

create the best employment opportunities for graduating students. Because only three colleges in the region offer Psychiatric Technician programs and there is a moderate undersupply of graduates, some expansion of these programs may be warranted. The other occupations studied have a relatively good balance between the supply and projected demand for trained workers.

Colleges are clearly facing challenges related to sustaining their programs due to budget cuts, lack of availability of clinical placements, and challenges with attracting qualified instructors. To address these issues, colleges should consider approaches such as partnering with healthcare employers to develop customized training (contract education) programs and partnering with workforce boards to leverage public funds.

Introduction

The so-called Great Recession has dramatically impacted the labor market throughout the United States, with unemployment at 10.4% nationally and 13.2% in California.¹ Though certainly not immune from its impacts, the healthcare sector has fared relatively well in this economy. Many factors have contributed to the relative strength of the sector, including that people tend to view medical treatment as a necessary spending item, especially as they age. The healthcare sector is one of the largest industries in the San Francisco Bay Area, employing over 342,000 individuals in hundreds of occupations throughout the various career ladders.²

The California Community Colleges System has charged the Economic and Workforce Development (EWD) Network to identify industries and occupations with unmet employee development needs and introduce partnering potential for the college's programs.

This report will provide an in-depth analysis of the healthcare sector in the 11-county San Francisco Bay Area, with a particular emphasis on the labor supply and demand of ten allied health occupations. The research findings will include data from primary and secondary sources and will be divided geographically to include:

- North-Bay: Marin County, Napa County, San Francisco County, and Sonoma County
- East-Bay: Alameda County, Contra Costa County, and Solano County
- South-Bay: Monterey County, Santa Cruz County, Santa Clara County, and San Mateo County

Allied health workers perform the 'core tasks of identification, prevention and treatment of diseases and disorders.'³ It is important to note that because nurses and doctors are not typically included in the definition of allied health occupations they were not included in this report.

This Environmental Scan includes an overview of the healthcare industry in the 11-county Bay Area and each sub-region, primary and secondary employment projections for the ten selected occupations, employer needs analysis, community college training program information, analysis of occupational supply and demand, major challenges facing the community college system, and recommendations to the colleges and the public workforce system to match supply and demand appropriately.

¹ Data source: U.S. Bureau of Labor Statistics, March 2010

² Data source: EMSI Total Employment, 1st Quarter 2010

³ *Careers in Allied Health*, Northern California Center of Excellence, April 2009 (p. 3-6), www.coecc.net

Industry Overview

Industry Composition and Growth

The 11-county Bay Area includes approximately 17,300 healthcare organizations of all sizes, employing 342,091 individuals. Figure 1 below illustrates the distribution of jobs among hospitals, nursing and residential care facilities, and ambulatory health care services.⁴

Figure 1: Industry Employment

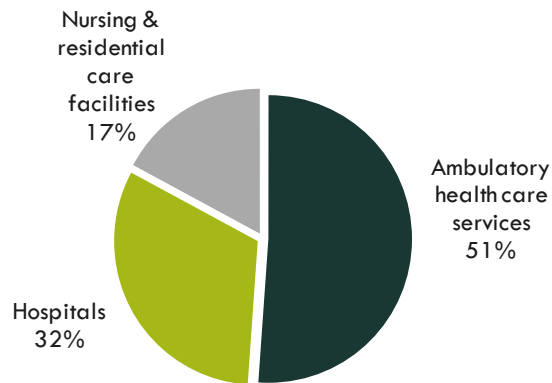
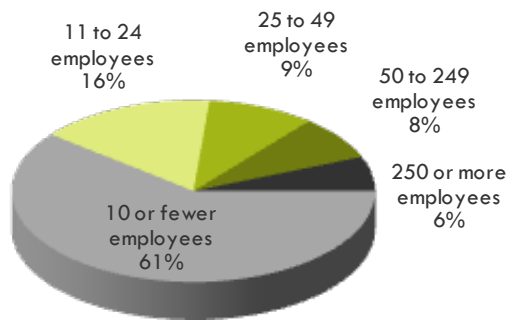


Figure 2 below illustrates that the majority of allied health care employers in the region are businesses of ten or fewer employees. However, as in most industries, the majority of employment occurs in firms of 100 or more employees.⁵

Figure 2: Size of Firm



Historical Growth of the Healthcare Sector, 2005-2010

According to Economic Modeling Specialists, Inc. (EMSI), the healthcare sector has grown rapidly in the Bay Area over the last 5 years, adding nearly 40,000 jobs since 2005 (the figures cited herein represent all jobs at healthcare employers, not only workers who provide patient care). Healthcare employment grew at a rapid clip of 13% over the five-year period, from 302,965 to 342,091. This growth, broken down by sub-region in Table 1, dramatically outpaced the overall employment growth rate of 3% in the region.⁶

⁴ Data source: EMSI Complete Employment – 1st Quarter 2010

⁵ Center of Excellence Allied Health Employer Survey, 2010

⁶ Data source: EMSI Complete Employment – 1st Quarter 2010

Table 1 – Five Year Historical Healthcare Estimates by Sub-Region

Industry	North Bay			Mid Bay			South Bay		
	2005	2010	%	2005	2010	%	2005	2010	%
Ambulatory health care services	38,826	42,697	10%	54,543	62,905	15%	57,168	69,282	21%
Hospitals	24,741	25,583	3%	42,900	38,002	13%	36,976	40,213	9%
Nursing & residential care facilities	12,785	13,854	8%	23,721	20,566	15%	18,944	20,946	11%
Total	76,352	82,124	8%	113,526	129,526	15%	113,087	130,441	15%

Though this rate is expected to slow somewhat over the next five years, EMSI estimates indicate that healthcare should add over 30,000 jobs from 2010 through 2015, representing 8.8% growth, or an average of 1.8% growth per year over the five years. Allied Healthcare employers in the Bay Area surveyed for this study reported a similar growth estimate of 2.2% over the next twelve months.⁷

Table 2 – Five-Year Healthcare Projections by Sub-Region

Industry	North Bay			Mid Bay			South Bay		
	2010	2015	%	2010	2015	%	2010	2015	%
Ambulatory health care services	42,697	46,515	9%	62,905	69,157	9.9%	69,282	76,787	10.8%
Hospitals	25,583	26,506	3.6%	42,900	46,535	8.5%	40,213	42,227	5.0%
Nursing & residential care facilities	13,854	14,565	5.1%	23,721	26,694	12.5%	20,946	23,179	10.7%
Total	82,124	87,585	6.7%	129,526	142,386	9.9%	130,441	142,193	9.0%

Trends affecting the Healthcare Sector

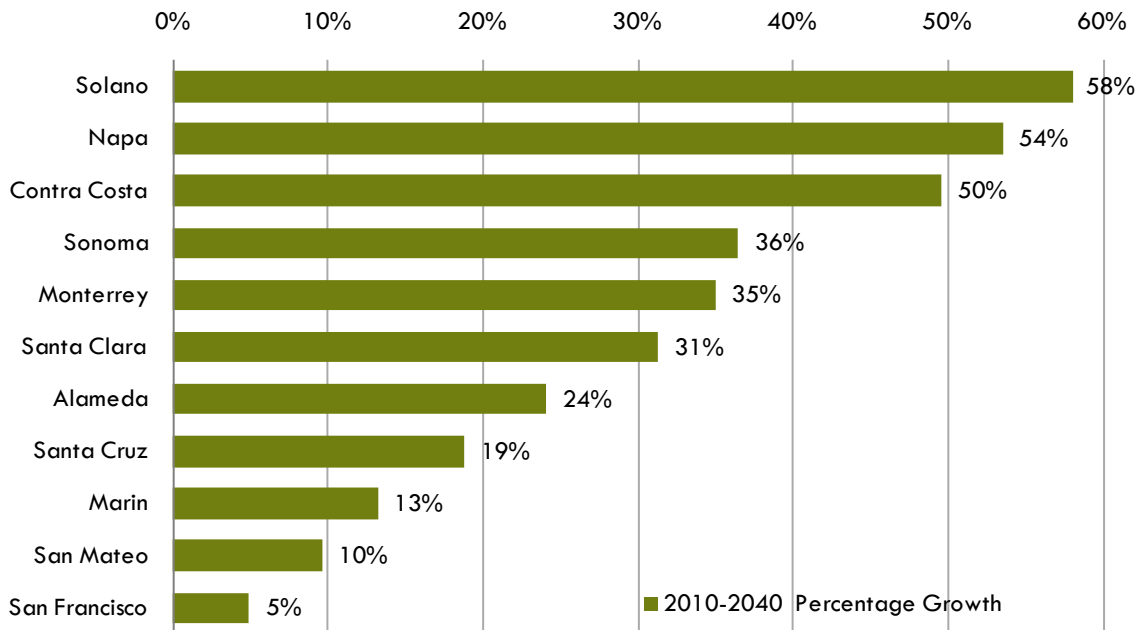
Population Growth

The San Francisco Bay Area is experiencing rapid population growth in many counties, a trend that is expected to continue over the next thirty years. By 2040, the eleven counties are expected to grow by 29% overall, reflecting 19% growth in the North Bay, 26% in the South Bay, and 38% in the East Bay. Figure 3 provides a county-by-county breakdown of expected population growth.⁸

