority jobs requiring only a high school education by the majority of employer respondents, and Structural Iron and Steel Workers is one requiring no formal education.

The range of education required by local employers for the top priority jobs identified by this survey can be found in Appendix A, and the percentages of respondents requiring different levels of education for all occupations can be found in Appendix F.

Figure 3. Educational Requirements



Some employer respondents suggested that certain certifications outweigh in importance other formal education:

Priority Occupations	Certifications that May Outweigh Formal Education
Biological Scientists	Clinical Laboratory Scientist (CLS) License
Clinical Laboratory Technologists and Technicians	
Clinical, Counseling and School Psychologists	
Healthcare Social Workers	Certified Alcohol and Drug Counselor (CADC)
Marriage and Family Therapists	
Insurance Sales Agents	Certified Employee Benefits Specialist (CEBS) Group Benefits Disability Specialist (GBDS) Society for Human Resource Management (SHRM)
Financial Managers	Certified Public Accountant (CPA) Real estate license

Local employers indicated that they have difficulty finding qualified applicants with the necessary certifications for:

- Occupational Therapists
- Paralegals and Legal Assistants
- Insurance Sales Agents
- Biological Scientists
- Child, Family, and School Social Workers
- Electrical Power-Line Installers and Repairers
- Police, Fire, and Ambulance Dispatchers

Work experience was universally valued by employer respondents, though experience in a related career was more often cited (66 percent of the time) than experience in that specific career (35 percent of the time). Only 11 percent of employers said they require no formal work experience for a particular occupation, with Healthcare Social Workers (one-third of employers), Librarians (half of employers), and Child, Family, and School Social Workers (half of employers) most frequently requiring no experience. This is in contrast to BLS data, which suggests that only eight of the 54 occupations that were the focus of this survey typically require previous work experience. There were a few occupations where the majority of employers required extensive experience for applicants:

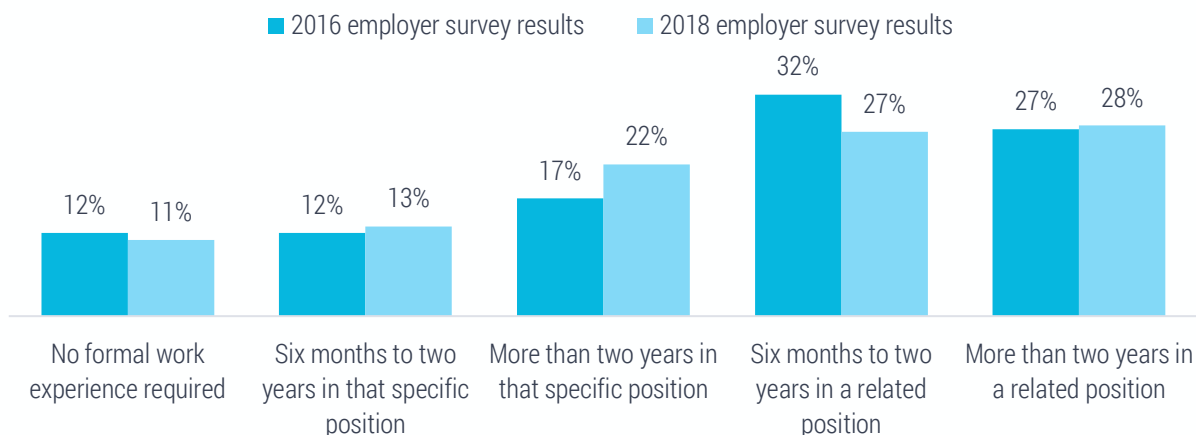
Experience Required by Majority of Respondents	Priority Occupations
2+ years in related position	Industrial Engineers Reinforcing Iron and Rebar Workers
2+ years in specific position	Nurse Practitioners Biochemists and Biophysicists Physicians and Surgeons Education, Guidance, School, and Vocational Counselors

Based on the occupations highlighted above, it is highly likely that this experience was gained through an apprenticeship, residency, internship, or other early-career work-based learning opportunity.

The same question—What are the typical education requirements for successful applicants within each occupation at your San Diego County locations?—was asked of employers in a 2016 survey of 55 in-demand occupations (16 occupations overlapped between the surveys) and the results were very similar (Figure 4). In 2018 a slightly higher percentage of employee respondents indicated a desire for more than two years in that specific position, offset by a slightly lower percentage looking for six months to two years in a related position. The overwhelming emphasis on work experience, however, is consistent.

The range of experience required by local employers for the top priority jobs identified by this survey can be found in Appendix A, and the percentages of respondents requiring different levels of experience for all occupations can be found in Appendix G.

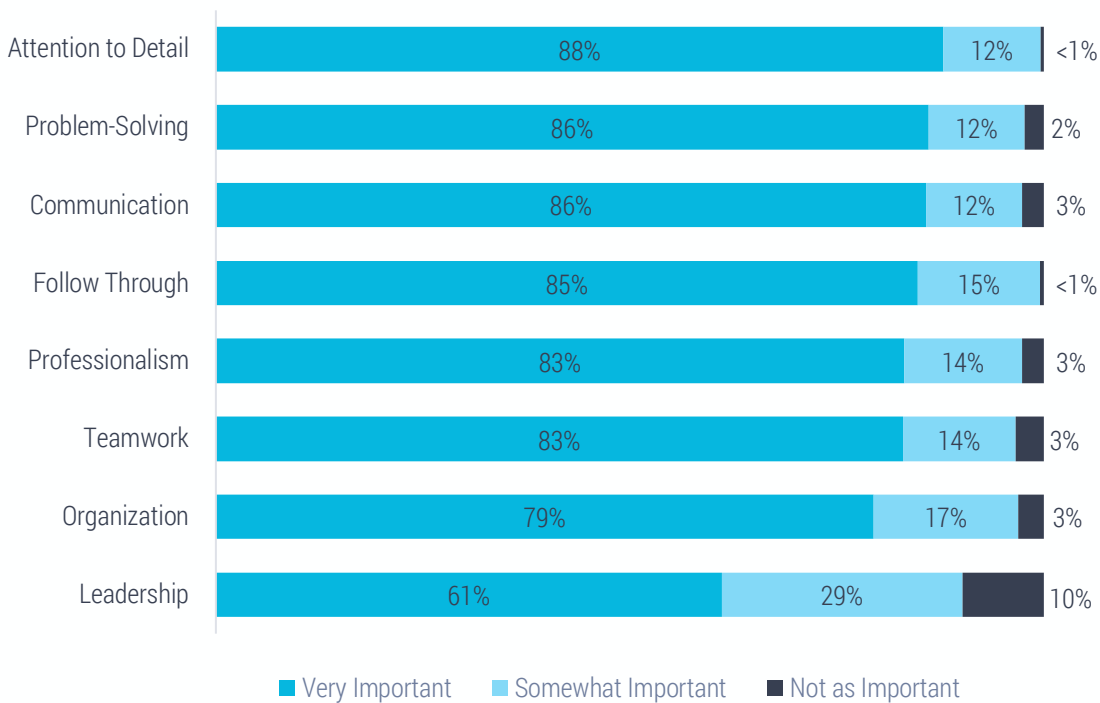
Figure 4. Work Experience Required



Essential Workplace Skills

Employer respondents indicated that they have the most difficulty finding job applicants with relevant work experience (51 percent), specific skills necessary for the job (37 percent) and the appropriate education (19 percent) and certifications (19 percent). But many also had difficulty finding applicants with the necessary essential workplace (soft) skills (17 percent). When asked about the relative importance of specific essential skills for job applicants, more than three-quarters of respondents ranked all except Leadership as “Very Important”. Figure 5 shows the percentages of respondents ranking the relative importance of various essential skills.

