

Cybersecurity in Healthcare

Inland Empire/Desert Region (Riverside-San Bernardino-Ontario Metropolitan Statistical Area)

Summary

- Medical records and health information technician jobs are expected to increase by 13% through 2022 in the Inland Empire/Desert Region. **More than 750 total job openings** will be available over the five-year timeframe.
- The entry-level hourly wage for medical records and health information technicians of \$16.36 per hour is **above the MIT Living Wage estimate of \$12.30 per hour** for a single adult living in the Inland Empire/Desert Region.
- Based on average annual program completions (**212 other institutional credentials**), and the annual openings for medical records and health information technicians (**151 annual job openings**), it appears that the current programs satisfy the demand for this occupation.

Introduction

This report contains three sections. The first section details the occupation, medical records and health information technicians. The second section analyzes the role and demand of traditional cybersecurity occupations within the healthcare industry. The final section briefly covers traditional healthcare occupations that need cybersecurity skills.

The occupation detailed in this first section is listed below along with its corresponding definition, sample job titles, education and training requirements, as well as the community college educational attainment of current workers within this occupation:

Medical Records and Health Information Technicians (29-2071)

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 health care system. Process, maintain, compile, and report patient information for health requirements and standards in a manner consistent with the healthcare industry's numerical coding system.

Sample job titles: Coder, Health Information Clerk, Health Information Specialist, Health Information Technician (Health Information Tech), Medical Records Analyst, Medical Records Clerk, Medical Records Coordinator, Medical Records Director, Medical Records Technician (Medical Records Tech), Registered Health Information Technician (RHIT)



Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: None

Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework: 56%

Job Opportunities

In 2017, there were more than 1,700 medical records and health information technician jobs in the Inland Empire/Desert region. Across the region, employment related to this occupation is expected to increase by 13% through 2022. Employers will need to hire more than 750 workers over the next five years to fill new jobs and to backfill jobs that workers are leaving –including retirements. Exhibit 1 displays the projected growth for medical records and health information technicians in the region.

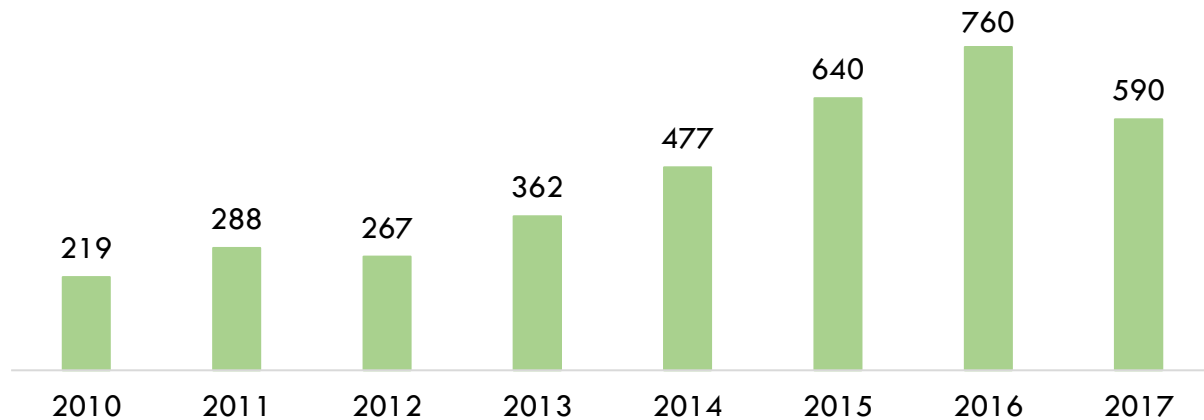
Exhibit 1: Five-year projections for medical records and health information technicians in the Inland Empire/Desert Region

Inland Empire/Desert Region	2017 Jobs	5-Yr Change (New Jobs)	5-Yr % Growth (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Medical Records and Health Information Technicians (29-2071)	1,729	217	13%	756	151	26%

Source: EMSI 2018.2

Over the last 12 months (June 2017 to May 2018), there were 577 advertisements (ads) for medical records and health information technicians in the Inland Empire/Desert Region. From 2010 to 2017, there was an annual average of 450 job ads per year (Exhibit 2).