⁷ Data source: Center of Excellence Allied Health Employer Survey, 2010

⁸ Data source: California Department of Finance Demographic Research Unit

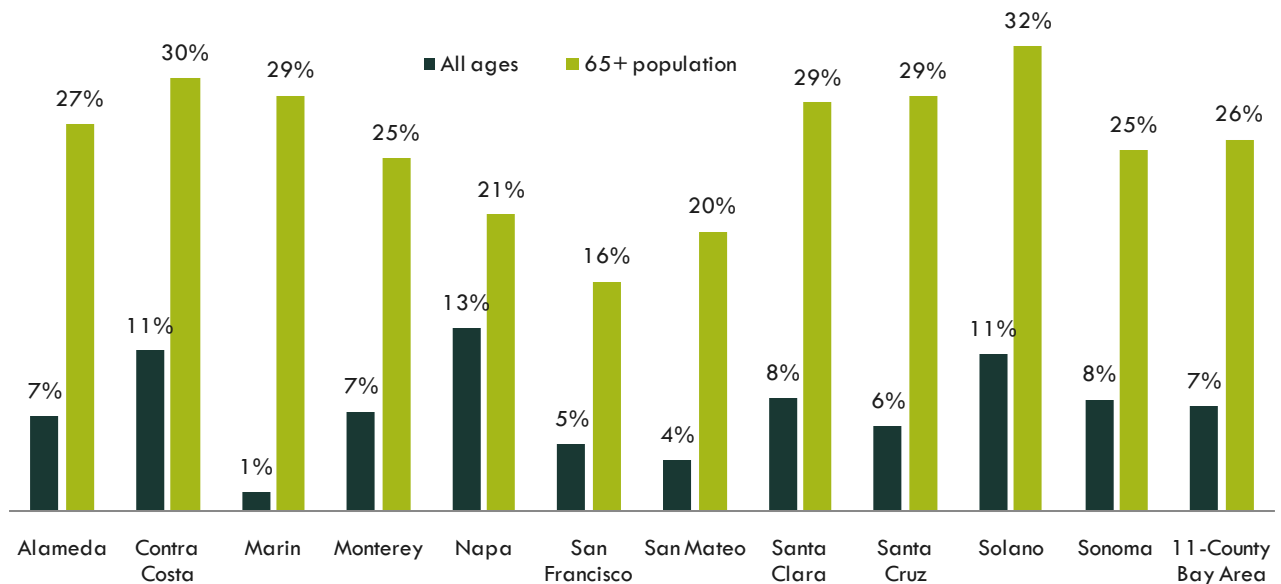
Figure 3: Population Growth in Bay Area Counties, 2010-2040



An Aging Population

The first baby boomers reach age 65 in 2011, kicking off a seismic and rapid aging of the U.S. population. By 2030, it is estimated that the number of adults over 65 in America will top 70 million, or roughly 20% of the total population.⁹ The San Francisco Bay Area mirrors this national trend. Since elderly Americans use significantly more health care services than younger adults, the impacts on the healthcare workforce will likely be enormous.¹⁰

Figure 4: 2005-2015 Population Growth Estimates



⁹ *Retooling for an Aging America: Building the Healthcare Workforce*, Committee on the Future Health Care Workforce for Older Americans, Institute of Medicine of the National Academies, The National Academies Press, Washington, D.C., http://books.nap.edu/openbook.php?record_id=12089&page=R1

¹⁰ Data source: California Department of Finance Demographic Research Unit

The aging population presents three interrelated pressures on the industry: 1) increased demand for services due to the elderly’s enhanced use of the healthcare system; 2) reduced supply of existing healthcare workers due to higher retirement rates; and 3) fewer replacement workers trained in elder care or geriatrics.

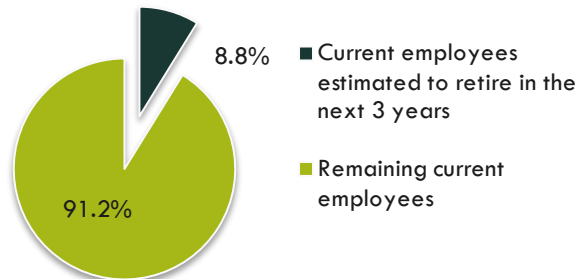
According to the Institute of Medicine of the National Academies,

Older adults receive health care in many different settings and are particularly high-volume users. Although older adults make up only about 12 percent of the U.S. population, they account for approximately 26 percent of all physician office visits, 47 percent of all hospital outpatient visits with nurse practitioners, 35 percent of all hospital stays, 34 percent of all prescriptions, 38 percent of all emergency medical service responses, and 90 percent of all nursing-home use.¹¹

At the same time, many healthcare workers are retiring. Bay Area healthcare employers surveyed for this report indicated that they expect 8.8% of their total workforce to retire over the next three years.¹²

Compounding the challenge of providing services for aging baby-boomers are the reduction in healthcare workers that specialize in geriatrics. According to a 2008 study by the Committee on the Future Health Care Workforce for Older Americans, Institute of Medicine, the number of certified geriatricians fell from 8,800 to 7,100 from 1999 to 2006. Additionally, in 2005-2006, only 67% of all geriatric fellowships were filled.

Figure 5: Estimated Retirements in the Next 3 Years



Healthcare Reform Legislation

President Obama signed healthcare reform legislation on March 23, 2010, extending insurance coverage to an estimated 32 million people. Though implementation of the entire reform package will take years, the initial expansion of health coverage should have short-term implications. There are many opinions concerning the affect of this landmark legislation on the healthcare economy, though there is little data to support the claims. It is likely, however, that the current healthcare workforce will be inadequate to meet the demands of the 32 million Americans that now have access to healthcare.

¹¹ *Retooling for an Aging America: Building the Healthcare Workforce*, Committee on the Future Health Care Workforce for Older Americans, Institute of Medicine of the National Academies, The National Academies Press, Washington, D.C., http://books.nap.edu/openbook.php?record_id=12089&page=R1

¹² Data source: Center of Excellence Allied Health Employer Survey, 2010

Occupational Overview

The San Francisco Bay Center of Excellence conducted a preliminary assessment of the occupations most appropriate for study. This assessment included analyzing secondary data on over 60 allied health occupations to determine the ones that have educational requirements relevant to community college instruction and have the most potential for growth in the region. A team of experts, including the Director of the San Francisco Bay Regional Health Occupations Resource Center (RHORC) validated this analysis. It is important to note that because nurses and doctors are not typically included in the definition of allied health occupations they were not included in this report.

Of the occupations examined, ten were selected for further investigation based on these criteria:

- Curriculum and employment requirements are relevant for community college instruction;
- Secondary data and literature suggest significant changes to employer needs concerning the occupation; and,
- The occupation must pay a living wage for the region.

Based on the criteria above, the following ten occupations are reviewed in this report.

- ① Clinical Laboratory Scientists (CLS') or Medical Laboratory Technologists
- ② Medical Laboratory Technicians (MLTs)
- ③ Medical Assistants
- ④ Medical Records and Health Information Technicians
- ⑤ Certified Coders
- ⑥ Radiological Technologists
- ⑦ Radiological Technicians
- ⑧ Psychiatric Technicians
- ⑨ Respiratory Therapists or Certified Respiratory Therapists
- ⑩ Pharmacy Technicians

Studying ten occupations that are very different in nature presents some difficulties. Though many large employers hire for all of the occupations studied, smaller employers often do not have some of the more specialized workers, such as Pharmacy Technicians and Psychiatric Technicians. In addition, the list of occupations represents at least two distinct categories of workers, which include administrative (such as Medical Records Technicians and Certified Coders), and technical positions such as Radiological Technicians and Clinical Laboratory Scientists.

Appendix B includes profiles of the ten selected occupations, including a brief description, and educational, licensure and/or registration requirements. Appendix C provides the typical education requirements of successful applicants reported by employers in the Bay Area. There is some variation among the education requirements provided by the Bureau of Labor Statistics (BLS) and reported by employers in this study. Appendix D includes ten-year projections for the occupations provided by Economic Modeling Specialists, Inc.

Occupational Growth

Table 3 displays the current estimated employment and projections for growth and replacement over the next 12 months. As illustrated therein, Clinical Laboratory Scientist or Medical Laboratory Technologist is the fastest growing occupation, while Medical Assistant is expected to add the most new positions over the next 12 months. By considering replacement of existing workers (e.g., retirement or turn-over), and adding expected replacement needs to overall growth, the top three occupations for new and replacement jobs are Medical Assistant, Pharmacy Technician, and Clinical Laboratory Scientist or Medical Laboratory Technologist.

Table 3 – Estimated Occupational Employment

Allied Health Occupations	2009 Employment	12-month Growth Rate (new job growth)	12-month Replacement Rate	New & Replacement Jobs (next 12 months)
Medical Assistants	15,540	4.5%	6.6%	1,720
Pharmacy Technicians	5,980	1.9%	6.4%	560
Clinical Lab Scientists (CLS') or Medical Laboratory Technologists	3,090	6.6%	6.6%	410
Medical Laboratory Technicians (MLTs)	3,370	2.9%	5.9%	300
Medical Records and Health Information Technicians	2,180	1.9%	10.8%	280
Psychiatric Technicians	1,320	5.0%	9.7%	190
Radiological Technologists	1,570	5.6%	5.6%	170
Certified Coders	1,150	2.0%	10.4%	140
Respiratory Therapists or Certified Respiratory Therapists	2,030	1.4%	5.0%	130
Radiological Technicians	1,740	1.1%	5.2%	110
Total	37,970			4,010

Despite the recent economic turmoil, it is encouraging that not one of the occupations studied reports declining employment. In fact, the occupational growth reported by Bay Area healthcare employers compares very favorably to other sectors, perhaps due to the industry growth trends discussed earlier in this report.

Replacement demand is expected to outpace job growth in all but two occupations (where it is nearly equal). These kinds of job openings result from retirement and turnover (among other factors), and have been sharply down across industries over the last 18 months, reflecting the general uncertainty felt in this economy.¹³

When considering the replacement of existing workers, it is important to consider the difference between turnover and retirement. Turnover within the industry and region tends not to impact the overall labor pool as greatly because workers may be merely transferring between institutions. While this may present challenges for individual employers, it has little impact on the number of trained workers in the region. Retirements (and other separations), however, result in net losses to

¹³Allied Health in the San Diego-Imperial Region, San Diego Center of Excellence, April 2009 (p.7), www.coecc.net

the labor pool, and because new workers are required to fill the positions, retirement tends to have a greater impact on workforce needs. As noted previously, employers reported an expected 8.8% retirement rate at their firms over the next 12 months across all workers. Appendix E contains sub-regional occupational growth projections for the North Bay, East Bay, and South Bay.