Figure 5. Importance of Essential Workplace Skills



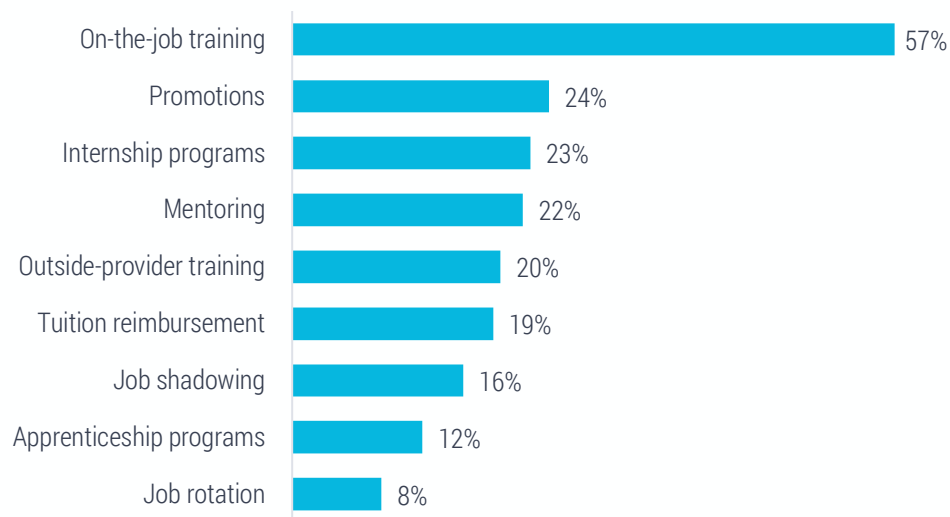
Takeaways for Employers

Offering career development opportunities can help employers meet their workforce needs by expanding the pool of qualified job applicants, increasing employee retention, and maximizing employee potential.

Career Development

As seen in Figure 6, more than two-thirds of survey respondents (68 percent) indicated that their organization provides some sort of program or assistance that helps employees advance their careers. While on-the-job training is the most common form of career development offered by employers, it is surprising that this number is so far from 100 percent. It is difficult to imagine a job with no on-the-job training. Only a quarter of employers offer promotions, and fewer offer internship programs and mentoring. It is important to pursue these results further to find out if these low responses are due to limited capacity for offering such opportunities, or if there is a lack of interest or understanding about their importance. These all present valuable opportunities for businesses to build loyalty and expertise in their workforce.

Some employers also noted other ways in which they support the career advancement of their employees, such as offering reimbursement for certifications, conferences, workshops, and residencies, and providing letters of recommendation.

Figure 6. Employer–Offered Career Development

Employers seemed to have limited awareness of the broader career pathways that are typical to workers in these occupations. When asked about jobs that employees might have prior to working in a particular occupation or those they might advance to after working in that occupation, employer respondents had difficulty identifying specific positions. Of those who did answer the question regarding prior jobs (n=141), more than one-third generalized about work experience in the same field. Of those who answered the question regarding jobs to which employees might advance (n=107), about half referred to a position in management. While some responses indicate that the position does not have precedents or subsequents—e.g. “Entry Level” for prior jobs or “Nothing, that’s the problem” for jobs to which employees might advance—the overall difficulty identifying specific positions along a career trajectory suggests there is limited awareness of career development beyond traditional approaches like training and laddered promotions.

Takeaways for Workforce Development Professionals

Awareness of employer challenges in finding qualified job applicants can inform the development of services and programs that prepare workers to fill priority jobs. Knowing the education level and work experience required by local employers for specific occupations can help refine and integrate services and programs into a scaffolding that sustains long-term workforce development.

Challenges

More than half of occupation-specific responses indicated having the greatest difficulty finding applicants with relevant work experience, and more than one-third indicated having the greatest difficulty finding applicants with the necessary technical skills specific to the occupation (Figure 7). The need for relevant work experience is particularly acute for Medical Scientists and Physician Assistants, for which 100 percent of respondents (12 out of 12) found it challenging to find qualified applicants. Mechanical Engineers, Physicians and Surgeons, Registered Nurses, Structural Iron and Steel Workers, and Surgical Technologists also stand out, with over 80 percent of respondents having difficulty finding applicants in these occupations with relevant work experience. The need for technical skills specific to the occupation is prominent for Computer and Information Research Scientists and Software Developers, for which over 80 percent of respondents found it challenging to find qualified applicants.

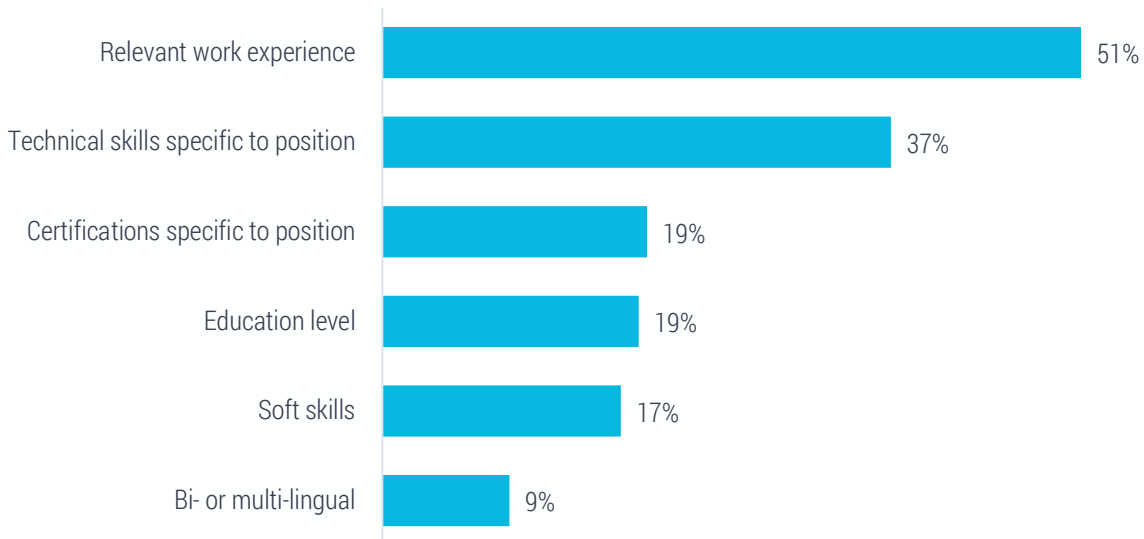
More Experience Needed!

These findings present an opportunity for workforce development and educational institutions. Where applicant pools are lacking sufficient experience, they can combine their training and program design expertise with the content knowledge of employers to create internship and apprenticeship programs or to facilitate clinical placements. Employers are struggling the most to find experienced:

- Medical Scientists
- Physician Assistants
- Mechanical Engineers
- Physicians and Surgeons
- Registered Nurses
- Structural Iron and Steel Workers
- Surgical Technologists

All respondents who employ Occupational Therapists reported difficulty in finding applicants with the necessary certifications, while over half of those employing Reinforcing Iron and Rebar Workers and Police, Fire, and Ambulance Dispatchers have difficulty in finding applicants with the requisite physical or visual abilities, and two-thirds of those employing Fundraisers have difficulty finding applicants that are bi- or multi-lingual. Applicants with the soft skills appropriate for Paralegals and Legal Assistants, Fundraisers, and Computer and Information Research Scientists are also a challenge to find. Percentages of responses for each occupation can be found in Appendix H.

Figure 7. Areas where employers have most difficulty finding qualified applicants



Education and Experience

While over half of all survey respondents reported difficulties finding qualified job applicants with relevant work experience, only about 19 percent had difficulties finding applicants with the necessary level of education. This may be due to the broad scope of education local employers find acceptable for many occupations and to the more exacting expectations they have for work experience. For many of these occupations, respondents required only a high school education or an associate degree or certificate rather than the bachelor's degree suggested by the BLS. On the other hand, local employers generally expect job applicants to have more work experience than the typical level of experience suggested by the BLS, as discussed on page 12. Workforce development professionals can share this information (Appendix F) with job seekers to dispel misconceptions about educational requirements for various occupations and help job seekers to value work experience appropriately.

