

November 2022

Labor Market Analysis

Health Informatics and Information Management



POWERED BY



Prepared by the Central Valley/Mother Lode Center of Excellence

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COVID-19 Statement: This report includes employment projection data by Lightcast. Lightcast’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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Summary

Please note the COVID-19 statement on page 1 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for Health Informatics and Information Management. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations. This report also serves a secondary purpose, which is to aid in making a data-informed decision regarding the utility of a Health Informatics and Information Management Bachelor's degree program offered at Bakersfield College.

Four middle-skill occupations and two above middle-skill occupations related to Health Informatics and Information Management were identified for Bakersfield College.

Middle Skill:

- 29-2072, Medical Records Specialists
- 29-9021, Health Information Technologists and Medical Registrars
- 31-9094, Medical Transcriptionists
- 43-6013, Medical Secretaries and Administrative Assistants

Above Middle Skill:

- 15-1211, Computer Systems Analysts
- 15-1212, Information Security Analysts

Key findings:

- **Occupational demand** — There were 8,616 workers employed in jobs related to Health Informatics and Information Management in 2021 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is medical secretaries and administrative assistants with 5,486 workers, a projected growth rate of 7% over the next five years, and 689 annual openings.
- **Wages** — Information security analysts earn the highest entry-level wage, \$38.29/hour in the subregion.
- **Employers** — Employers with the most job postings in the subregion are Anthem Blue Cross, Deloitte, and Trinity Health.
- **Occupational titles** — The most common occupational title in job postings in the subregion is Medical Secretaries. The most common job title is Medical Receptionist.
- **Skills and certifications** — The top baseline skill is communication skills, the top specialized skill is scheduling, and the top software skill is Microsoft Office. The most in-demand certification is a Certified Information Systems Security Professional (CISSP).
- **Education** — A high school diploma or equivalent is typically required for the medical secretaries and administrative assistants. A postsecondary nondegree award is typically required medical records specialists, medical transcriptionists, and health information technologists and medical

registrars. A bachelor's degree is typically computer systems analysts and information security analysts.

- **Supply** — Analysis of postsecondary completions shows that on average 244 awards were conferred in the Central Valley/Mother Lode region each year.

Recommendation:

Based on a comparison of occupational demand and supply, there is an undersupply of 736 trained workers in the subregion and an undersupply of 1,274 workers in the region. The Center of Excellence recommends that Bakersfield College work with the regional directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of Health Informatics and Information Management workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Bakersfield College to provide labor market information for Health Informatics and Information Management. The geographical focus for this report is the South Central Valley/Southern Mother Lode (SCV/SML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the SCV/SML subregion is \$11.91/hour.¹ Analysis of the program and occupational data related to Health Informatics and Information Management resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

Middle Skill:

- 29-2072, Medical Records Specialists
- 29-9021, Health Information Technologists and Medical Registrars
- 31-9094, Medical Transcriptionists
- 43-6013, Medical Secretaries and Administrative Assistants

Above Middle Skill:

- 15-1211, Computer Systems Analysts
- 15-1212, Information Security Analysts

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Computer Systems Analysts

Job Description: Analyze science, engineering, business, and other data processing problems to develop and implement solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions, improve existing computer systems, and review computer system capabilities, workflow, and schedule limitations. May analyze or recommend commercially available software.

Knowledge: Computers and Electronics, English Language, Customer and Personal Service, Mathematics, Administration and Management

Skills: Active Listening, Critical Thinking, Reading Comprehension, Speaking, Systems Analysis

Information Security Analysts

Job Description: Plan, implement, upgrade, or monitor security measures for the protection of computer

¹ The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

networks and information. Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.

Knowledge: Computers and Electronics, English Language, Administration, and Management, Engineering and Technology, Telecommunications

Skills: Reading Comprehension, Critical Thinking, Active Listening, Complex Problem Solving, Speaking

Medical Records Specialists

Job Description: Compile, process, and maintain medical records of hospital and clinic patients in a manner consistent with medical, administrative, ethical, legal, and regulatory requirements of the healthcare system. Classify medical and healthcare concepts, including diagnosis, procedures, medical services, and equipment, into the healthcare industry's numerical coding system. Includes medical coders.