Exhibit 2: Number of online job postings for medical records and health information technicians in the Inland Empire/Desert Region, 2010 to 2017



Source: Burning Glass – Labor Insights

On average, employers fill online job posting for medical records and health information technicians within 37 days in the Inland Empire/Desert Region. Compared to medical records and health information technicians throughout the country, this is within three days of the national average, indicating that it is neither overly easy nor difficult for employers to find qualified candidates to fill their open positions. Exhibit 3 shows the number of job ads posted during the last 12 months along with the regional and national average time to fill.

Exhibit 3: Employer job ads and time to fill for medical records and health information technicians in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Job Ads	Regional Average Time to Fill (Days)	National Average Time to Fill (Days)
Medical Records and Health Information Technicians	577	37	40

Source: Burning Glass – Labor Insights

Earnings

The entry-level wage for medical records and health information technicians is above the MIT Living Wage estimate of \$12.30 per hour, or \$25,584 annually for a single adult living in the Inland Empire/Desert Region. This wage is also sufficient for an adult living in a household with one other working adult and one child (\$14.50 per hour, per adult or \$30,160 annually for each adult). See Exhibit 4 for wage information.

Exhibit 4: Earnings for medical records and health information technicians in the Inland Empire/Desert Region

Occupation	Entry to Experienced Hourly Earnings Range*	Median Wage*	Average Annual Earnings
Medical Records and Health Information Technicians	\$16.36 to \$25.58	\$20.51	\$46,497

Source: EMSI 2018.2

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

Work Locations, Employers, Skills, Education, and Certifications

Exhibit 5 displays the top employers posting job ads as well as the top work locations from job ads during the last 12 months.

Exhibit 5: The top employers and work locations from employer job ads for medical records and health information technicians in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Top Employers	Top Work Locations
Medical Records and Health Information Technicians (n=412)	<ul style="list-style-type: none"> Riverside Healthcare Tenet Healthcare Loma Linda University Health 	<ul style="list-style-type: none"> Loma Linda Riverside San Bernardino

Source: Burning Glass – Labor Insights

Exhibit 6 lists a sample of in-demand specialized, soft, and software skills that employers are seeking when looking for workers to fill medical records and health information technician positions.

Exhibit 6: In-demand skills from employer job ads for medical records and health information technicians in the Inland Empire/Desert Region, June 2017 – May 2018

Occupation	Specialized skills	Soft skills	Software and Programming skills
Medical Records and Health Information Technicians (n=513)	<ul style="list-style-type: none"> Medical Coding Health Information Management (HIM) Customer Billing 	<ul style="list-style-type: none"> Communication Skills Detail-Oriented Typing 	<ul style="list-style-type: none"> Microsoft Office ICD-9-CM Coding

Source: Burning Glass – Labor Insights

Exhibit 7 displays the entry-level education level education typically required to enter this occupation according to the Bureau of Labor Statistics (BLS). This chart also displays educational attainment for incumbent workers with “some college, no degree” and an “associate degree”

according to the U.S. Census (2015-16) and the minimum advertised education requirement requested by employers in online job ads.

Exhibit 7: Educational attainment and online job ads with minimum advertised education requirements for medical records and health information technicians in the Inland Empire/Desert Region, June 2017 – May 2018

Occupations	Typical Entry-Level Education Requirement	Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
			Number of Job Postings (n=)	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Medical Records and Health Information Technicians	Postsecondary nondegree award	56%	299	71%	11%	18%

Source: EMSI 2018.2, Current Population Survey, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework

Industry

Exhibit 8 displays the industries that employ medical records and health information technicians in the two-county region. Staffing patterns show the industries that hire the most workers of a specific occupation.

Exhibit 8: Top industries employing medical records and health information technicians in the Inland Empire/Desert Region, June 2017 – May 2018

Occupation	Top Industries from Staffing Pattern (NAICS)	Industry Classification from Job Ads	
		Number of Job Postings (n=)	Top Industries from Job Ads (NAICS)
Medical Records and Health Information Technicians	<ul style="list-style-type: none"> General Medical and Surgical Hospitals (6221) 26% Office of Physicians (except Mental Health Specialists) (6211) 18% 	387	<ul style="list-style-type: none"> General Medical and Surgical Hospitals (6221) Elementary and Secondary Schools (6111)

Source: EMSI 2018.2, Burning Glass – Labor Insights

Traditional Cybersecurity Occupations in the Healthcare Industry

Medical records and health information technicians is the only occupation within the healthcare industry in which the primary focus is data security. The following section will analyze traditional cybersecurity occupations within the healthcare industry.