IMPLICATIONS AND NEXT STEPS

Overall, the survey confirms that the 54 occupations studied should experience growth in San Diego County over the next twelve months, with the majority of this growth due to increased numbers of permanent, full-time employees. Yet local employers are having difficulty finding qualified applicants with relevant work experience and the technical skills necessary for many of these occupations. This may be a factor of the higher-than-typical level of experience local employers expect from applicants. The prevalence of on-the-job training, while endemic to all jobs to some degree, may in turn be a response aimed at addressing the shortage of applicants with the experience and skills desired. On-the-job training is a viable and necessary short-term strategy, but more can be done to help ensure that future demand for workers in these occupations is met:

- **Job seekers and students should inform their career planning with data about the education, experience, certifications, and skills local employers require for different occupations.** The broad range of requirements indicated by survey respondents suggests there may be more opportunities for entering into many priority occupations than is often assumed. When career planning, those interested in particular occupations may want to focus on gaining relevant work experience or appropriate certifications rather than continuing to advance their education. Job seekers should also explore what kinds of work experience are relevant to the occupations in which they are interested, as they may be able to gain experience in one position that will open the door to another.
- **Job seekers and students should establish relevant work experience.** Very few survey respondents were open to job applicants with no formal work experience. However, employers more often expected experience in a related position rather than job-specific experience. Job seekers should look for any opportunity to gain experience that will translate to the occupation in which they want to work. Those in school should consider internships, apprenticeships, or even volunteer positions. Early-career job seekers can apply to entry-level positions that provide on-the-job training, keeping in mind how the experience and skills gained there might be relevant to other positions. Mid-career job seekers should consider how to build on the experience they already have so they can transition to other positions.
- **Job seekers and students should develop personal career development plans.** Employers, especially smaller ones, may not have the necessary infrastructure or bandwidth to actively promote an individual's development. Creating a personal career plan can help individuals to advocate on their own behalf to further their professional growth. Having well-defined goals will also help individuals know what to ask for from an employer in terms of professional development.
- **Employers should expand career development opportunities.** While not appropriate for all occupations, internships and apprenticeships are underutilized methods of providing work experience and helping entry-level employees develop necessary skills. Job rotation should also be considered as a way of filling priority jobs internally while helping to identify and maximize the potential of established employees who may have relevant experience, knowledge, and skills.
- **Workforce development professionals should ensure that programs and services are geared toward helping job seekers and students gain work experience.** An intuitive and accessible tool for mapping work experience across occupations could help early-career job seekers find entry-level positions in which they can gain experience and could help mid-career job seekers use the experience they have to transition to other occupations. Programs that provide internship, apprenticeship and volunteer opportunities should be promoted and supported, as should services that assist local employers in expanding career development opportunities that help employees gain work experience. Workforce professionals should target the occupations in this report when developing new programs.
- **Workforce development professionals should work with employers on implementing integrated career development plans.** Many local employers provide career development opportunities but may need help expanding and integrating these opportunities so they better serve the long-term growth and stability of their organizations and the local workforce more broadly. Offering workshops for human resources and management personnel could help inform local employers of the importance of establishing an organizational career development plan. Consultation services could help employers create and implement a plan tailored to their specific organization.

APPENDIX A. CAREER OPTIONS FOR JOB SEEKERS

The table below lists top occupations categorized by the typical entry-level education required by employers according to the Bureau of Labor Statistics. These occupations were identified based on three factors: 1) The projected 4-year increase in local employment based on Emsi data; 2) The percentage of survey respondents expecting more, fewer, or the same number of employees in the next 12 months; and 3) the local median wage as reported by the Emsi.⁴ More detail on the local ranges of expected education, expected experience, and wages, as well as useful skills, knowledge, credentials, and experience for each occupation is provided below.

Typical Entry Level Education	Occupation	Projected Employment Increase	Employers Expecting Increased Employment	Median Wage
High School Education	Reinforcing Iron and Rebar Workers	8%	67%	\$24.08
	First-Line Supervisors of Protective Service Workers	7%	29%	\$26.52
	Police, Fire, and Ambulance Dispatchers	6%	56%	\$28.01
	Structural Iron and Steel Workers	5%	33%	\$32.30
	Electrical Power-Line Installers and Repairers	5%	25%	\$42.91
Associate Degree or Certificate	Physical Therapist Assistants	24%	71%	\$27.07
	Licensed Practical and Licensed Vocational Nurses	11%	56%	\$25.85
	Clinical Laboratory Technologists and Technicians	10%	78%	\$36.78
	Dental Hygienists	10%	11%	\$44.86
Bachelor's Degree	Paralegal and Legal Assistants	7%	57%	\$30.23
	Medical and Health Services Managers	12%	63%	\$51.43
	Industrial Engineers	10%	63%	\$44.44
	Natural Science Managers	9%	40%	\$68.55
	Electrical Engineers	7%	83%	\$48.94
Master's Degree	Architectural and Engineering Managers	6%	38%	\$74.90
	Nurse Practitioners	22%	25%	\$55.43
	Physician Assistants	20%	67%	\$53.26
	Statisticians	12%	33%	\$50.75
	Healthcare Social Workers	12%	50%	\$32.34
Doctoral or Professional Degree	Speech-Language Pathologists	12%	33%	\$43.20
	Physical Therapists	17%	56%	\$42.86
	Family and General Practitioners	13%	44%	\$85.35
	Physicians and Surgeons	8%	38%	\$100.78
	Biochemists and Biophysicists	7%	22%	\$43.49
Dentists	7%	11%	\$76.04	

⁴ Specifically, the occupations were identified by taking, for each occupation, the average of 1) a projected employment increase quotient calculated by dividing the projected percentage increase in employment for each occupation by the 7 percent average projected increase for all occupations; 2) an expected employment increase quotient calculated by adding, for each occupation, the percentage of local employer respondents expecting to have the same number of employees 12 months from now to the percentage of those expecting to have more employees and subtracting the percentage of those expecting fewer; 3) a wage quotient calculated by dividing the median wage for each occupation by the average median wage for all occupations with the same typical entry level education.

Reinforcing Iron and Rebar Workers

Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$18.42 Entry	\$24.08 Median	\$31.17 Experienced			
Job Description	Position and secure steel bars or mesh in concrete forms in order to reinforce concrete. Use a variety of fasteners, rod-bending machines, blowtorches, and hand tools.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Coordination: Adjusting actions in relation to others' actions. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Manual Dexterity: The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects. • Physical strength, stamina, good hand-eye coordination • Construction, math, design knowledge • Knowledge of CAD, database, spreadsheet, project management software • OSHA Certification 					

First-Line Supervisors of Protective Service Workers

Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$16.27 Entry	\$26.52 Median	\$32.56 Experienced			
Job Description	Supervise and coordinate activities of protective service workers					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Monitoring: Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action. • Knowledge of public safety, security, laws, legal codes, government regulations • DHCS approved certification such as NCC or CCMHC • Clinical counseling experience 					

Police, Fire, and Ambulance Dispatchers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$19.69 Entry	\$28.01 Median	\$32.39 Experienced			
Job Description	Operate radio, telephone, or computer equipment at emergency response centers. Receive reports from the public of crimes, disturbances, fires, and medical or police emergencies. Relay information to law enforcement and emergency response personnel. May maintain contact with caller until responders arrive.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Speaking: Talking to others to convey information effectively. • Social Perceptiveness: Being aware of others' reactions and understanding why they react as they do. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Public safety, security, telecommunications, clerical knowledge • Knowledge of database, call center, help desk software • EMT certification • Paramedic, EMT, security, clerical, or customer service work experience 					

Structural Iron and Steel Workers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$17.93 Entry	\$32.30 Median	\$40.69 Experienced			
Job Description	Raise, place, and unite iron or steel girders, columns, and other structural members to form completed structures or structural frameworks. May erect metal storage tanks and assemble prefabricated metal buildings.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Coordination: Adjusting actions in relation to others' actions. • Operation and Control: Controlling operations of equipment or systems. • Operation Monitoring: Watching gauges, dials, or other indicators to make sure a machine works properly. • Construction, math, or mechanical knowledge • Knowledge of CAD, inventory management, or project management software • AWS Certification • Construction work experience 					

Electrical Power-Line Installers and Repairers

Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$25.40 Entry	\$42.91 Median	\$57.02 Experienced			
Job Description	Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy-duty transmission towers.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Operation Monitoring: Watching gauges, dials, or other indicators to make sure a machine is working properly. • Troubleshooting: Determining causes of operating errors and deciding what to do about it. • Mechanical knowledge • Knowledge of CAD, office, spreadsheet software • ACE Certification, C-10 Electrical Contractor License, Journeyman Electrician License • Construction, labor, or electrical work experience 					

Physical Therapist Assistants

Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$19.12 Entry	\$27.07 Median	\$33.79 Experienced			
Job Description	Assist physical therapists in providing treatments and procedures. May assist in the development of treatment plans, carry out routine functions, document the progress of treatment, and modify specific treatments in accordance with patient status and within the scope of treatment plans established by a physical therapist.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Monitoring: Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action. • Social Perceptiveness: Being aware of others' reactions and understanding why they react as they do. • Medical knowledge • Knowledge of accounting, database, and medical software • ABPTS Certifications, ACSM or NASM Certified Personal Trainer • Experience working as Athlete, Personal Trainer, Physical Therapy Aid, or in Customer Service 					