Knowledge: N/A

Skills: N/A

Health Information Technologists and Medical Registrars

Job Description: Apply knowledge of healthcare and information systems to assist in the design, development, and continued modification and analysis of computerized healthcare systems. Abstract, collect, and analyze treatment and follow-up information of patients. May educate staff and assist in problem solving to promote the implementation of the healthcare information system. May design, develop, test, and implement databases with complete history, diagnosis, treatment, and health status to help monitor diseases.

Knowledge: N/A

Skills: N/A

Medical Transcriptionists

Job Description: Transcribe medical reports recorded by physicians and other healthcare practitioners using various electronic devices, covering office visits, emergency room visits, diagnostic imaging studies, operations, chart reviews, and final summaries. Transcribe dictated reports and translate abbreviations into fully understandable form. Edit as necessary and return reports in either printed or electronic form for review and signature, or correction.

Knowledge: English Language, Administrative, Computers and Electronics, Medicine and Dentistry

Skills: Active Listening, Reading Comprehension, Writing, Monitoring, Critical Thinking

Medical Secretaries and Administrative Assistants

Job Description: Perform secretarial duties using specific knowledge of medical terminology and hospital, clinic, or laboratory procedures. Duties may include scheduling appointments, billing patients, and compiling and recording medical charts, reports, and correspondence.

Knowledge: Customer and Personal Service, English Language, Administrative, Medicine and Dentistry, Computers and Electronics

Skills: Speaking, Active Listening, Service Orientation, Reading Comprehension, Complex Problem Solving

Occupational Demand

The SCV/SML subregion employed 8,616 workers in Health Informatics and Information Management occupations in 2021 (Exhibit 1). The largest occupation is medical secretaries and administrative assistants with 5,486 workers in 2021. This occupation is projected to grow by 7% over the next five years and has the greatest number of projected annual openings, 689.

Exhibit 1. Health Informatics and Information Management employment and occupational projections in the SCV/SML subregion

Occupation	2021 Jobs	2026 Jobs	5-Year Change	5-Year % Change	Annual Openings
Middle Skill Occupations					
Medical Secretaries and Administrative Assistants	5,486	5,890	404	7%	689
Medical Records Specialists	1,262	1,338	76	6%	106
Medical Transcriptionists	299	276	(23)	(8%)	40
Health Information Technologists and Medical Registrars	194	212	18	9%	18
Subtotal	7,241	7,716	475	7%	853
Above Middle Skill Occupations					
Computer Systems Analysts	1,131	1,178	47	4%	89
Information Security Analysts	244	284	40	16%	27
Subtotal	1,375	1,462	87	6%	116
TOTAL	8,616	9,178	562	7%	969

Wages

Exhibit 2a shows the hourly wages of the Health Informatics and Information Management occupations. Information Security Analysts earn the highest entry-level wage, \$38.29/hour in the subregion². Please note 10th and 25th percentiles are considered entry-level wages while 75th and 90th are considered experienced wages, either by gained by long term employment, received extra training, etc.