Exhibit 9 displays five-year job growth for traditional cybersecurity occupations across all industries as well as growth solely within the healthcare industry. Although the number of jobs for these occupations within healthcare is low, the growth within healthcare is close to double the growth for each occupation and overall.

*Exhibit 9: Five-year growth for cybersecurity occupations across all industries compared to the healthcare industry**

Occupation	2017 Jobs	2017-22 % Growth	2017 Jobs in Healthcare Industry*	2017-22 % Growth in Healthcare Industry
Computer Systems Analysts	2,068	12%	164	22%
Computer User Support Specialists	4,010	9%	299	17%
Network and Computer Systems Administrators	1,757	9%	173	20%
Information Security Analysts	147	16%	<10	Insf. Data
Database Administrators	447	12%	56	27%
Computer Network Architects	373	11%	16	19%
Computer Network Support Specialists	1,001	9%	63	16%
Total	9,803	10%	780	19%

Source: EMSI 2018.2

*NAICS 62, Healthcare and Social Assistance

Exhibit 10 displays the number of job ads posted for the same occupations during the last 12 months. Once again, the number of jobs postings within healthcare is dwarfed by the overall postings for each occupation. Nonetheless, there were 126 postings over the last 12 months between these seven occupations.

Exhibit 10: Employer job ads for cybersecurity occupations within the healthcare industry in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Job Ads in Healthcare	Overall Job Ads	Concentration of Job Ads in Healthcare
Computer Systems Analysts	43	538	8%
Computer User Support Specialists	27	1,078	3%
Network and Computer Systems Administrators	24	424	6%
Information Security Analysts	13	251	5%
Database Administrators	9	230	4%
Computer Network Architects	9	212	4%
Computer Network Support Specialists	1	64	2%
Total	126	2,859	4%

Source: Burning Glass – Labor Insights

The top job titles reported in the 126 job postings are reported in Exhibit 11.

Exhibit 11: Top job titles for cybersecurity jobs in the healthcare industry in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Job Ads
Branch Coordinator	7
Systems Administrator	7
Information Systems Specialist	6
IT Helpdesk/Operator	5
Service Desk Analyst	5
Administrator	4
Network Manager	4
Systems Analyst	4

Source: Burning Glass – Labor Insights

Exhibit 12 displays the top employers posting job ads as well as the top work locations from job ads during the last 12 months.

Exhibit 12: The top employers and work locations from employer job ads for cybersecurity jobs in the healthcare industry in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Top Employers	Top Work Locations
Cybersecurity Occupational Group (n=111)	<ul style="list-style-type: none"> Riverside Healthcare Prime Healthcare Services Kaiser Permanente 	<ul style="list-style-type: none"> Loma Linda Ontario Corona

Source: Burning Glass – Labor Insights

Exhibit 13 lists a sample of in-demand specialized, soft, and software skills that employers are seeking when looking for workers to fill traditional cybersecurity positions within the healthcare industry.

Exhibit 13: In-demand skills from employer job ads for cybersecurity jobs in the healthcare industry in the Inland Empire/Desert Region, June 2017 – May 2018

Occupation	Specialized skills	Soft skills	Software and Programming skills
Cybersecurity Occupational Group (n=116)	<ul style="list-style-type: none"> Project Management Information Systems Customer Service 	<ul style="list-style-type: none"> Communication Skills Writing Problem Solving 	<ul style="list-style-type: none"> Microsoft Office SQL

Source: Burning Glass – Labor Insights

Exhibit 14 displays the industries that employ cybersecurity occupations within the healthcare industry in the two-county region. Staffing patterns show the industries that hire the most workers of a specific occupation.