Licensed Practical or Licensed Vocational Nurses						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$19.36 Entry	\$25.85 Median	\$29.53 Experienced			
Job Description	Care for ill, injured, or convalescing patients or persons with disabilities in hospitals, nursing homes, clinics, private homes, group homes, and similar institutions. May work under the supervision of a registered nurse.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Service Orientation: Actively looking for ways to help people. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Coordination: Adjusting actions in relation to others' actions. • Medical, dental, psychological knowledge • Knowledge of diagnostic, medical, office, spreadsheet software • LPN/LVN • Experience working as CNA, caregiver, or Medical Technician 					

Clinical Laboratory Technologists and Technicians						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$16.28 Entry	\$36.78 Median	\$49.07 Experienced			
Job Description	Perform complex medical laboratory tests for diagnosis, treatment, and prevention of disease. May train or supervise staff.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Science: Using scientific rules and methods to solve problems. • Operation Monitoring: Watching gauges, dials, or other indicators to make sure a machine works properly. • Medical, dental, biological knowledge • Knowledge of medical, office, spreadsheet software • MLT Certification from ASCP, AAB, or AMT; CLT Certification from NAACLS • Experience working with data or in aesthetic nursing 					

Dental Hygienists						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$34.16 Entry	\$44.86 Median	\$49.10 Experienced			
Job Description	Clean teeth and examine oral areas, head, and neck for signs of oral disease. May educate patients on oral hygiene, take and develop x rays, or apply fluoride or sealants.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Speaking: Talking to others to convey information effectively. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Medical or dental knowledge • Knowledge of medical or dental office management software • RDH or RDA Certification • Experience working as Dental Assistant or in Customer Service 					

Paralegal and Legal Assistants						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$19.73 Entry	\$30.23 Median	\$36.32 Experienced			
Job Description	Assist lawyers by investigating facts, preparing legal documents, or researching legal precedent. Conduct research to support a legal proceeding, to formulate a defense, or to initiate legal action.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Reading Comprehension: Understanding written sentences and paragraphs in work related documents. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Writing: Communicating effectively in writing as appropriate for the needs of the audience. • Knowledge of administrative and clerical procedures, laws, legal codes, government regulations, democratic political process • Knowledge of analytical, database, document management, information retrieval software • Paralegal Certificate • Office or administrative assistant work experience 					

Medical and Health Services Managers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$25.92 Entry	\$51.43 Median	\$68.58 Experienced			
Job Description	Plan, direct, or coordinate medical and health services in hospitals, clinics, managed care organizations, public health agencies, or similar organizations.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Judgment and Decision Making: Considering the relative costs and benefits of potential actions to choose the most appropriate one. • Knowledge of business & management principles, administrative and clerical procedures, human resources • Knowledge of medical, analytical, classification, database software • MLT Certification from ASCP, AAB, or AMT; HM or RMA Certification • Experience working as Medical Assistant or in food industry or retail 					

Industrial Engineers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$30.46 Entry	\$44.44 Median	\$54.39 Experienced			
Job Description	Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality & inventory control, logistics & material flow, cost analysis, production coordination.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Knowledge of engineering, technology, production processes, quality control, math, machines, tools • Knowledge of analytical, CAD, industrial control, program testing software • NSPE PE License, NCEES EIT Designation • Experience working in manufacturing or engineering field 					

Natural Sciences Managers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers		\$48.50 Entry	\$68.55 Median		\$96.02 Experienced	
Job Description	Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Writing: Communicating effectively in writing as appropriate for the needs of the audience. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems • Knowledge of business and management principles, math, biology • Knowledge of analytical, database, graphics, spreadsheet software • Operations Management Certification 					

Electrical Engineers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$31.18 Entry	\$48.94 Median	\$59.64 Experienced			
Job Description	Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Knowledge of engineering, technology, computers, electronics, math, design • Knowledge of analytical, CAD, operating system, development software • IEEE Certifications • Experience working in design, military, lighting, or other electrical industry 					

Architectural and Engineering Managers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers		\$44.76 Entry		\$74.90 Median		\$93.04 Experienced
Job Description	Plan, direct, or coordinate activities or research and development in such fields as architecture and engineering.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. • Knowledge of engineering, technology, design, math, business and management principles • Knowledge of analytical, CAD, database management, development environment, web development software • ADDA Certification, CAAD Certification, OSHA Certification, CAB License • Experience working in design, drafting, landscaping, or as project manager 					

Nurse Practitioners						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers		\$40.33 Entry	\$55.33 Median	\$63.70 Experienced		
Job Description	Diagnose and treat acute, episodic, or chronic illness, independently or as part of a healthcare team. May focus on health promotion and disease prevention. May order, perform, or interpret diagnostic tests such as lab work and x rays. May prescribe medication.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Learning: Understanding the implications of new information for both current and future problem-solving and decision-making. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Social Perceptiveness: Being aware of others' reactions and understanding why they react as they do. • Medical, dental, psychological knowledge • Knowledge of medical, office, spreadsheet software • ANCC or AANPCP NP Certification • Experience working in a medical doctor's office 					

Physician Assistants						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$29.82 Entry	\$53.26 Median	\$63.69 Experienced			
Job Description	Provide healthcare services typically performed by a physician, under the supervision of a physician. Conduct complete physicals, provide treatment, and counsel patients. May, in some cases, prescribe medication.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Service Orientation: Actively looking for ways to help people. • Medical, dental, biological, psychological knowledge • Knowledge of medical, office, spreadsheet software • ABPS-OSB Certification, ABOS Certification, or ONC Certification; PNCB-CPNP Certification or ANCC-PPCNP Certification • Experience working as an EMT, RN, or in the military 					

Statisticians						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$32.20 Entry	\$50.75 Median	\$60.44 Experienced			
Job Description	Develop or apply mathematical or statistical theory and methods to collect, organize, interpret, and summarize numerical data to provide usable information.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Mathematics: Using mathematics to solve problems. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Learning: Understanding the implications of new information for both current and future problem-solving and decision-making. • Knowledge of computers, electronics, math • Knowledge of analytical, database, data mining, development software • CAS or SOA Actuary Certification • Experience working as an analyst, junior analyst, data analyst; or in education, consulting, research and evaluation; or in nonprofit or academic settings 					

Healthcare Social Workers						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$17.47 Entry	\$32.34 Median	\$42.43 Experienced			
Job Description	Provide individuals, families, and groups with the psychosocial support needed to cope with chronic, acute, or terminal illnesses. Services include advising family care givers, providing patient education and counseling, and making referrals for other services. May also provide care and case management or interventions designed to promote health, prevent disease, and address barriers to access to healthcare.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Social Perceptiveness: Being aware of others' reactions and understanding why they react as they do. • Speaking: Talking to others to convey information effectively. • Knowledge of psychology, counseling and guidance, sociology, anthropology • Knowledge of database, medical, presentation software • NCAC Certification, CSAP Certification, or ADA CC • Counseling work experience 					

Speech Language Pathologists						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$28.60 Entry	\$43.20 Median	\$50.49 Experienced			
Job Description	Assess and treat persons with speech, language, voice, and fluency disorders. May select alternative communication systems and teach their use. May perform research related to speech and language problems.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Learning Strategies: Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things. • Social Perceptiveness: Being aware of others' reactions and understanding why they react as they do. • Knowledge of psychology, curriculum design, therapy, counseling • Knowledge of analytical, medical, computer based training software • ASHA CCC Certification, SLP/ASHA License 					

Physical Therapists						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$31.19 Entry	\$42.86 Median	\$48.93 Experienced			
Job Description	Assess, plan, organize, and participate in rehabilitative programs that improve mobility, relieve pain, increase strength, and improve or correct disabling conditions resulting from disease or injury.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Speaking: Talking to others to convey information effectively. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Medical, dental, biological, psychological knowledge • Knowledge of medical, spreadsheet, biometric game software • ABPTS Certifications • Experience working in a medical office 					