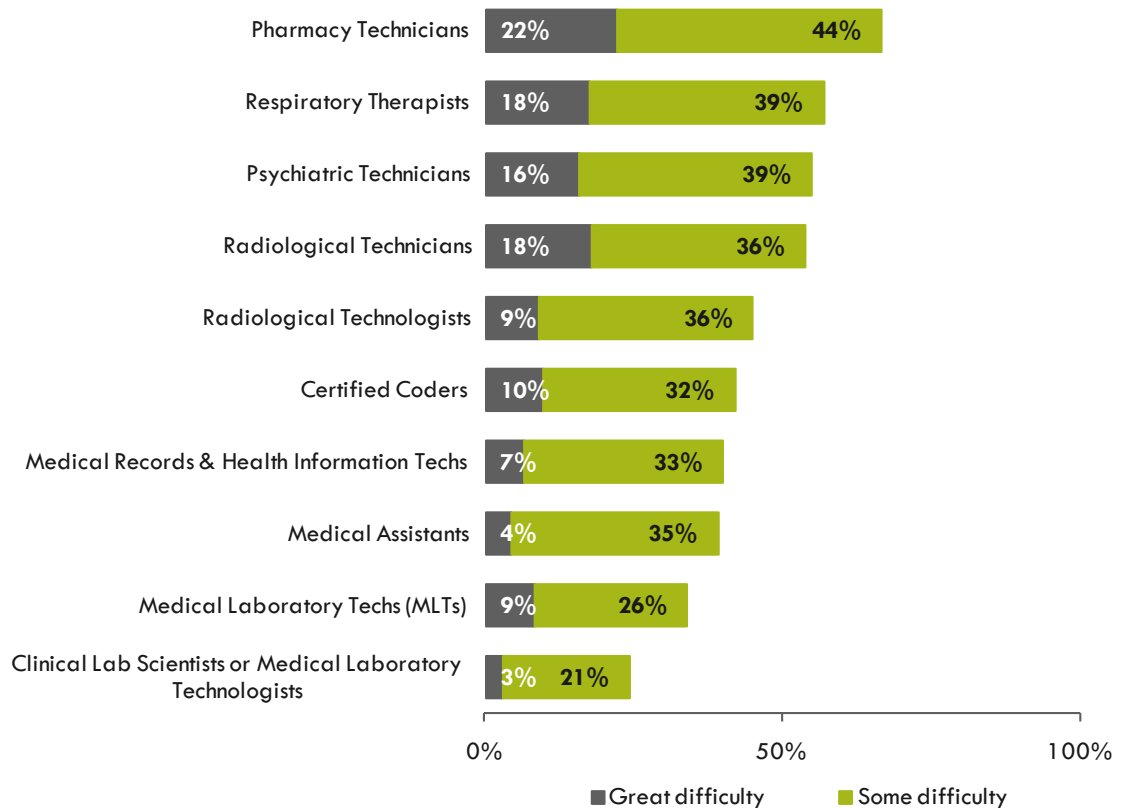
Employer Needs and Challenges

Difficulty Hiring Qualified Applicants

Generally speaking, employers do not report tremendous difficulty finding qualified applicants during periods of higher unemployment. However, Bay Area healthcare employers reported difficulty in finding qualified applicants for many positions, as evidenced in Figure 6 below.

- Employers reported the greatest difficulty finding Pharmacy Technicians with 22% reporting great difficulty and 44% reporting some difficulty.
- 18% of employers reported great difficulty and another 39% reported some difficulty in finding Respiratory Therapists. Similarly 18% of employers reported great difficulty and another 36% reported some difficulty in finding Radiological Technicians.
- 55% of employers reported difficulty finding qualified Psychiatric Technicians (16% great difficulty).
- Only 24% of employers reported difficulty finding Clinical Laboratory Scientists or Medical Laboratory Technologists (3% great difficulty). This may be the result of the new Medical Laboratory Technician occupation being approved recently in California limiting the demand for Clinical Laboratory Scientists or Medical Laboratory Technologists.

Figure 6: Level of Difficulty Hiring



Developing the Workforce

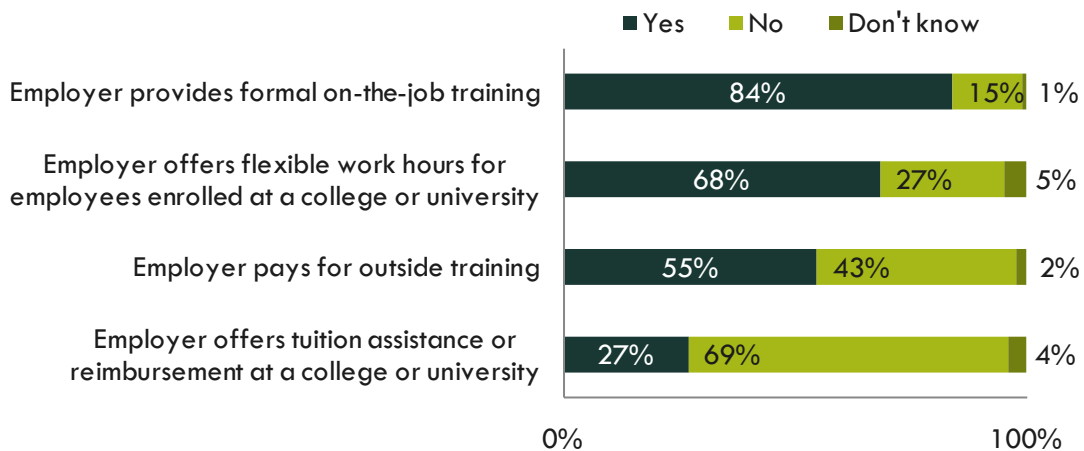
In addition to reporting their difficulty recruiting for specific occupations, employers also provided their feedback on developing their allied health workers. As illustrated in Figure 7 below, employers are not reporting tremendous difficulty in training existing workers. However, it is interesting to note that despite the attention paid to healthcare information technology, only 2% of employers surveyed indicated great difficulty in keeping workers current on new technology, though an additional 29% did report some difficulty in doing so. Perhaps due to the retirement of existing workers throughout the region, employers reported the most difficulty in hiring experienced workers from outside their organization.

Figure 7: Healthcare Employer Challenges



Figure 8 displays the employment development practices in use by local employers. As seen below, formal, on-the-job training is by far the most common practice in the region, while tuition assistance is the least commonly used.

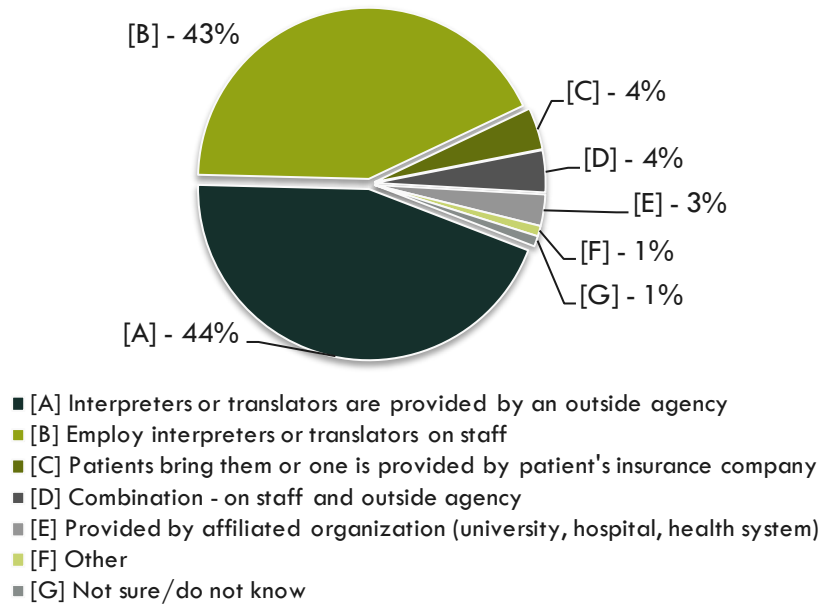
Figure 8: Employee Development Practices



Medical Translation

Existing literature suggests that medical translation is an area of concern for California healthcare employers. In the Bay Area, only one in four employers surveyed use or need certified healthcare interpreters or medical translators at their work location. As seen in Figure 9 below, employers are roughly split as to whether they hire their own interpreters or use an outside service.

Figure 9: Healthcare Interpreters / Medical Translators



College Response and Issues

The Supply of Allied Health Professionals

One of the objectives of this environmental scan was to determine if a gap exists between the projected number of job openings in the next 12 months in ten high-growth allied health occupations, and the adequate supply of graduates by the 28 California Community Colleges within the 11-county San Francisco Bay Area.

This section of the report presents the “supply” side of the data obtained from the community colleges in the region. A gap analysis of whether regional colleges are supplying sufficient graduates to meet the projected employment demand is presented in the next report section, entitled Supply and Demand Gap Analysis on page 21.

Twenty-eight community colleges were surveyed with a 100% response rate on the following:

1. Current programs in ten allied health occupations.
2. Data related to annual student capacity and enrollments, and graduates in these programs for academic year 2008-2009.
3. Future program development, challenges in hiring qualified faculty, issues in developing clinical affiliates, and articulation agreements with four-year colleges and universities.

To provide a wider picture of the supply of allied health graduates in the region, post-secondary education institutions and proprietary schools were also identified. Student graduate data for these schools was also obtained.¹⁴

Key Findings from Community College Survey

- Twenty-one of the 28 community colleges offer at least one and up to five programs in the ten high-growth occupations.
- Two colleges each offer five programs to prepare students — City College of San Francisco and Santa Rosa Junior College.
- Five colleges are offering new programs or developing and proposing programs to start in 2010 through 2014.
- The fastest growing college, Las Positas, is currently developing or proposing six new programs in the occupations studied as part of their five-year strategic plan.
- Admission demand by new students outnumbers the capacity of programs in Medical Laboratory Technician, Pharmacy Technician, Radiological Technologist and Respiratory Therapist.
- Medical Assistant programs report the most graduates (310), Medical Records & Health Information Technicians report the second highest (158), and Radiological Technologist (133) is third of the ten occupations.
- Most colleges report constraints imposed on additional faculty hires, low salaries offered to part time faculty, and lack of availability, as the major challenges in recruiting faculty to teach courses in these programs.

¹⁴ California Post-Secondary Education Commission (CPEC), www.cpec.ca.gov

- Most colleges report difficulty developing clinical affiliates at hospital sites for student internships due to lack of slots available, budget deficits and staff reductions at clinical sites, and competition from proprietary schools students.
- Articulation agreements in place or in development with four-year college and university programs exist at nine colleges.