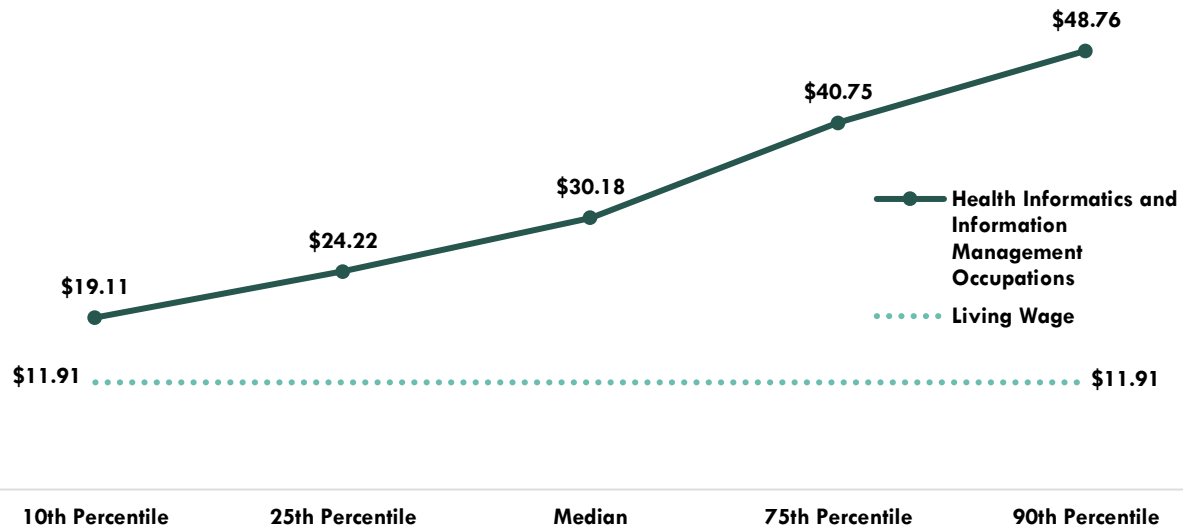
Exhibit 2a. Health Informatics and Information Management hourly wages in the SCV/SML subregion

Occupation	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings
Middle Skill Occupations			
Health Information Technologists and Medical Registrars	\$25.67	\$33.03	\$52.98
Medical Records Specialists	\$17.29	\$20.59	\$27.99
Medical Secretaries and Administrative Assistants	\$16.73	\$18.00	\$22.24
Medical Transcriptionists	\$14.11	\$16.26	\$21.21
Above Middle Occupations			
Information Security Analysts	\$38.29	\$51.13	\$65.85
Computer Systems Analysts	\$33.23	\$42.05	\$54.24

² Entry-level wages are derived from the 25th percentile.

Exhibit 2b shows the average hourly wages for Health Informatics and Information Management occupations; the average entry-level wage exceeds the average living wage for the South Central Valley/Southern Mother Lode SCV/SML subregion.

Exhibit 2b. Health Informatics and Information Management average hourly wages in the SCV/SML subregion



Job Postings

There were 1,429 job postings for the six occupations in the SCV/SML subregion from May 2022 to October 2022.³ The employers with the most job postings are listed in Exhibit 3.

Exhibit 3. Top employers of Health Informatics and Information Management by number of job postings

Employer	Job Postings	% Job Postings
Anthem Blue Cross	32	3%
Deloitte	27	3%
Trinity Health	23	2%
United Health Centers of The San Joaquin Valley	23	2%
Adventist Health	20	2%
Applied Materials	20	2%
Dell	18	2%
Northrop Grumman	18	2%
Saint Agnes Medical Center	13	1%
Clinica Sierra Vista	11	1%

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across five O*NET OnLine occupations. The occupational title Medical Secretaries is listed in 845 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings

³ Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

include Medical Receptionist in 131 job postings, Dental Receptionist in 56 job postings, and Referral Coordinator in 28 job postings.

Exhibit 4. Top occupational titles in job postings for Health Informatics and Information Management

Occupational Title	Job Postings	% of Job Postings
Medical Secretaries	845	59%
Computer Systems Analysts	309	22%
Information Security Analysts	252	18%
Medical Transcriptionists	15	1%
Informatics Nurse Specialists	8	1%

Salaries

Exhibit 5 shows the “Market Salaries” for Health Informatics and Information Management occupations. These are calculated by Burning Glass using a machine learning model built off of millions of job postings every year. This accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

Exhibit 5. Salaries for Health Informatics and Information Management occupations