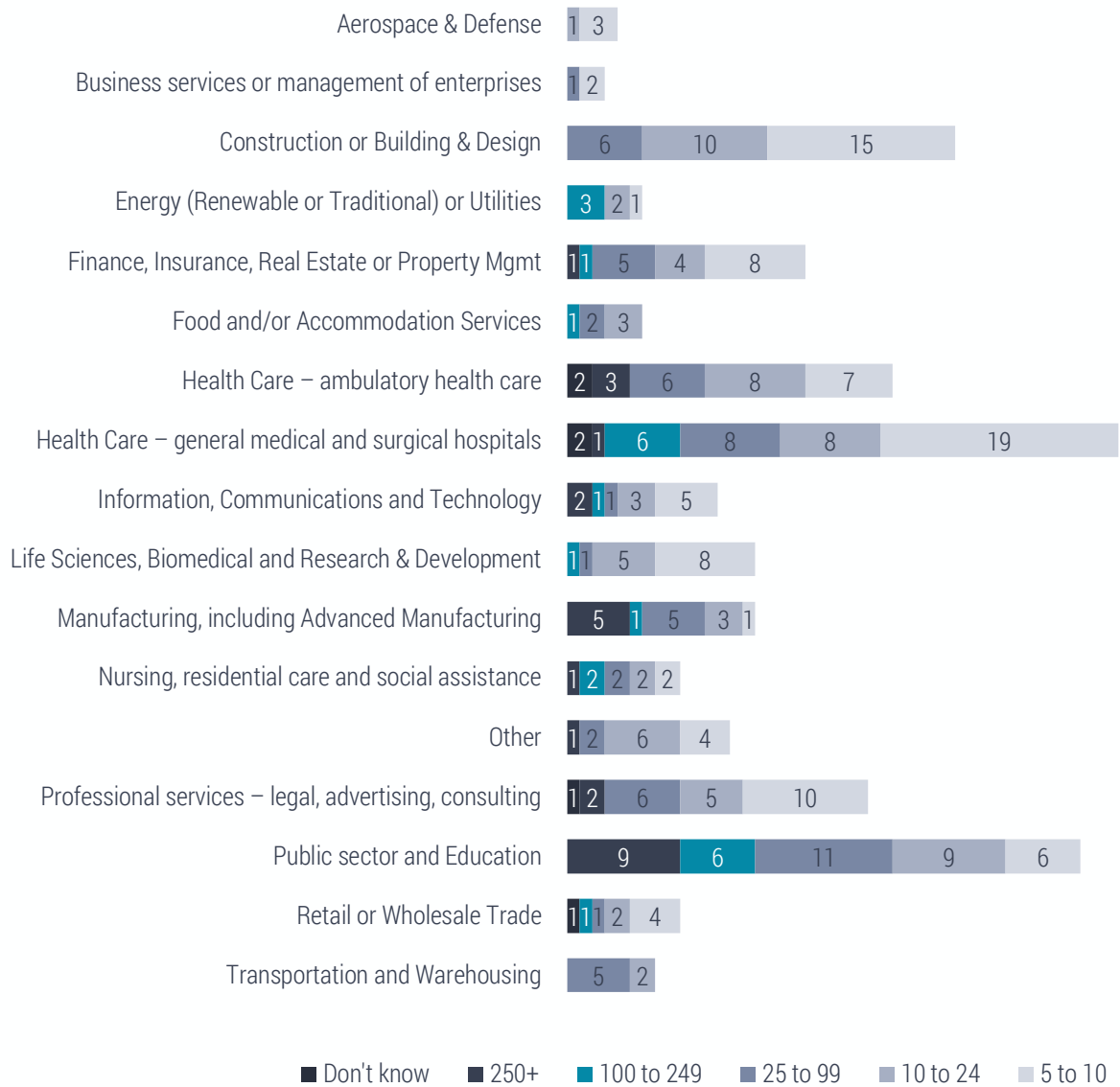
Family and General Practitioners						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$35.42 Entry		\$85.35 Median			\$106.12 Experienced
Job Description	Physicians who diagnose, treat, and help prevent diseases and injuries that commonly occur in the general population. May refer patients to specialists when needed for further diagnosis or treatment.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Judgment and Decision Making: Considering the relative costs and benefits of potential actions to choose the most appropriate one. • Medical, dental, psychological, biological, counseling and guidance knowledge • Knowledge of medical, accounting, office, spreadsheet software • Medical work experience 					

Physicians and Surgeons						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers			\$54.44 Entry		\$100.78 Median	\$123.29 Experienced
Job Description	Diagnose, treat, and help prevent diseases and injuries that commonly occur in the general population. May treat diseases, injuries, and deformities by invasive, minimally-invasive, or non-invasive surgical methods, such as using instruments, appliances, or by manual manipulation.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. • Judgment and Decision Making: Considering the relative costs and benefits of potential actions to choose the most appropriate one. • Medical, dental, biological knowledge • Knowledge of medical, office, human resources, graphics software • AAPS or ABPS Certifications, PhD • Experience working in hospital setting, with big medical groups, or in other healthcare position 					

Biochemists and Biophysicists						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers	\$28.92 Entry	\$43.49 Median	\$56.55 Experienced			
Job Description	Study the chemical composition or physical principles of living cells and organisms, their electrical and mechanical energy, and related phenomena. May conduct research on the complex chemical combinations and reactions involved in metabolism, reproduction, growth, heredity; or on the effects of foods, drugs, serums, hormones, and other substances on tissues and vital processes of living organisms.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Science: Using scientific rules and methods to solve problems. • Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Active Learning: Understanding the implications of new information for both current and future problem-solving and decision-making. • Knowledge of chemistry, biology, physics, math • Knowledge of analytical, CAD, database, graphics, development software • AVA Certification • Experience working as university lab technician, in other relevant sciences, or in the military 					

Dentists						
Range of Education Expected by Local Employers	High School	Associate Degree or Certificate	Bachelor's Degree	Bachelor's Degree + Certificate	Advanced Degree	Advanced Degree + Certificate
Range of Experience Expected by Local Employers	None	6 months–2 years Related	2 + years Related	6 months–2 years Specific	2 + years Specific	
Range of Hourly Wages Paid by Local Employers		\$37.95 Entry		\$76.04 Median		\$94.48 Experienced
Job Description	Examine, diagnose, and treat diseases, injuries, and malformations of teeth and gums. May treat diseases of nerve, pulp, and other dental tissues affecting oral hygiene and retention of teeth. May fit dental appliances or provide preventive care.					
Useful Skills, Knowledge, Credentials & Experience	<ul style="list-style-type: none"> • Judgment and Decision Making: Considering the relative costs and benefits of potential actions to choose the most appropriate one. • Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. • Medical, dental, biological, psychological knowledge • Knowledge of medical, accounting, office, spreadsheet software • DDS, PhD • Experience working as Dental Assistant or Dental Hygienist 					