College Program Selection Criteria

A brief survey was sent to 28 community colleges based on contact information for administrators and faculty obtained from college websites related to allied health programs. Follow-up telephone calls and emails were made to colleges to clarify responses or obtain correct administrator and staff contact information. A list of community college allied health administrator and/or faculty contacts used for this study can be found in Appendix I.

Concurrently, a search of the California Community College Chancellor’s Office Inventory of Approved Programs under Taxonomy of Programs – TOP Codes,¹⁵ showed the approved programs at each college related to the ten occupations studied. A table of the TOP Titles and corresponding TOP codes used to identify programs is shown below.

Table 4 - Community College Programs Related to the Study Occupations

TOP Title	TOP Code	TOP Title	TOP Code
Medical Office Technology	0514.20	Pharmacy Technology	1221.00
Medical Laboratory Technology	1205.00	Health Information Technology	1221.00
Medical Assisting	1208.00	Health Information Coding	1223.10
Clinical Medical Assisting	1208.10	Radiologic Technology	1225.00
Respiratory Care/Therapy	1210.00	Psychiatric Technician	1239.00

¹⁵ <https://misweb.cccco.edu/webproginv/prod/invmenu.htm>

Allied Health Programs at Regional Community Colleges

Table 5 - Allied Health Certificate (C) and Degree (D) Programs at San Francisco Bay Area Community Colleges
(includes New, Discontinued, In Development and Proposed programs)

College	Certified Coder	Clinical Laboratory Scientist*	Medical Assistant	Medical Laboratory Technician	Medical Records & Health Information Technician**	Pharmacy Technician	Psychiatric Technician	Radiological Technician and Technologist	Respiratory Therapist	
Alameda		Career pathway from Medical Laboratory Technician 4-year degree required								
Berkeley										
Cabrillo			C & D		C NEW Fall 2010			D		
Canada	C		C & D					D		
Chabot	Discontinued		C & D		Discontinued					
Contra Costa			C & D					D w/Kaiser Permanente		
DeAnza	C		C & D	C & D	C					
Diablo Valley				C & D NEW Fall 2010						
Evergreen Valley										
Foothill							C	D	D	
Gavilan			C (ROP)		C & D					
Hartnell										
Laney										
Las Positas	In Development for 2012-13		C	Proposed for 2013-14	In Development for 2011-12	In Development for 2010-11			Proposed for 2012-13	Proposed for 2012-13
Los Medanos										

College	Certified Coder	Clinical Laboratory Scientist*	Medical Assistant	Medical Laboratory Technician	Medical Records & Health Information Technician**	Pharmacy Technician	Psychiatric Technician	Radiological Technician and Technologist	Respiratory Therapist
Marin	C		C & D		C & D				
Merritt			C		In Development for 2011-12			D	In Development for 2012-13
Mission						C	C & D		
Monterey Peninsula			C & D		C & D				
Napa							C		D
Ohlone									D
San Francisco	C		C & D		C & D	C		D	
San Jose									
San Mateo									
Santa Rosa	C & D		C & D			C	C & D	C & D	
Skyline	C				C & D	C On Hold			D
Solano					C & D				
West Valley	C		C & D		C & D	C NEW Fall 2010			

* Clinical Laboratory Scientist is a four-year university degree, but is included as a high-growth occupation in this study because it is a pathway from Medical Laboratory Technician that requires an associate degree.

** The occupation description for Medical Records and Health Information Technician (SOC Code 29-2071) includes the following job titles that were used to obtain community college program information: Medical Records Clerk, Health Information Clerk, Medical Records Technician, Office Manager, File Clerk, Medical Records Coordinator, Medical Records Analyst, Medical Records Director and Receptionist. Certified Coder is also included in this SOC Code, but for this study was made into its own separate occupational category. <http://www.onetcodeconnector.org/ccreport/29-2071.00>

College Issues and Challenges

Survey responses from community colleges provided rich information about the current issues and challenges in hiring qualified faculty and developing clinical affiliates. The current California budget crisis is affecting all community college programs at different levels. Several colleges report they have been unable to grow their programs due to budget cutbacks, despite demand for admission by new students. Others have had to cancel programs or delay offering programs in allied health because they are unable to hire qualified faculty. Moreover, many public and private hospitals and clinics that collaborate with colleges to provide student training are also experiencing budget constraints, which is exacerbating an already burdened pipeline of clinical site placements. The following is a summary of the survey responses obtained:

Hiring Qualified Faculty

- Imposed constraints by colleges to hire additional faculty and/or downgrades from full-time to part-time faculty.
- Recruitment difficulties due to only part-time positions available with low salaries.
- Recruitment difficulties due to salaries earned by health care professionals are two to three times greater practicing in their field compared to college pay.
- Lack of teaching ability in hiring pools related to classroom presentation and program management.
- Availability to teach is limited for part-time faculty who hold other jobs.
- Availability to teach daytime sessions is especially difficult to negotiate.

Developing Clinical Affiliates

- Lack of slots available for student trainees at hospitals and other clinical sites.
- Reduction in budgets and staff at clinical sites limit the ability to assign staff to train and supervise students.
- Reduction in budgets at clinical sites to provide resources, materials and supplies.
- Increased liability encountered for student trainee rotations.
- Increased competition for training slots from proprietary schools and other institutions seeking clinical site placements.
- For Health Information Technician programs: facilities do not have time to devote to students, desk space has been a problem, and union environments often do not take students.

Post-Secondary Education Institutions and Proprietary School Selection Criteria

Regional post-secondary education institutions and proprietary school programs in the ten occupations studied were identified by using the custom reports feature on the California Post-Secondary Education Commission (CPEC) website.¹⁶ The most current year data is available is for 2008.¹⁷ A search of instructional programs and program graduates was conducted using Classification of Instructional Programs (CIP) Codes.¹⁸

Table 6 - Classification of Instructional Programs (CIP) Related to the Study Occupations

CIP Title	CIP Code	CIP Title	CIP Code
Health Information/ Medical Records Technician	51.0707	Pharmacy Technology	51.0805
Medical Office Assistant/Specialist	51.0710	Respiratory Care Therapy/Therapist	51.0908
Medical Receptionist	51.0712	Radiologic Technology/ Science/Radiographer	51.0911
Medical Insurance Coding Specialist/Coder	51.0713	Medical Laboratory Technician	51.1004
Medical Insurance Specialist/Biller	51.0714	Clinical Laboratory Science/Technologist	51.1005
Medical Administrative & Medical Secretary	51.0716	Psychiatric/Mental Health Services Technician	51.1502
Medical/Clinical Assistant	51.0801		

An Internet search was conducted to identify additional schools that are not included in the CPEC database. All of the proprietary schools found during this phase lack the appropriate accreditation and therefore, provide limited opportunities to their graduates.

Supply and Demand Gap Analysis

Table 7 provides a rough estimate of the gap between the supply of newly trained professionals in ten allied health occupations and the projected new and replacement jobs in the next 12 months. The total number of graduates for the academic year (Fall 2008 + Spring 2009) from community college programs at 28 colleges in the San Francisco Bay Area was obtained through a survey that was emailed to allied health administrators and faculty during the period April 13 through May 14 with subsequent telephone follow-up to obtain a 100% response rate.

The total number of degrees awarded by post-secondary education institutions was obtained from the latest year available (2008) from the CPEC.

¹⁶ CPEC website: www.cpec.ca.gov. The data source for institution and student degrees available on the CPEC database are reported by the Integrated Postsecondary Education Data System (IPEDS) – www.nces.ed.gov/ipeds

¹⁷ Refers to data for the 2007-2008 academic year ending in 2008.

¹⁸ A complete list of 2010 CIP codes can be found at <http://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55>

Table 7 - Summary of Employer DEMAND in Study Occupations and SUPPLY of Qualified Graduates by California Community College and Proprietary Schools

Occupations	Community Colleges Total # of Graduates 2008-2009	Post-Secondary Education Institutions & Proprietary Schools Total # of Graduates/Degrees (2007-2008)*****	Total Graduates	Total Job Openings Next 12 Months	Gap (Program Completers – Job Openings)
Certified Coders	53	53	106	140	34
Clinical Laboratory Scientists and Medical Laboratory Technologies*	N/A	34	34	410	376
Medical Assistants	310	480	790	1,720	930
Medical Laboratory Technicians	3	Unavailable	3	300	297
Medical Records & Health Information Technicians**	158***	227	385	280	oversupply by 105
Pharmacy Technicians	127	24	151	560	409
Psychiatric Technicians	51	Unavailable	51	190	139
Radiological Technicians and Technologists****	133	Unavailable	133	280	147
Respiratory Therapists	107	Unavailable	107	130	23

* Clinical Laboratory Scientist requires a four-year university degree and is a pathway from Medical Laboratory Technician that requires an associate degree. The number of graduates listed under Post-Secondary Education Institutions are a total from San Francisco State University and San Jose State University, the only two programs offering CLS degrees in Northern California.

** Medical Records and Health Information Technician includes nine job titles under SOC code 29-2071.

*** Total number is an aggregate of graduates from Medical Office Technology programs comprising nine occupation titles.

**** Radiological Technician is a Limited Permit X-Ray program requiring less than an AS Degree, and is provided by vocational schools. None of the 28 community colleges or any of the proprietary schools identified offers this program.

*****Number of graduates is based on the most recent 2008 IPEDS data on the CPEC website: www.cpec.ca.gov. Not all proprietary schools are included in the CPEC database. Therefore, the numbers of graduates/degrees are limited by this data omission. “Unavailable” indicates the only school or schools identified are not approved and are not part of the CPEC database, therefore, no degree or certificates awarded are available.

Conclusion and Recommendations

It is now widely accepted that demographic, political, and economic trends will lead to significant long-term growth of healthcare occupations across the country. Despite these long-term needs, the severe recession over the last two years has slowed employment growth considerably and caused fewer employees to retire, which has led to fewer employment opportunities for healthcare professionals.

This report, based on data collected from over 400 healthcare employers and supplemented by additional secondary data sources, shows that allied healthcare occupations are indeed growing in the short-term. Perhaps even more important to job seekers in the San Francisco Bay Area, retirements are expected to increase significantly. Healthcare employers surveyed for this study report that nearly 9% of their total workforce will retire in the next twelve months.