Market Salary Percentile	Salary Amount
10th Percentile	\$25,346
25th Percentile	\$28,211
50th Percentile	\$32,479
75th Percentile	\$73,631
90th Percentile	\$101,222

Education

Of the 1,429 job postings, 990 listed an education level preferred for the positions being filled. Among those, 60% requested high school or vocational training, 41% requested bachelor’s degree, and 11% requested an associate degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

Exhibit 6. Education levels requested in job postings for Health Informatics and Information Management

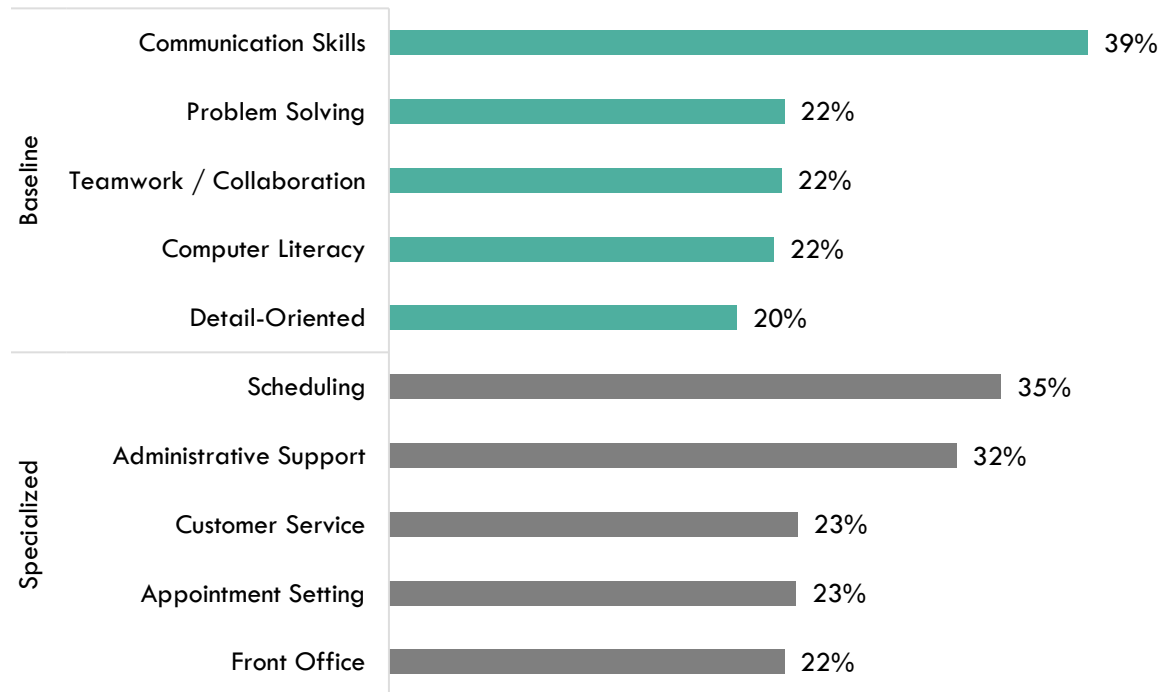
Education Level	Job Postings	% of Job Postings
High school or vocational training	590	60%
Bachelor's degree	402	41%
Associate's degree	105	11%
Master's degree	96	10%
Doctoral degree	21	2%

Baseline and Specialized Skills

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are communication skills, 39% of job postings, problem solving, 22%, and

teamwork and collaboration, 22%. The top three specialized skills are scheduling, 35% of job postings, administrative support, 32%, and customer service, 23%.

