Program Opportunity Brief: 1223.00/Health Information Technology

***Statewide Analysis for Regional Program Recommendation***

Public Health Informatics and Technology (Certificate)

September 2022

# Summary Analysis

The Center of Excellence for Labor Market Research prepared this report to provide statewide labor market supply and demand data related to public health informatics and technology (PHIT).

The US Office of the National Coordinator for Health Information Technology (ONC)[[1]](#footnote-1) awarded funding to CSU Long Beach in 2021 to lead a consortium of institutions representing noncredit and credit educational pathways and expand the PHIT workforce.[[2]](#footnote-2) For the 10 California community colleges collaborating on the program, this is an opportunity to address the state’s need for qualified PHIT workers and provide new opportunities for community college students.

PHIT jobs from this initiative are primarily focused on strengthening public health information technology infrastructure, improving data collection related to COVID-19, and simultaneously increase the presence of underrepresented communities with the public health IT workforce. Some of these PHIT roles may focus on the creation, updates, and maintenance to dashboards related to COVID-19 such as those produced by the [World Health Organization](https://covid19.who.int/), [The New York Times](https://www.nytimes.com/interactive/2021/us/covid-cases.html), or [California’s Office of Digital Innovation](https://covid19.ca.gov/state-dashboard/).

As the jobs impacted by PHIT are in development from a labor market perspective, the Standard Occupational Classification (SOC) does not have a single occupational title for the role or roles. Therefore, this report will rely primarily on information gathered from job posting analytics.

Based on information from job postings, PHIT work roles have increased since 2012. While workers may earn high wages, the majority of employers require a bachelor’s degree for PHIT jobs. Detailed reasons include:

# Demand:

* Over the last twelve months, there were **130 online job postings** that included key words related to public health informatics in the job description.
* The highest number job postings were for **health informatics consultants, public health analysts,** and **epidemiology analysts**.
* Of the 113 job postings that listed a minimum education requirement, **a majority (84% or 95 postings) were seeking applicants with a bachelor’s degree.**
	+ The most commonly sought degrees were Public Health, Statistics, Mathematics, Computer Science, Epidemiology, and Medical Informatics.
* Job postings for PHIT-related positions offer a strong wage for qualified candidates, with $43,700 being the entry-level salary (25th percentile). The median market salary **was over $77,700**.
* Seventy percent of employers sought candidates with **three to five years of experience**.

# Supply:

* **Two community colleges** in the state provide baccalaureate training programs related to health information technology – conferring an average of **31 bachelor’s degrees annually** between 2018 and 2021.
* **Four non-community college institutions** in the state conferred an average of **55 bachelor’s degrees annually** from programs related to public health informatics between 2017 and 2020.

# Job Postings

The following section shows how the job posting search was conducted using the key words “public health informatics,” “public health data analyst,” “epidemiology data analyst,” and the more general “public health research.” Please note that results were filtered to limit job postings only to those that require a bachelor’s degree or less.

From a historical perspective, PHIT-related job postings have experienced record growth. Exhibit 1 displays the number of annual job postings that fit the criteria above, dating back to 2012. In the last decade, the number of annual PHIT job postings have more than doubled. Year to year, the increase in job postings has been gradual with the largest increases coming from 2014 to 2015 and 2017 to 2018.

**Exhibit 1: PHIT job postings by year, 2012-2022\***

*\*2022 job postings span 8 full months (January 1 through August 31, 2022)*

# Job Titles

During the most recent 12-month period analyzed,[[3]](#footnote-3) there were **130 online job postings** that matched the search parameters. Job titles most frequently contained the term “health informatics” followed by “consultant,” “analyst,” and “specialist” “coordinator” or “manager.” Out of the 84 job postings that contained “health informatics,” all but two contained one of the qualifier terms shown in italics. The most frequently sought role among the 130 job postings was health informatics consultant (46 job ads), posted by Anthem Blue Cross. These postings accounted for over one-third of all PHIT job postings in California over the last twelve months (see Exhibit 2).