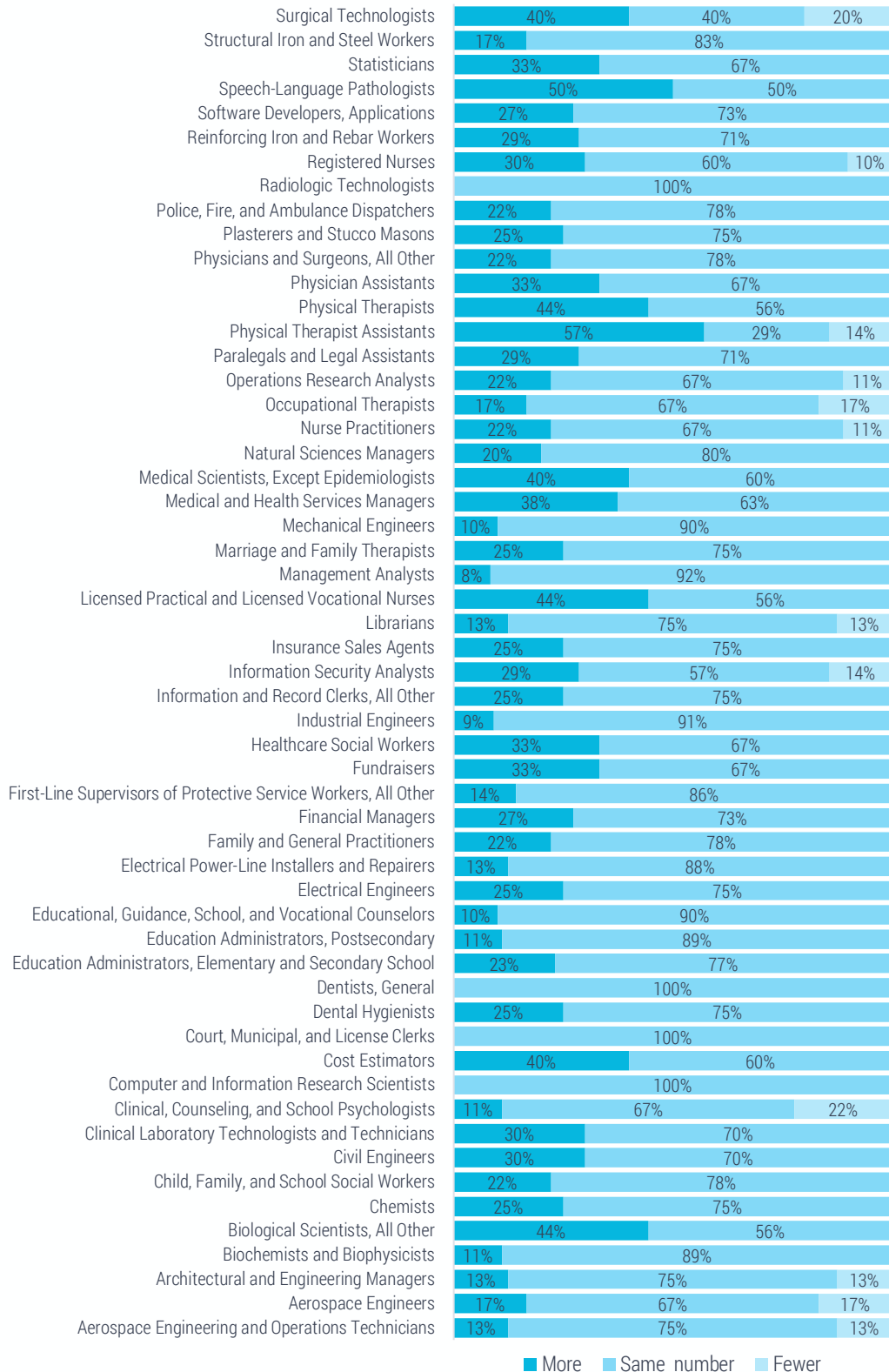
APPENDIX B. NUMBER OF SURVEY RESPONSES BY INDUSTRY AND BUSINESS SIZE



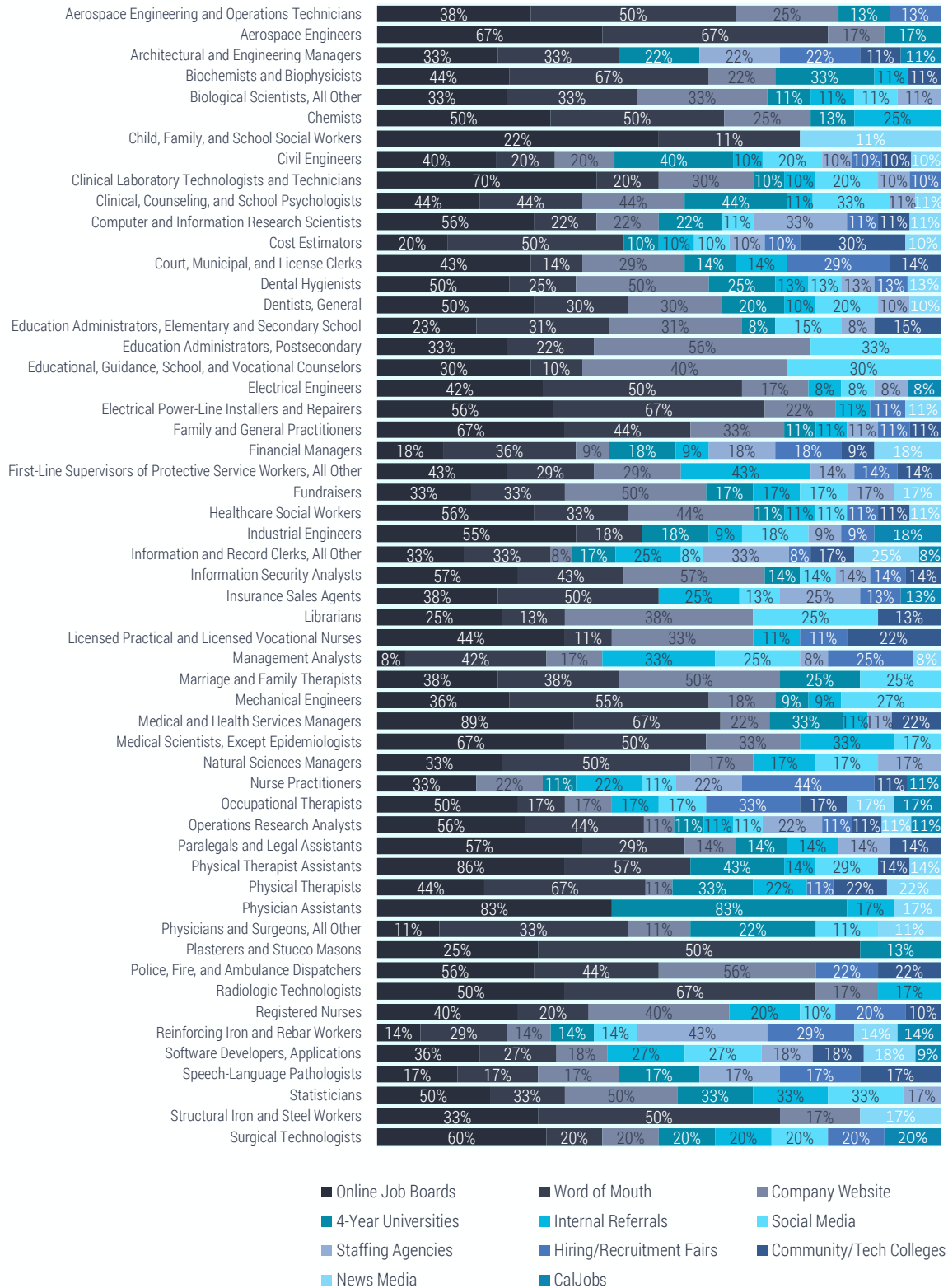
APPENDIX C. NUMBER OF SURVEY RESPONSES BY OCCUPATION

Aerospace Engineering and Operations Technicians	8	Insurance Sales Agents	8
Aerospace Engineers	6	Librarians	8
Architectural and Engineering Managers	9	Licensed Practical and Licensed Vocational Nurses	9
Biochemists and Biophysicists	9	Management Analysts	12
Biological Scientists, All Other	9	Marriage and Family Therapists	8
Chemists	8	Mechanical Engineers	11
Child, Family, and School Social Workers	9	Medical and Health Services Managers	9
Civil Engineers	10	Medical Scientists, Except Epidemiologists	6
Clinical Laboratory Technologists and Technicians	10	Natural Sciences Managers	6
Clinical, Counseling, and School Psychologists	9	Nurse Practitioners	9
Computer and Information Research Scientists	9	Occupational Therapists	6
Cost Estimators	10	Operations Research Analysts	9
Court, Municipal, and License Clerks	7	Paralegals and Legal Assistants	7
Dental Hygienists	8	Physical Therapist Assistants	7
Dentists, General	10	Physical Therapists	9
Education Administrators, Elementary and Secondary School	13	Physician Assistants	6
Education Administrators, Postsecondary	9	Physicians and Surgeons, All Other	9
Educational, Guidance, School, and Vocational Counselors	10	Plasterers and Stucco Masons	8
Electrical Engineers	12	Police, Fire, and Ambulance Dispatchers	9
Electrical Power-Line Installers and Repairers	9	Radiologic Technologists	6
Family and General Practitioners	9	Registered Nurses	10
Financial Managers	11	Reinforcing Iron and Rebar Workers	7
First-Line Supervisors of Protective Service Workers, All Other	7	Software Developers, Applications	11
Fundraisers	6	Speech-Language Pathologists	6
Healthcare Social Workers	9	Statisticians	6
Industrial Engineers	11	Structural Iron and Steel Workers	6
Information and Record Clerks, All Other	12	Surgical Technologists	5
Information Security Analysts	7		