Exhibit 14: Top industries employing cybersecurity occupations in the healthcare industry in the Inland Empire/Desert Region, June 2017 – May 2018

Occupation	Top Industries from Staffing Pattern (NAICS)	Industry Classification from Job Ads	
		Number of Job Postings (n=)	Top Industries from Job Ads (NAICS)
Cybersecurity Occupational Group	<ul style="list-style-type: none"> • Computer Systems Design and Related Services (5415) 14% • Education and Hospitals (Local Government) (9036) 12% 	125	<ul style="list-style-type: none"> • General Medical and Surgical Hospitals (6221) • Office of Physicians (6211)

Source: EMSI 2018.2, Burning Glass – Labor Insight

Traditional Healthcare Occupations Utilizing Cybersecurity Skills

The Health Insurance Portability and Accountability Act of 1996 (HIPPA) mandates data security of all patients. All occupations within the healthcare industry must adhere to the HIPPA law, but there are only a few local employers are actively seeking cybersecurity skills with traditional healthcare occupations. A search of job postings over the last 12 months was conducted by looking at middle-skill healthcare occupations and the need for cybersecurity skills. Exhibit 15 displays the other occupations with a strong need for these skills, along with the number of job ads posted during the last 12 months.

Exhibit 15: Employer job ads for healthcare occupations with a need for cybersecurity skills in the Inland Empire/Desert Region during the last 12 months, June 2017 – May 2018

Occupation	Job Ads
Pharmacy Technicians	4
Occupational Health and Safety Specialists	4
Registered Nurses	3
Pharmacists	3
Health Technologists and Technicians, All Other	3
Occupational Therapists	2

Occupation	Job Ads
Medical Records and Health Information Technicians	1
Medical Assistants	1
Total	21

Source: Burning Glass – Labor Insights

Student Completions

Exhibits 16 shows the annual average regional community college headcount during the three academic years between 2014 and 2017, with the relevant TOP code. There were no completions reported for this program. Exhibit 17 shows awards granted from 2013 to 2016 outside of the California Community Colleges along with the relevant CIP code. Please note, an award is not equivalent to a single person in search of a job opening since a student may earn more than one award, such as an associate degree in addition to a certificate. Community College student outcome information was obtained from the CTE LaunchBoard based on the selected TOP code(s) and region.

Exhibit 16: Annual average community college student completions for computer systems analysis programs in the Inland Empire/Desert Region

0707.30 – Computer Systems Analysis	Annual Community College Headcount (2016-17)	Community College Annual Average Credentials (2014-17)
Moreno Valley	45	
Mt. San Jacinto	33	
Norco	28	
Palo Verde	123	
Riverside City	36	
Total Community College Headcount (2016-17)	265	
Total Annual Average Community College Credentials (2014-17)		0

Source: LaunchBoard, IPEDS, COCI

0707.30 Computer Systems Analysis program Strong Workforce outcomes in the Inland Empire/Desert Region in the academic year 2015-16 [unless noted otherwise]:

- Number of course enrollments: 268 (California median: 149) [2016-17]
- Number of students who transferred to a 4-year institution: 20 (CA: 15)
- Employed in the second fiscal quarter after exit: 44% (CA: 79%)
- Median earnings in the second fiscal quarter after exit: \$4,783 (CA: \$6,566)
- Employed in the fourth fiscal quarter after exit: 36% (CA: 73%)
- Median annual earnings: \$16,310 (CA: \$22,610) [2015-16]
- Median change in earnings: 120% (CA: 52%)
- The proportion of students who attained a living wage: 29% (CA: 41%)

Exhibit 17: Annual average community college student completions for medical insurance coding specialist/coder programs in the Inland Empire/Desert Region

51.0713 – Medical Insurance Coding Specialist/Coder	Other Educational Institutions Annual Average Certificates or Other Credit Credentials (2013-16)
American Career College-Ontario	
Award 1 < 2 academic yrs	34
Award < 1 academic yr	64
Brightwood College-Riverside	
Award 1 < 2 academic yrs	33
Loma Linda University	
Award < 1 academic yr	8
Summit College	
Award < 1 academic yr	10
UEI College-Riverside	
Award 1 < 2 academic yrs	27
Westech College	
Award 1 < 2 academic yrs	36
Total annual average other awards	212

Source: IPEDS



Sources

Economic Modeling Specialists International (EMSI)

Labor Insight/Jobs (Burning Glass)

CTE LaunchBoard

O*Net Online

MIT Living Wage Calculator

Center of Excellence TOP to SOC Crosswalk

Michael Goss, Director

Center of Excellence, Inland Empire/Desert Region

michael.goss@chaffey.edu

June 2018