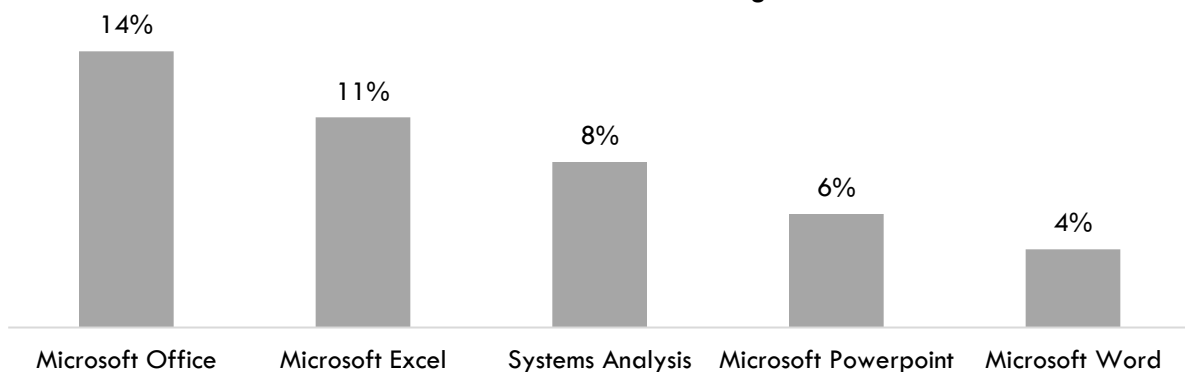
Exhibit 7. In-demand Health Informatics and Information Management baseline and specialized skills



Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Office and Excel were the top two software skills identified in job postings (Exhibit 8).

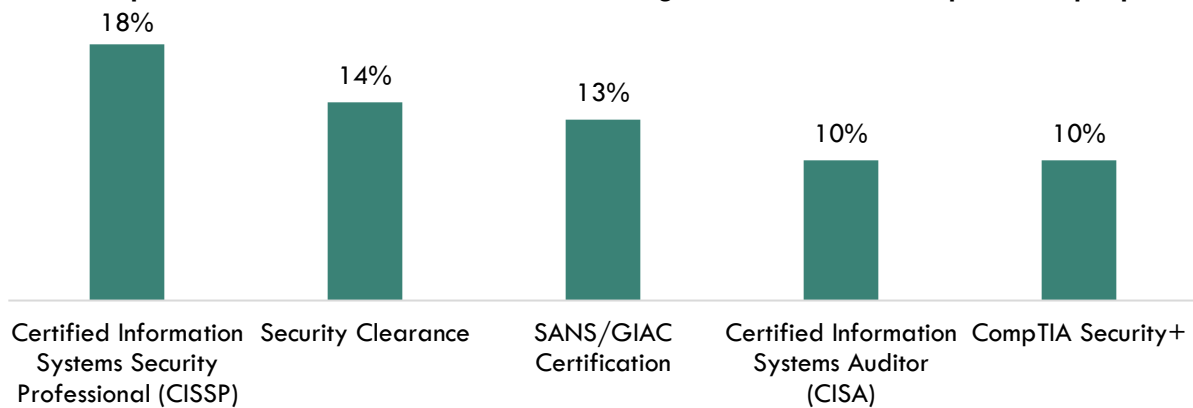
Exhibit 8. In-demand Health Informatics and Information Management software skills



Certifications

Of the 1,429 job postings, 420 contained certification data. Among those, 18% indicated a need for a Certified Information Systems Security Professional (CISSP). The next top certifications are security clearance and SANS/GIAC Certification (Exhibit 9).

Exhibit 9. Top Health Informatics and Information Management certifications requested in job postings



Education, Work Experience & Training

A high school diploma or equivalent is typically required for the medical secretaries and administrative assistants. A postsecondary nondegree award is typically required medical records specialists, medical transcriptionists, and health information technologists and medical (Exhibit 10).