An analysis of employer demand for the ten occupations studied and the supply available from community colleges and proprietary schools reveals that for nine of the ten occupations, demand is not being met by the current training supply. However, it appears that there are just three occupations (Medical Assistants, Pharmacy Technicians, and Medical Laboratory Technician) that are being significantly undersupplied, while five occupations are being undersupplied at a moderate or low level. One occupation (Clinical Laboratory Scientist) is being significantly undersupplied, however community colleges do not prepare students directly for this degree.

Based purely on a supply and demand analysis, colleges should consider the following recommendations as they evaluate their programs:

- Expand existing or create new Medical Assisting Programs. Medical Assistants have the largest supply and demand of all occupations studied, however, the demand has far outstripped the supply. Employers reported needing 930 more medical assistants than will likely be supplied over the next 12 months.
- Review the need for expanding existing Pharmacy Technician programs. Employers reported the most difficulty in finding qualified Pharmacy Technicians for their firms, and this occupation represents the second largest gap between the supply of and demand for trained workers. It should be noted that two new Pharmacy Technician programs will be added by colleges over the next two years, which will give the region six programs and may alleviate the anticipated undersupply of workers in this occupation.
- Review the need for expanding existing or creating new Medical Laboratory Technician programs. Undersupply is significant (nearly 300 workers) for this occupation and there is currently only one Bay area community college training program for MLTs. A new program will start Fall 2010 and another is being proposed for Fall 2013, however this may not meet the demand for skilled workers. Additionally, this occupation is a career pathway for students who want to become a Clinical Laboratory Scientist, which requires a four-year degree, and is also significantly undersupplied.
- The colleges with existing Psychiatry Technician programs — Mission, Napa, and Santa Rosa colleges — should consider the feasibility of expanding their enrollments. Though the anticipated labor market demand does not necessitate new programs, Psychiatric Technicians were reported as the third most difficult position to fill with qualified applicants. Furthermore, each of the existing programs could significantly increase their enrollments without saturating the market. The colleges are encouraged to identify any

potential obstacles for expanding their programs in order to increase their capacities for training for this occupation.

- Watch Medical Records and Healthcare Information Technology demand closely. Of the ten occupations, only medical records and healthcare information technologists had greater supply than demand. Though healthcare IT and electronic medical records are receiving a great deal of attention in the national media, colleges should proceed with caution. More research may be needed to understand how the labor market for this occupation is changing.

Though the analysis indicates the need for possibly expanding programs or creating new programs, colleges have reported great difficulty in sustaining their programs due to budget cuts, lack of availability of clinical placements, and challenges with attracting qualified instructors. To address these issues, colleges should consider some of the innovative approaches outlined below:

- Partner with Healthcare Employers to Develop Contract Education Programs. In several regions of the state, community colleges have partnered with local employers to offer customized, contract education to meet employment needs. By offering the programs through contract education, a colleges' ability to offer courses is not dependent on its general budget. Furthermore, participating employers are generally more apt to provide the clinical placements necessary, and often welcome the opportunity to provide these opportunities for their future employees. Though each college has different rules about instructor pay, many colleges have more flexible arrangements for instructors of contract education courses, and often can offer higher pay for instructors in these programs.
- Leverage Public Workforce Funds. The public workforce system has seen large funding increases and local workforce investment boards are increasingly exploring partnership opportunities with their regional community colleges. In addition, many workforce boards are seeking collaborators to apply for grant funding for healthcare training.
- Many of the cited issues, such as funding concerns and the need for additional laboratory space may be permissible expenses in these grant programs. Many of the obstacles that are preventing colleges from expanding programs could be remedied through partnerships with local workforce boards.

References

In addition to the sources cited in report footnotes, the following references were used in developing this report, its Appendices, and/or its corresponding presentation:

Access to Career Ladders at U.S. Community Colleges, American Association of Community Colleges, <http://www.aminef.or.id/careerladder>

Allied Health in the San Diego-Imperial Region, San Diego Center of Excellence, April 2009

California Community College Chancellor's Office Inventory of Approved Programs, www.cccco.edu

California Community Colleges Statewide Health Occupations Directory, <http://www.healthoccupations.org/>

California Post-Secondary Education Commission (CPEC), www.cpec.ca.gov

California State EDD, LMID, www.labormarketinfo.edd.ca.gov

Career Prep System, <http://www.careerprep.org/careerpath.htm>

Careers in Allied Health, Northern California Center of Excellence, April 2009

Closing the Health Workforce Gap in California: The Education Imperative, Health Workforce Solutions, November 2007.

Economic Modeling Specialists, Inc. (EMSI) Complete Data, <http://www.economicmodeling.com/>

Health Care Industry: Identifying and Addressing Workforce Challenges, by Alexander, Wegner, and Associates, U.S. Department of Labor, February 2004.

Health Professions Education Data Book 2007-2008, American Medical Association

Retooling for an Aging America: Building the Healthcare Workforce, Committee on the Future Health Care Workforce for Older Americans, Institute of Medicine of the National Academies, The National Academies Press, Washington, D.C., http://books.nap.edu/openbook.php?record_id=12089&page=R1

The Career Ladder Mapping Project, Shirley Ware Education Center, SEIU, Local 250 AFL-CIO, December 2002

U.S. Bureau of Labor Statistics, <http://www.bls.gov>

U.S. Bureau of the Census, 2002 Economic Census <http://www.census.gov/acs/www/>

U.S. Department of Education, National Center for Education Statistics, <http://nces.ed.gov/>

U.S. Department of Labor ETA – Occupational Outlook, www.doleta.gov

however, include workers whose primary duties are to demonstrate portions of the human body on X-ray film or fluoroscopic screen.

Radiologic technicians use highly specialized tools and technology for their trade. Employers tend to prefer radiologic technicians with an associate degree.

Source: O*Net; Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition

Psychiatric Technicians

Psychiatric technicians, or “psych techs” care for mentally impaired or emotionally disturbed individuals, following physician instructions and hospital procedures. Psych techs monitor patients' physical and emotional well-being and report to medical staff. They may participate in rehabilitation and treatment programs, help with personal hygiene, and administer oral medications and hypodermic injections.

Psychiatric technicians require general knowledge of psychology, therapy, and counseling. Communication skills such as active listening, reading comprehension, and writing ability are particularly important for this position. A majority of employers prefer some college training (certificate or associate degree).

Source: O*Net; Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition

Respiratory Therapists

Respiratory therapists evaluate, treat, and care for patients with breathing or other cardiopulmonary disorders. Respiratory therapists assume primary responsibility for all respiratory care therapeutic treatments and diagnostic procedures, including the supervision of respiratory therapy technicians. Entry-level therapists may assume clinical responsibility for specified respiratory care modalities involving the application of therapeutic techniques under the supervision of an advanced-level therapist and/or physician. Advanced-level therapists participate in clinical decision-making and patient education, develop and implement respiratory care plans, apply patient driven protocols, utilize evidence-based clinical practice guidelines and participate in health promotion, disease prevention, and disease management.

To qualify as a respiratory therapist, a minimum of an Associate Degree is required. Coursework in the degree program includes Human Anatomy, Physiology, Chemistry, Physics, Microbiology, Pharmacology, and Mathematics. Most college programs are accredited through the National Board for Respiratory Care, Commission on Accreditation of Allied Health Programs, or the Committee on Accreditation for Respiratory Care. In California, respiratory therapists are required to obtain a license. The Certified Respiratory Therapist License (CRT) qualifies respiratory therapists to obtain a state license.

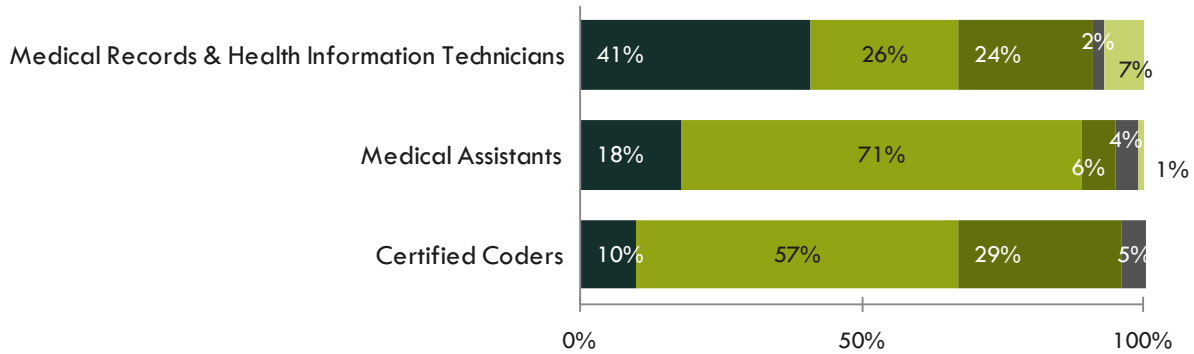
Source: O*Net; Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition

Appendix C: Typical Education Requirements for Successful Applicants

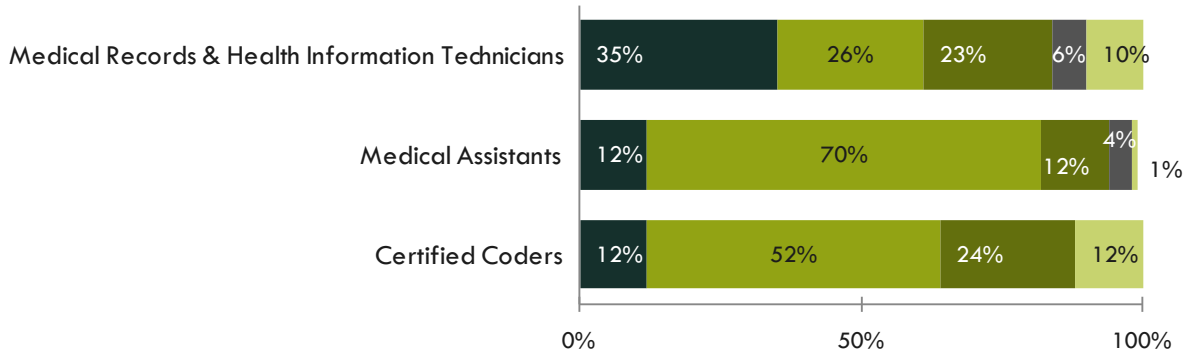
The following charts display the typical education for successful health care applicants as reported by employers in the three sub-regions. Those occupations that met a minimum level of employer respondents per area are shown below.