**Exhibit 2: PHIT job titles from online job postings**

| Job Title  | Number of Job Postings |
| --- | --- |
| **Health Informatics**  | **84** |
| Also contains *“Consultant”* | *47* |
| Also contains *“Analyst”* | *11* |
| Also contains *“Specialist”*  | *8* |
| Also contains *“Coordinator”* | *8* |
| Also contains *“Manager”* | *8* |
| *Other Health Informatics* | *2* |
| **Public Health**  | **30** |
| Also contains *“Analyst”* | *12* |
| Also contains *“Research Associate”* | *10* |
| *Other Public Health* | *8* |
| **Epidemiology Analyst** | **10** |
| **Other** | **6** |
| **Total** | **130** |

# Employers

The employers posting the most job ads seeking candidates for PHIT positions appear in Exhibit 3. Anthem Blue Cross posted most frequently for PHIT positons, followed by the University of California (multiple campuses), and then by Prime Healthcare Services and the Center for Innovative Public Health Research. Notably, there were minimal postings from county and city offices with two postings from San Bernardino County and two from the City of Long Beach.

**Exhibit 3: Top employers and related job titles from PHIT job postings**

| Employer  | Number of Job Postings |
| --- | --- |
| **Anthem Blue Cross** | **46** |
| *Health Informatics Consultant/Consultant Senior*  | *29* |
| *Senior Health Informatics Consultant* | *17* |
| **University of California** | **9** |
| *Health Informatics Analyst* | *4* |
| *Public Health Research Associate* | *3* |
| *Public Health Informatics Director/Manager* | *2* |
| **Prime Healthcare Services** | **6** |
| *Health Informatics Coordinator I* | *4* |
| *Health Informatics Coordinator III* | *2* |
| **Center for Innovative Public Health Research** | **6** |
| **Other** | **63** |
| **Total** | **130** |

# Location

Since this was a statewide job posting search, the counties contributing the most postings appear in exhibit 4. Los Angeles County accounted for the largest share of postings with 50 job ads (38% of all PHIT postings), followed by Orange with 17 job ads (13% of all PHIT postings), and San Diego and Sacramento counties with nine job ads each.

**Exhibit 4: Top counties from PHIT job postings**

# Skills

The skills that emerged most frequently from job postings have been clustered into two categories– specialized and software skills. Specialized skills are unique to a specific occupation or set of related occupations such as CPR for nurses and other healthcare personnel, food prep for cooks, and surveillance for police officers. Software skills relate to specific computer programs such as QuickBooks, Microsoft Excel, or GIS; or programming languages such as Python, Java, or C+.

The specialized and software skills that emerged most frequently were health informatics (present in 84 job ads), SQL, SAS, SAP BusinessObjects, and skills related to data warehousing, analysis, management, and structures (see Exhibit 5).

**Exhibit 5: Top skills from PHIT job postings**

| Specialized Skill  | Number of Job Postings | Software Skill | Number of Job Postings |
| --- | --- | --- | --- |
| Health Informatics | 84 | SQL | 72 |
| Data Warehousing | 55 | SAS | 60 |
| Data Analysis | 50 | SAP BusinessObjects | 50 |
| Enterprise Software | 46 | Microsoft Excel | 43 |
| Public Health and Safety | 42 | Macros | 18 |
| Data Management | 39 | Pivot Tables | 17 |
| Data Structures | 34 | Microsoft Access | 14 |
| Project Planning and Development Skills | 34 | Tableau | 12 |
| Data Mining | 31 | ICD-10\* | 7 |

*\*ICD-10 is the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a medical classification list by the World Health Organization (WHO).*

# Education

Employers overwhelming prefer candidates with a bachelor’s degree for PHIT jobs (see Exhibit 6). Of the 113 job postings that listed a minimum education requirement, 84% (95 postings) requested candidates with a bachelor’s degree.[[4]](#footnote-4) The most commonly sought degrees were Public Health, Statistics, Mathematics, Computer Science, Epidemiology, and Medical Informatics.

**Exhibit 6: Minimum education requirements from PHIT job postings**

# Experience

Employers prefer candidates with three to five years of experience for PHIT jobs (see Exhibit 7). Of the 100 job postings that listed experience requirements, 70% (70 postings) sought candidates with three to five years of related experience, followed by 20 postings that sought candidates with less than two years. Very few job postings required candidates with six to eight years of experience.