Exhibit 10. Education, work experience, training, and Current Population Survey results for Health Informatics and Information Management occupations⁴

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS: Some College	CPS: Bachelor's Plus
Medical Secretaries and Administrative Assistants	High school diploma or equivalent	None	Moderate-term on-the-job training	53.6%	17.1%
Medical Records Specialists	Postsecondary nondegree award	None	None	46.8%	22.7%
Computer Systems Analysts	Bachelor's degree	None	None	20.8%	48.4%
Medical Transcriptionists	Postsecondary nondegree award	None	None	48.5%	22.9%
Information Security Analysts	Bachelor's degree	Less than 5 years	None	25.7%	43.3%
Health Information Technologists and Medical Registrars	Postsecondary nondegree award	None	None	20.2%	33.1%

⁴ "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

Supply

Analysis of program data from the Integrated Postsecondary Education Data System (IPEDS) included the TOP and CIP codes and titles: 122300 - Health Information Technology, 122310 - Health Information Coding, 51.0707 - Health Information/Medical Records Technology/Technician, 51.0713 - Medical Insurance Coding Specialist/Coder, and 51.0714 - Medical Insurance Specialist/Medical Biller. Analysis of the last three years of data shows that, on average, 244 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

Exhibit 11. Postsecondary supply for Health Informatics and Information Management occupations in the region

TOP/ CIP Code- Title	College	Associate Degree	Award 1 < 2 Academic Years	Certificate 16 < 30 Semester Units	Certificate 18 < 30 Semester Units	Subtotal
122300 - Health Information Technology	Bakersfield	1				1
	Fresno City	11				11
122310 - Health Information Coding	Fresno City			2	5	7
51.0707 - Health Information/Medical Records Technology/Technician	Santa Barbara Business College-Bakersfield	0				0
51.0713 - Medical Insurance Coding Specialist/Coder	San Joaquin Valley College-Visalia	22	47			69
	UEI College-Bakersfield		75			75
	UEI College-Fresno		56			56
51.0714 - Medical Insurance Specialist/Medical Biller	Advanced College-Stockton		1			1
	Carrington College-Stockton	0	10			10
	Santa Barbara Business College-Bakersfield	13				13
TOTAL		48	190	2	5	244

There is an undersupply of 736 Health Informatics and Information Management workers in the SCV/SML subregion and 1,274 workers in the region (Exhibit 12).

Exhibit 12. Health Informatics and Information Management workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the SCV/SML subregion and region

Region	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Middle Skill Occupations			
SCV/SML	853	233	620
CVML	1,330	244	1,086
Above Middle Skill Occupations			
SCV/SML	116	0	116
CVML	186	0	186
Middle Skill and Above Middle Skill Occupations			
SCV/SML	969	233	736
CVML	1,516	244	1,272

Student Outcomes

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor’s Cal-PASS Plus LaunchBoard for the TOP code related to Health Informatics and Information Management. Of note, 16 students received a degree or certificate or attained apprenticeship journey status; 69 students transferred; 63% of students obtained a job closely related to their field of study; 23% had a median change in earnings; and 59% of students attained a living wage.

Exhibit 13. Regional metrics for the TOP code related to Health Informatics and Information Management

Metric	Health Information Technology	Health Information Coding
	122300	122310
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	16	*
Number of Students Who Transferred	69	*
Job Closely Related to Field of Study	63%	*
Median Change in Earnings	23%	*
Attained a Living Wage	59%	*
* denotes data not available.		

Conclusion

The entry-level wages of the six occupations exceed the SCV/SML subregion’s average living wage. There were 1,429 job postings in the past six months for occupations related to Health Informatics and Information Management in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is communication skills, and the top specialized skill is scheduling.
- The top software skill is Microsoft Office.
- The top certification is a Certified Information Systems Security Professional (CISSP).

There is an undersupply of trained workers, a shortage of 736 in the SCV/SML subregion and 1,274 in the region.

Recommendation

Based on these findings, it is recommended that Bakersfield College work with the regional director, the college’s advisory board, and local industry in the expansion of programs to address the shortage of Health Informatics and Information Management workers in the region.

Appendix A: Methodology & Data Sources

Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor’s Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (Lightcast). Lightcast occupational employment data are based on final LIGHTCAST industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Lightcast earnings by industry: economicmodeling.com.
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov .
Job Posting and Skills Data	Burning Glass: burning-glass.com/ .
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org .

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (Lightcast) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.