- Completion of high school or equivalent
- Associate Degree
- Master's or other Graduate Degree
- Certificate
- Bachelor's Degree
- No Answer

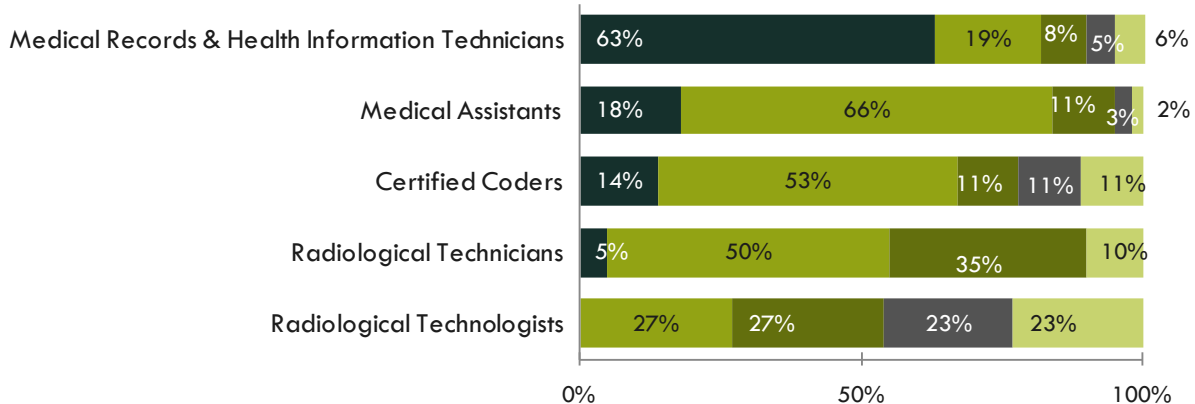
North Bay: Typical education requirements for successful applicants



East Bay: Typical education requirements for successful applicants



South Bay: Typical education requirements for successful applicants



Appendix D: 10-year Occupational Growth Projections

Occupation	North Bay			Mid Bay			South Bay		
	2009	2019	%	2009	2019	%	2009	2019	%
Medical and Clinical Laboratory Technicians	946	1,061	12%	866	941	9%	1,558	1,831	18%
Medical and Clinical Laboratory Technologists	731	790	8%	1,024	1,073	5%	1,338	1,503	12%
Medical Assistants	3,521	4,118	17%	5,961	6,717	13%	6,053	7,267	20%
Medical Records and Health Information Technicians	885	1,006	14%	1,254	1,442	15%	1,185	1,367	15%
Pharmacy Technicians	1,394	1,778	28%	2,187	2,754	26%	2,402	2,991	25%
Psychiatric Technicians	668	398	4%	249	281	13%	406	416	2%
Radiologic Technologists and Technicians	894	970	9%	1,187	1,286	8%	1,229	1,384	13%
Respiratory Therapists	481	544	13%	675	820	21%	873	1,016	16%
Total	9,519	10,965	15%	13,404	15,314	14%	15,044	17,774	18%

Data source: EMSI Complete Employment, 1st Quarter, 2010

Appendix E: Sub-regional Occupational Growth Projections

The occupational growth projections in the tables below incorporate the 12-month growth rates calculated from responses for the Bay Area Center of Excellence Allied Health Employer Survey, 2010. Occupational employment estimates are broken out into the three sub-regions using EMSI occupational estimates for 2009.

North Bay: San Francisco, Marin, Napa, and Sonoma counties

Allied Health Occupations	2009 Employment	New & Replacement Jobs (next 12 months)
Medical Assistants	3,520	390
Respiratory Therapists or Certified Respiratory Therapists	1,390	130
Certified Coders	730	100
Radiological Technicians	670	100
Certified Lab Scientists (CLS ¹) or Medical Laboratory Technologists	950	80
Medical Laboratory Technicians (MLTs)	580	70
Pharmacy Technicians	420	50
Medical Records and Health Information Technicians	310	40
Psychiatric Technicians	470	30
Radiological Technologists	480	30
Total	9,520	1,020

East Bay: Alameda, Contra Costa, and Solano counties

Allied Health Occupations	2009 Employment	New & Replacement Jobs (next 12 months)
Medical Assistants	5,960	660
Respiratory Therapists or Certified Respiratory Therapists	2,190	200
Certified Coders	1,020	140
Medical Laboratory Technicians (MLTs)	820	100
Certified Lab Scientists (CLS ¹) or Medical Laboratory Technologists	870	80
Pharmacy Technicians	560	60
Medical Records and Health Information Technicians	430	50
Psychiatric Technicians	620	40
Radiological Technicians	250	40
Radiological Technologists	680	40
Total	13,400	1,410

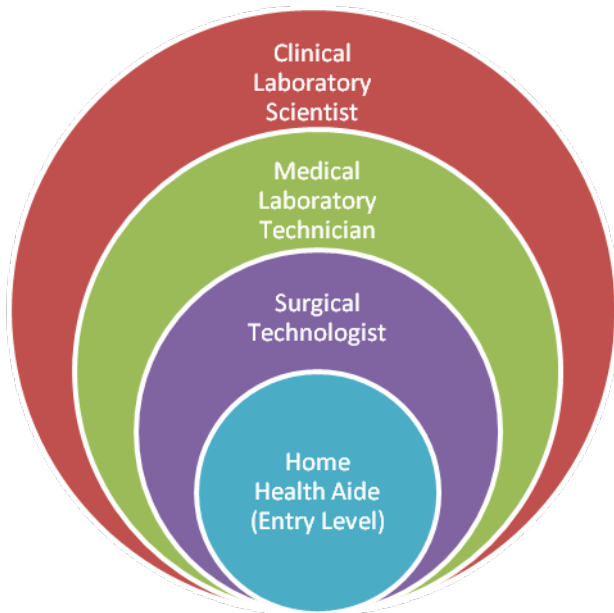
South Bay: Monterey, Santa Cruz, Santa Clara, and San Mateo counties

Allied Health Occupations	2009 Employment	New & Replacement Jobs (next 12 months)
Medical Assistants	6,050	670
Respiratory Therapists or Certified Respiratory Therapists	2,400	220
Certified Coders	1,340	180
Certified Lab Scientists (CLS ¹) or Medical Laboratory Technologists	1,560	140
Medical Laboratory Technicians (MLTs)	780	100
Pharmacy Technicians	580	60
Radiological Technicians	410	60
Radiological Technologists	870	60
Medical Records and Health Information Technicians	410	50
Psychiatric Technicians	650	40
Total	15,040	1,580

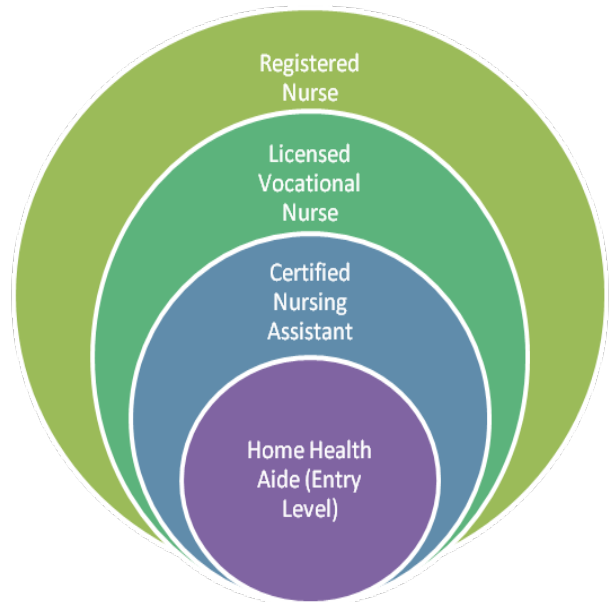
Appendix F: Career Ladders in Allied Health

These examples illustrate that to progress to the next step in the ladder additional training and skills are required.