**Exhibit 7: Experience requirements from PHIT job postings**

# Salary

The mean advertised salary from these PHIT job postings is $102k. However, this figure is based on just 52% of the PHIT job postings examined; the remaining job postings (62) did not include salary information. In cases such as this, the job posting aggregator, Labor Insight, calculates a market salary, which is developed based on millions of jobs postings that account for location, skills, experience, education requirements and other factors. The median market salary for these PHIT job postings is $77.7k. The market salary range is shown in Exhibit 8.

**Exhibit 8: Market salary by percentile for PHIT job postings**

# Identifying the Potential PHIT Workforce

As these job postings indicate, preferred applicants for these positions have a bachelor’s degree as well as knowledge of health informatics and data software. The labor pool for these positions may derive from a number of educational and training pathways. These include, but are not limited to:

* Incumbent – workers who have already gained direct experience working in a PHIT role.
* Lateral – workers who have attained a bachelor’s degree in a major identified as preferred by the employer.
* Skills builder – workers who have attained a bachelor’s degree in a non-related major but have either direct experience working in a PHIT field or have completed PHIT coursework.

To assess the pipeline of potential new entrants to the PHIT field, the COE identified baccalaureate programs offered by community colleges and four-year institutions with the highest relevance to the topics included in the PHIT coursework. These programs and their average annual awards (bachelor’s degrees only) are detailed below.

# Community College Baccalaureate Supply

Exhibit 9 shows the three-year average number of bachelor’s degrees conferred by community colleges in programs that provide training for work roles related to public health informatics and technology. This three-year average is derived from the 2018-19, 2019-20, and 2020-21 academic years. The two community colleges that offer bachelor’s degrees in Health Information Technology (TOP 1223.00) programs are San Diego Mesa and Shasta, issuing a three-year average of 31 bachelor’s degrees.

Exhibit 9: Statewide community college bachelor’s degrees issued, 2018-2021 average

| TOP Code | Program | College | 3-Year Average Bachelor’s Degrees Issued  |
| --- | --- | --- | --- |
| 1223.00 | Health Information Technology | San Diego Mesa | 24 |
| Shasta | 7 |
| **Total/Average** | **31** |

# Non-Community College Baccalaureate Supply

Exhibit 10 shows the three-year average number of bachelor’s degrees conferred by non-community college institutions in programs that provide training for work roles related to public health informatics and technology. Due to different reporting deadlines, this three-year average is derived from the 2017-18, 2018-19, and 2019-20 academic years. The two program areas that have yielded bachelor’s degrees related to public health informatics and technology are Health Communication (CIP 09.0905) and Public Health Education and Promotion (CIP 51.2207), issuing a three-year average of 45 and 10 bachelor’s degrees issued, respectively.

Exhibit 10: Statewide non-community college bachelor’s degrees issued, 2017-2020 average

| CIP Code | Program | College | 3-Year Average Bachelor’s Degrees Issued  |
| --- | --- | --- | --- |
| 09.0905 | Health Communication | Pacific Union College | 9 |
| San Diego State University | 36 |
|  |  | **Subtotal/Average** | **45** |
| 51.2207 | Public Health Education and Promotion | California Baptist University | 2 |
| Dominican University of California | 8 |
|  |  | **Subtotal/Average** | **10** |
| **Total/Average** | **55** |

Another related CIP code without any baccalaureate completions during the most recent three-year period appear below.

* [Medical Informatics.](https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=87670) (CIP 51.2706)

# Appendix A: Sources

* Labor Insight/Jobs (Burning Glass)
* California Community Colleges Chancellor’s Office Management Information Systems (MIS)
* The Integrated Postsecondary Education Data System (IPEDS)

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1. ONC is housed within the US Office of the Secretary for the U.S. Department of Health and Human Services (HHS). ONC is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. More information about ONC can be found at [www.healthit.gov](http://www.healthit.gov). [↑](#footnote-ref-1)
2. [Public Health Informatics & Technology (PHIT) Workforce Development Program](https://www.healthit.gov/topic/onc-funding-opportunities/public-health-informatics-technology-phit-workforce-development) [↑](#footnote-ref-2)
3. September 1, 2021 through August 31, 2022. Source: Burning Glass Technologies. “Labor Insight™ Real-Time Labor Market Information Tool.” <http://www.burning-glass.com>. 2022. [↑](#footnote-ref-3)
4. Job postings seeking candidates with a master’s or above were excluded from this search. [↑](#footnote-ref-4)