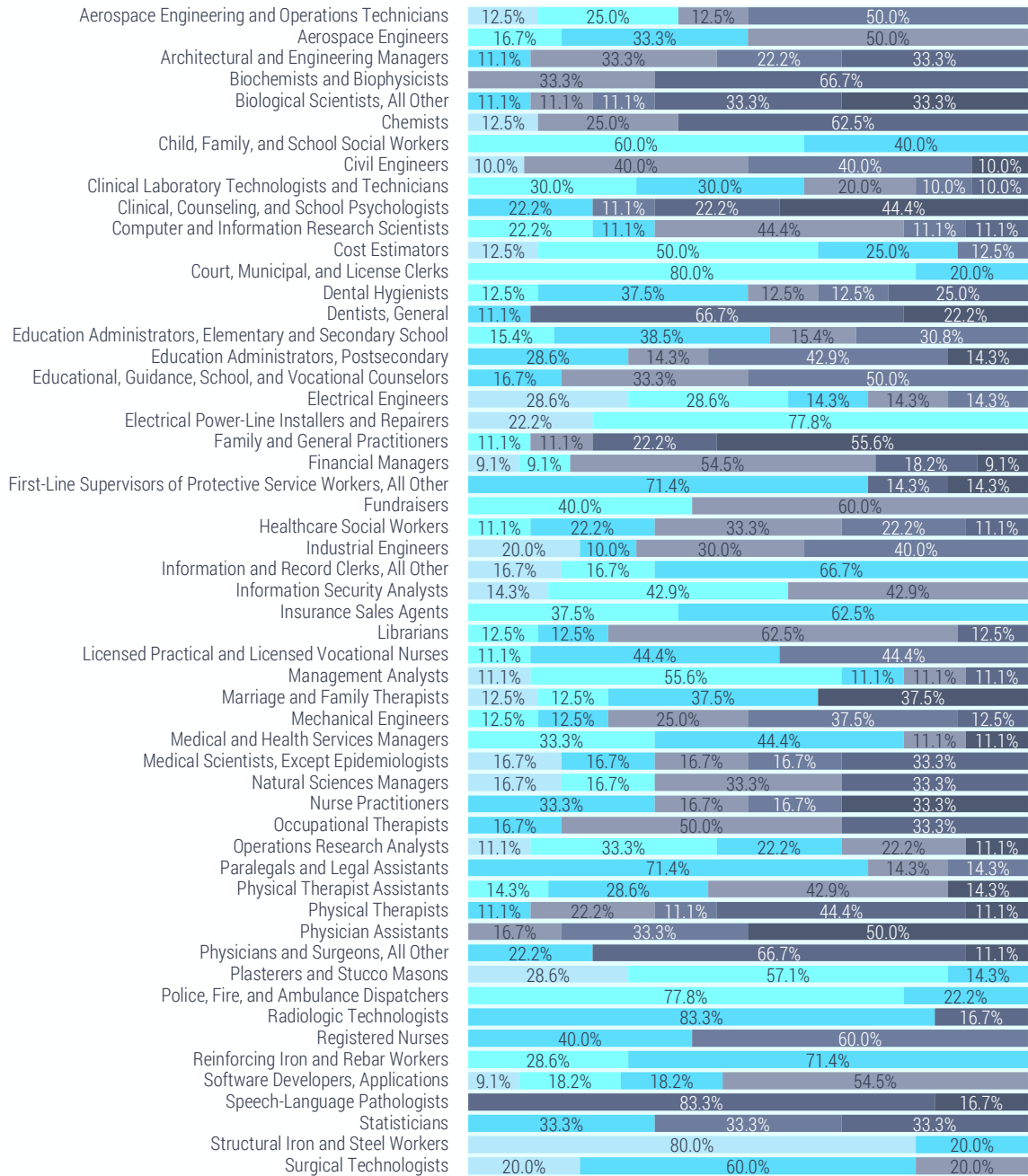
APPENDIX D. RESPONDENT EXPECTATIONS OF FUTURE EMPLOYMENT BY OCCUPATION



APPENDIX E. RECRUITMENT METHODS BY OCCUPATION

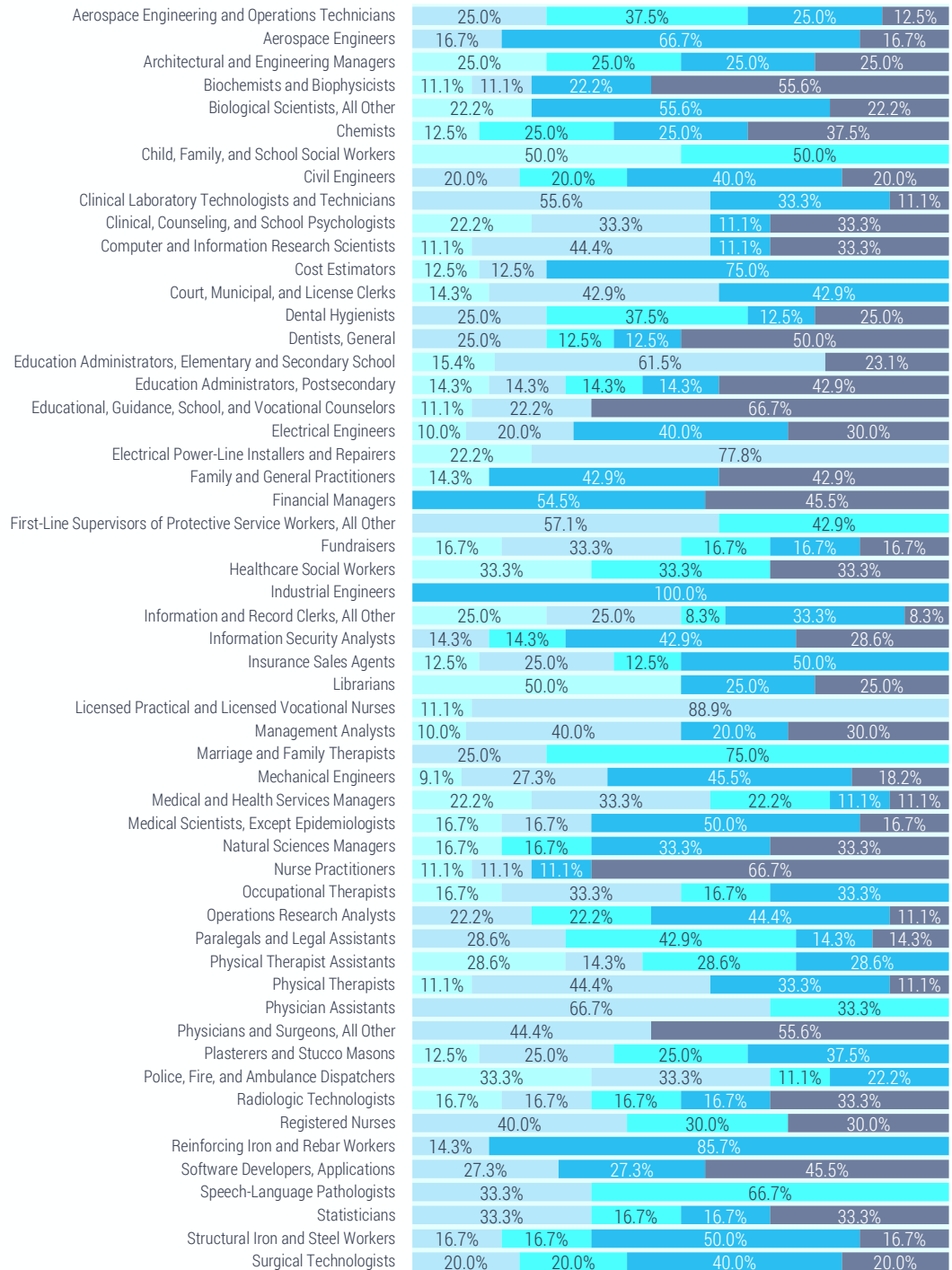


APPENDIX F. EDUCATION REQUIREMENTS BY OCCUPATION



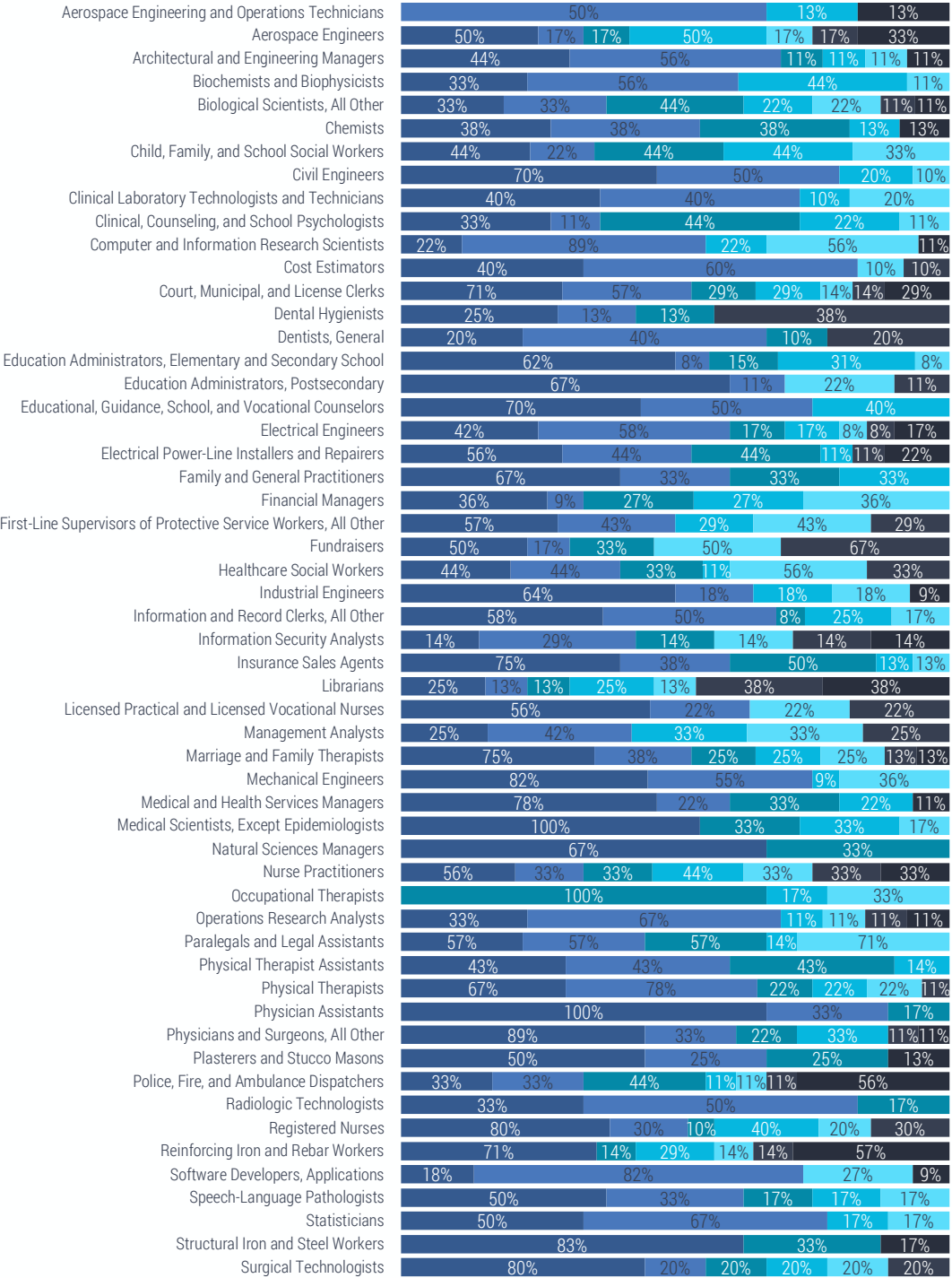
- No formal education required
- High school graduate or equivalent
- Certificate or Associate Degree from Community College
- Bachelor's Degree
- Bachelor's Degree and a Specialized Certificate
- Master's or other Graduate Degree (M.A., MBA, M.S., Ph.D., J.D.)
- Master's or other Graduate Degree and a Specialized Certificate

APPENDIX G. WORK EXPERIENCE EXPECTATIONS BY OCCUPATION



■ No formal work experience required
■ Six months to two years in a related position
■ Six months to two years in that specific position
■ More than two years in a related position
■ More than two years in that specific position

APPENDIX H. CHALLENGES FINDING QUALIFIED APPLICANTS BY OCCUPATION



- Relevant work experience
- Technical skills
- Certifications
- Education level
- Soft skills
- Bi- or multi-lingual
- Physical or visual abilities

SAN DIEGO'S PRIORITY JOBS AND ENTRY-LEVEL HOURLY WAGES³

NO FORMAL EDUCATIONAL CREDENTIAL

Plasterers and Stucco Masons **\$17.70**

HIGH SCHOOL DIPLOMA OR EQUIVALENT

Information and Record Clerks, All Other⁴ **\$16.16** Insurance Sales Agents **\$17.39**

First-Line Supervisors of Protective Service Workers, All Other **\$16.27** Structural Iron and Steel Workers **\$17.93**

Court, Municipal, and License Clerks **\$16.71** Police, Fire, and Ambulance Dispatchers **\$19.69**

Transportation Security Screeners **\$17.03** Electrical Power-Line Installers and Repairers **\$25.40**

POSTSECONDARY NONDEGREE AWARD

Computer User Support Specialist **\$18.17** Surgical Technologists **\$20.09**

Licensed Practical and Licensed Vocational Nurses **\$19.36**

ASSOCIATE DEGREE

Clinical Laboratory Technologists and Technicians **\$16.28** Radiologic Technologists **\$21.56**

Physical Therapist Assistants **\$19.12** Industrial Engineering Technicians **\$22.47**

Paralegals and Legal Assistants **\$19.73** Dental Hygienists **\$34.16**

Aerospace Engineering and Operations Technicians **\$21.17**

BACHELOR'S DEGREE

Child, Family, and School Social Workers **\$16.05** Software Developers, Applications **\$26.66**