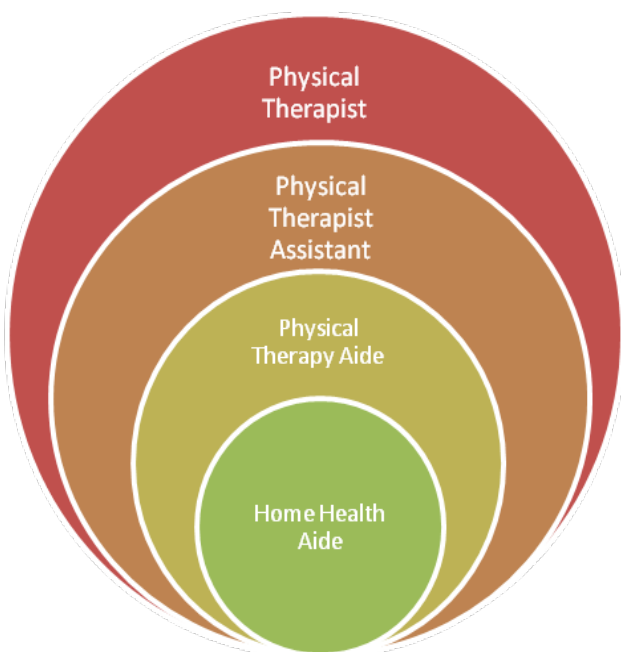
Laboratory Professions Career Ladder



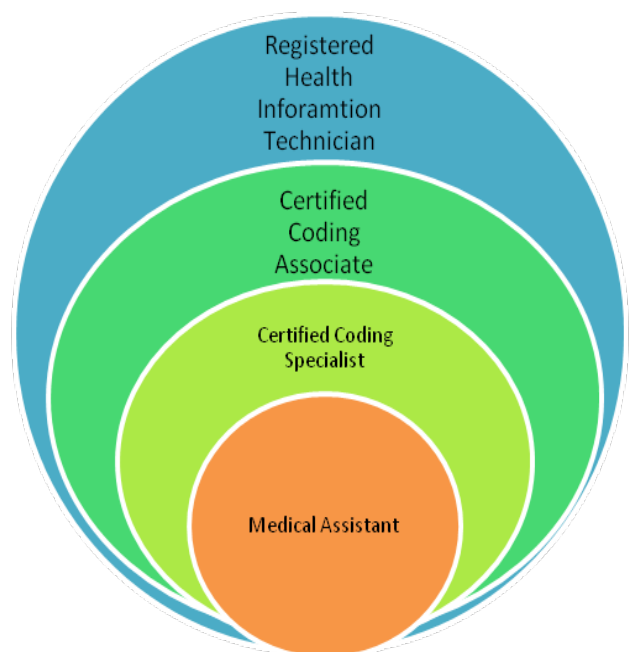
Nursing Professions Career Ladder



Physical Professions Career Ladder



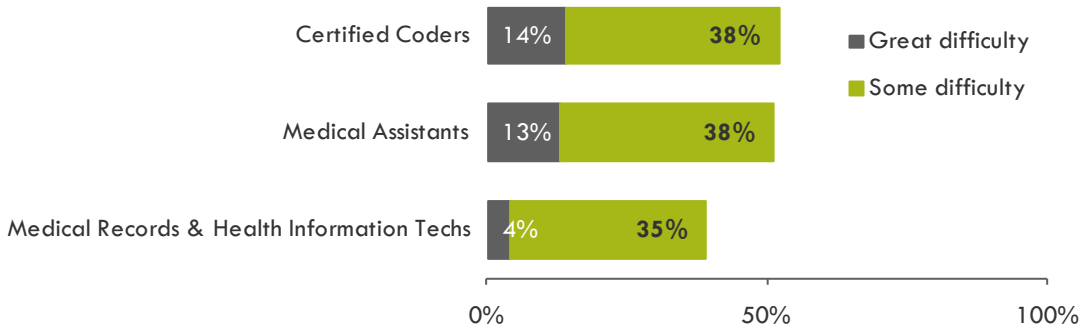
Health Information Technology Career Ladder



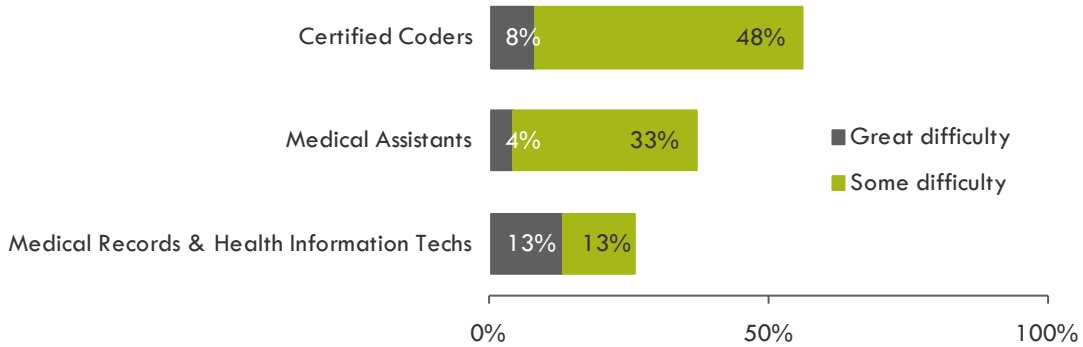
Appendix G: Level of Difficulty in Hiring

These charts show the level of difficulty in hiring reported by employers in the three Bay Area sub-regions. Those occupations that met a minimum level of employer respondents per area are shown below.

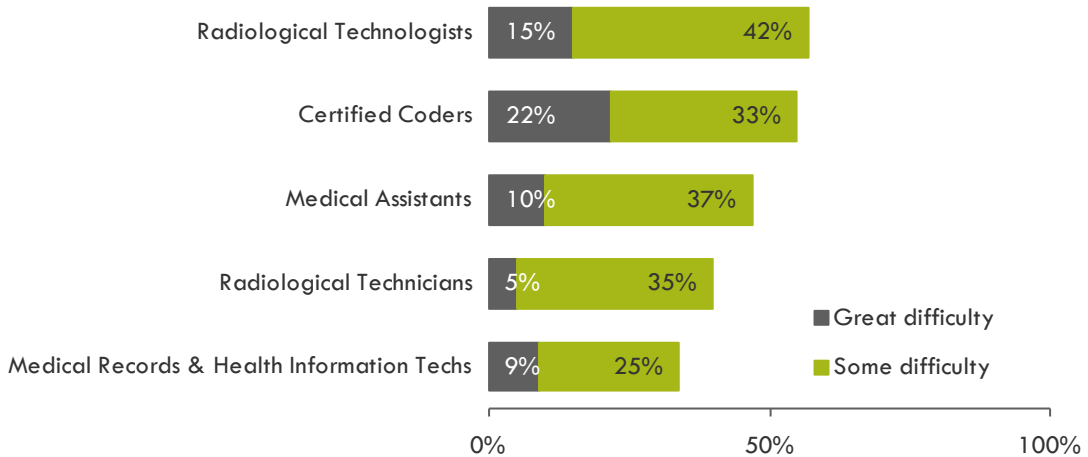
North Bay: Difficulty in Hiring



East Bay: Difficulty in Hiring



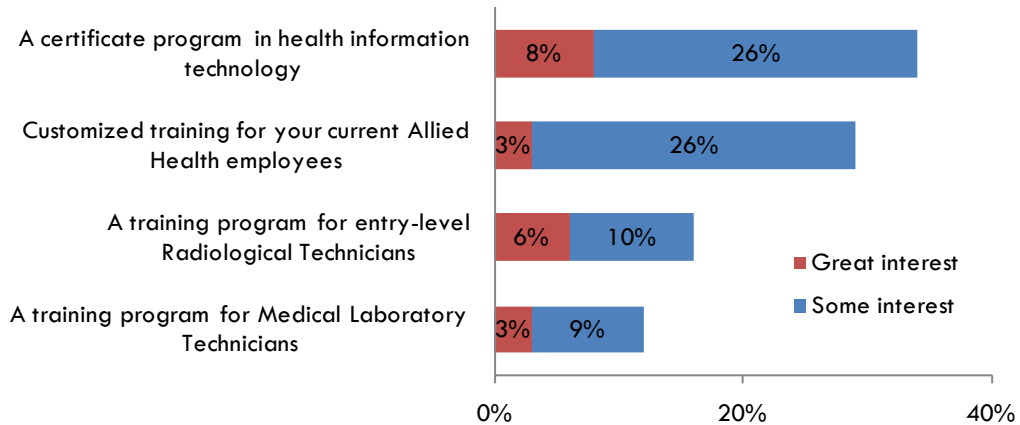
South Bay: Difficulty in Hiring



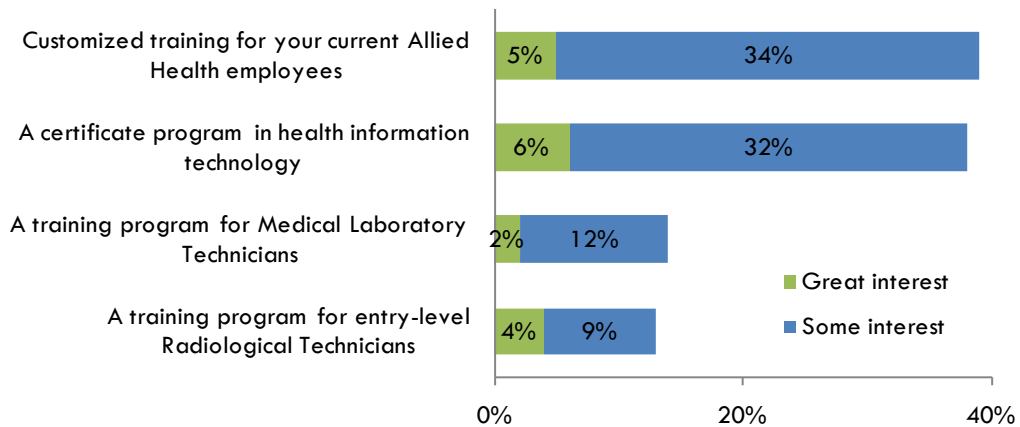
Appendix H: Interest in Training and Education Programs

The follow charts display the level of interest for allied health training and education programs reported by employers. Only firms that employ the relevant occupations were included in the analysis.

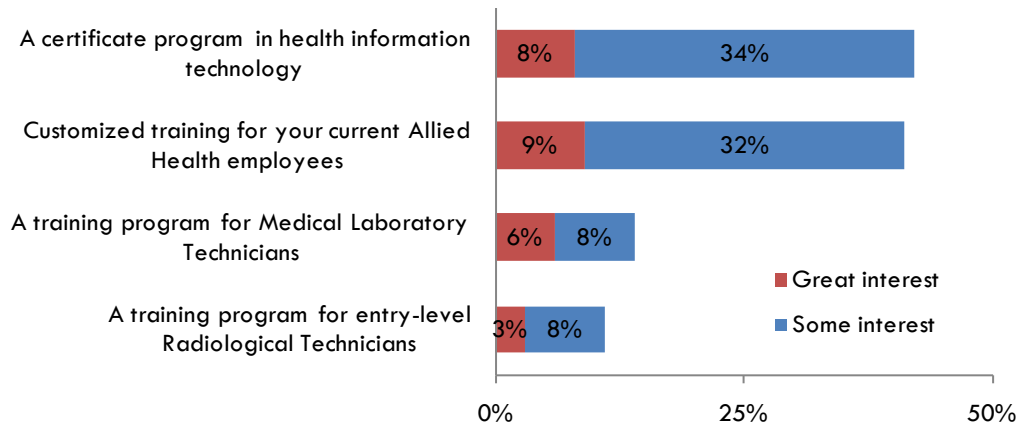
North Bay: Level of Interest in Training Options



East Bay: Level of Interest for Training Options



South Bay: Level of Interest for Training Options



Appendix I: Contact List of College Program Administrators

College	Contact Person	Program	Email	Telephone
Alameda	Peter Simon	Dean, CTE	psimon@peralta.edu	(510) 748-2318
Berkeley	Gloria Vogt	Dean, CTE	gvogt@peralta.edu	(510) 981-2870
Cabrillo	Rock Pfothenauer	Dean, Instruction	rock@cabrillo.edu	(831) 479-6482
	Charlotte Jensen	Medical Assisting	chjensen@cabrillo.edu	(831) 479-6248
	Ann Smeltzer	Radiologic Technology	ansmeltz@cabrillo.edu	(831) 479-5056
Canada	Rafael Rivera	Radiologic Technology	riverar@smccd.edu	(650) 306-3283
	Victoria Clinton	Medical Assisting, Medical Office Technology	clinton@smccd.edu	(650) 306-3392
Chabot	Jane Vallely	Medical Assisting	jvallely@chabotcollege.edu	(510) 723-7211
Contra Costa	Priscilla Leadon	Dean, CTE	pleadon@contracosta.edu	(510) 235-7800 x 4456
	Julie Shieh-Cook	Health & Human Services	julieshie@att.net	(510) 235-7800 x 4415
DeAnza	Patricia Hassell	Health Technology	hasselpatricia@deanza.edu	(408) 864-8789
	Debbie Wagner	Medical Laboratory Technician	wagnerdebbie@fhda.edu	(408) 864-8790
Diablo Valley	Kim Schenk	Dean, CTE	kschenk@dvc.edu	(925) 685-1230 x2216
Evergreen Valley	Lynette Apen	Dean, Nursing & Allied Health	lynette.apen@evc.edu	(408) 270-6448
Foothill	Phyllis Spragge	Dean, Biological & Health Sciences	spraggephyllis@foothill.edu	(650) 949-7730
Gavilan	Sherrean Carr	Dean, CTE	scarr@gavilan.edu	(408) 847-4757
Hartnell	Mary Young-Breuleux	Director, Nursing & Allied Health	myoung@hartnell.edu	(831) 770-6146
Laney	Inger Stark	Dean, Business, Math & Science	istark@peralta.edu	(510) 464-3224
Las Positas	Janice Noble	Dean, Business, Applied Tech, Soc. Sci.	jnoble@laspositascollege.edu	(925) 424-1324
Los Medanos	Kiran Kamath	Dean, CTE	kkamath@losmedanos.edu	(925) 439-2181 x 3285
Marin	Nanda Schorske	Dean, CTE	nanda_schorske@marin.edu	(415) 883-2211 x 8506
Merritt	Rebecca Kenney	Dean, Business, Math & Science	rkenney@peralta.edu	(510) 436-2426
Mission	Danny Nguyen	Dean, CTE	danny.nguyen@wvm.edu	(408) 855-5417
Monterey Peninsula	Micheal Gilmartin	Dean, Instruction	mgilmartin@mpc.edu	(831) 646-4039
Napa	Amy LaPan	Dean, Health Occupations	alapan@napavalley.edu	(707) 253-3121
Ohlone	Gail Carli	Dean, Health Sciences & Environ. Studies	gcarli@ohlone.edu	(510) 742-3101
San Francisco	Linda Squires Grohe	Dean, School of Health & Phys. Educ.	lgrohe@ccsf.edu	(510) 561-1908
San Jose	Kishan Rao-Vujjani	Dean, Business & Service Careers	kishan.vujjani@sicc.edu	(408) 288-3131
San Mateo	Charlene Frontiera	Dean, Amth & Science	frontierac@smccd.edu	(650) 574-6268
Santa Rosa	Ezbon Jen	Dean, Health & Life Sciences	ejen@santarosa.edu	(707) 527-4271
Skyline	Mike Williamson	Dean, Science, Math & Tech	williamsonm@skylinecollege.edu	(650) 738-4221
	Margery Meadows	Dean, Business	meadows@smccd.edu	(650) 738-4362
Solano	Maire Morinec	Dean, Health Occupations	maire.morinec@solano.edu	(707) 864-4468
	John Urrutia	Dean, CTE	john.urrutia@solano.edu	(707) 864-7000, x 7179
West Valley	Fred Prochaska	Dean, Career Educ. & Workforce Dev.	fred_prochaska@westvalley.edu	(408) 741-2117

Appendix J: Allied Health Employer Survey Methodology

About the Survey

In February and March of 2010, the Center of Excellence for the Bay Region, in partnership with BW Research, Inc., collected workforce data on allied health occupations through an in-depth survey. Consisting of 22 questions, the quantitative telephone survey collected information from four hundred and nine (409) Bay Region healthcare employers. The table below details the survey process.

Technique	Telephone survey of allied health employers
Population	6,205 healthcare employers
Sample	409 employer respondents
Field dates	February-March, 2010

Questionnaire Design

Through an iterative process, the Bay Area COE and BW Research Partnership worked closely with subject matter experts and study partners to develop the questionnaire. To avoid the problem of systematic position bias – where the order in which a series of questions is asked systematically influences the answers to some of the questions – several of the questions in this survey were randomized such that respondents were not consistently asked the questions in the same order.

Population of Employers

The sampling plan for the study was developed to ensure a minimum number of responses from employers in each county, as well as being stratified by the size of the employer to ensure small, medium, and large employers within the sample.

Healthcare employers were randomly surveyed from each region; however, employers that were more likely to hire the allied health occupations of interest were oversampled to provide a more robust occupational dataset. In interpreting survey results, one should remember that the results do not necessarily reflect a representative assessment of the entire healthcare industry, but instead reflect the views and perspectives of healthcare employers that are most likely to hire the allied health occupations that were evaluated in the study. The overall results refer to the complete dataset, combining employer responses from all three sub-regions for a total of 409 (n=409) completed employer surveys.

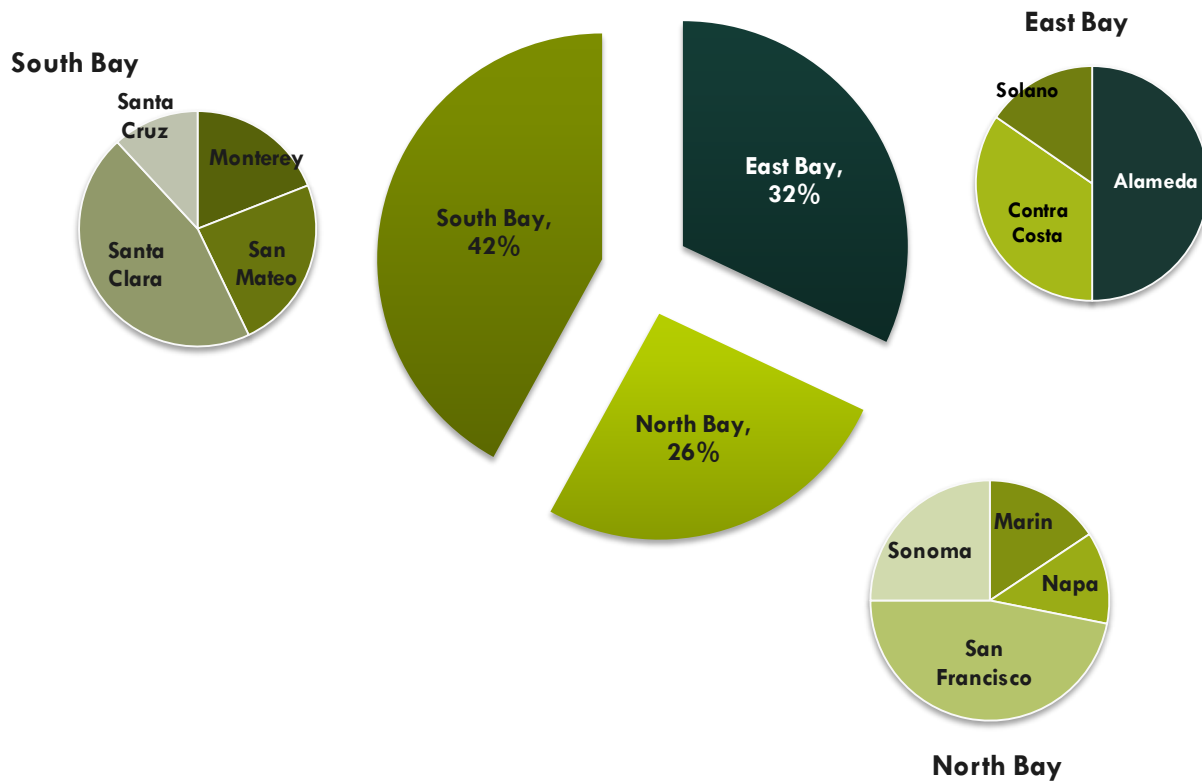
To identify healthcare employers in the 11-county area, information from two proprietary databases was incorporated.

1. Using Economic Modeling Specialists, Inc. (EMSI), staffing patterns for healthcare-related industry sectors were analyzed for relevance to the ten occupations selected for the study.
2. Business listings were acquired from InfoUSA, a proprietary database.

About the Respondents

Four hundred and nine (409) employers, representing a combined workforce of almost 45,000 Bay Region-based employees, responded to the survey. The respondent's industry, size of firm, and regional location were recorded where possible.

Within the sample, geographic participation for the three sub-regions (North Bay, East Bay, and South Bay) and the 11 counties is shown in the graphic below.



Occupational Employment

Ten allied health occupations were selected for study using the following criteria:

- Curriculum and employment requirements are relevant for community college instruction;
- Secondary data and literature suggest significant changes to employer needs concerning the occupation; and,
- The occupation pays a living wage for the region.

To arrive at the estimates of occupational employment currently (2009), 12-month growth (new jobs), and near-term replacement needs (12-month expectations), survey data for the sample was applied to EMSI occupational employment levels for the study area.

- In the survey, respondents were asked how many individuals in each occupation were currently employed in permanent positions, full or part-time. These questions resulted in estimates for the distribution of employment across the sample, median and mean employment.

- Respondents were also asked if their organization employs individuals in each of the ten study occupations. These responses informed the percent of the sample firms employing each occupation.
- Employers were asked how many more of less of each occupation they expect to have at their location in 12 months and how many current employees they anticipate having to replace due to retirement or other reasons in the next 12 months. These responses resulted in occupational growth rates of both types (new and replacement jobs).
- The growth rates were applied to the current employment levels for the region and sub-region to arrive at the projected new jobs. The same method was used to calculate the approximate replacement needs.

For additional information on data methodology or to request a copy of the survey questions, please contact the Center of Excellence at www.coecc.net.