Fundraisers **\$16.81** Biomedical Engineers **\$27.53**

Chemists **\$19.09** Mechanical Engineers **\$27.81**

Cost Estimators **\$19.59** Database Administrators **\$27.86**

Elementary School Teachers, Except Special Education **\$21.99** Budget Analysts **\$27.93**

Middle School Teachers **\$22.26** Engineers, All Other **\$28.90**

Secondary School Teachers, Except Special and Career/Technical Education **\$22.53** Industrial Engineers **\$30.46**

Operations Research Analysts **\$23.03** Information Security Analysts **\$30.85**

Special Education Teachers, Secondary School **\$23.21** Registered Nurses **\$31.18**

Biological Scientists, All Other **\$23.63** Electrical Engineers **\$31.18**

Probation Officers and Correctional Treatment Specialists **\$24.39** Aerospace Engineers **\$31.30**

Civil Engineers **\$24.64** Software Developers, Systems Software **\$32.06**

General and Operations Managers **\$24.74** Financial Managers **\$33.09**

Special Education Teachers, Kindergarten and Elementary School **\$25.19** Architectural and Engineering Managers **\$44.76**

Management Analysts **\$25.70** Natural Sciences Managers **\$48.50**

Medical and Health Services Managers **\$25.92**

MASTER'S DEGREE

Marriage and Family Therapists **\$17.16** Physician Assistants **\$29.82**

Healthcare Social Workers **\$17.47** Occupational Therapists **\$31.44**

Educational, Guidance, School, and Vocational Counselors **\$18.60** Statisticians **\$32.20**

Instructional Coordinators **\$22.00** Education Administrators, Elementary and Secondary School **\$34.09**

Librarians **\$22.24** Computer and Information Research Scientists **\$34.61**

Speech-Language Pathologists **\$28.60** Nurse Practitioners **\$40.33**

Education Administrators, Postsecondary **\$29.14**

DOCTORAL OR PROFESSIONAL DEGREE

Postsecondary Teachers **\$18.88** Physical Therapists **\$31.19**

Clinical, Counseling, and School Psychologists **\$24.04** Family and General Practitioners **\$35.42**

Biochemists and Biophysicists **\$28.92** Dentists, General **\$37.96**

Veterinarians **\$29.52** Physicians and Surgeons, All Other **\$54.43**

Medical Scientists, Except Epidemiologists **\$30.66**

³Entry-level wages represented by 10th percentile in San Diego County.

⁴"All Other" indicates need for highly specialized workers or emerging subsets of these occupations. See full report for more information.