Data Resources for Health Workforce Policy and Planning in Washington State

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KEY FINDINGS

There are multiple sources of data to address questions about Washington's health workforce, including from state government entities as well as private and federal sources. The study identified and cataloged 30 currently available health workforce data sources, including 10 Washington State-based sources of supply data, 9 national supply data sources, 4 Washington-based demand sources, and 7 national demand and other data sources.

- Identifying workforce questions of greatest interest among stakeholders can help prioritize workforce data collection. Highest rated workforce supply questions among study stakeholders addressed:
  - knowing the numbers of licensed occupations with active Washington licenses;
  - the percentages of practicing health care workers in the state;
  - common health care practice settings; and
  - demographic characteristics of health care workers.
- The highest rated workforce demand questions addressed:
  - quantifying vacancy rates for different occupations across work settings;
  - the number of each occupation employed in various work settings; and
  - details of insurance coverage of populations within the state.
- Weaknesses in some of the available data about Washington's health workforce have resulted because the data sources were originally developed for administrative and not workforce planning purposes. Some of these gaps will be filled when the state's Healthcare Professionals Demographic Data Survey is fully implemented through the state's Healthcare Enforcement and Licensing Management System (HELMS) portal.
- There are various ways to access health workforce data including directly accessing source data as well as viewing data through interactive public dashboards that consolidate findings from multiple data sources. Integration of multiple data sources by a single host can provide efficient user access but requires the host to have sufficient development and maintenance resources.
- In addition to improving the amount of, and access to, health workforce planning data, increasing ways to share the research findings among potential users could help maximize resource use and benefit workforce planning in Washington.

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INTRODUCTION

Accurate and complete data on health workforce supply, demand, and the population's need for health services are necessary to support evidence-based health workforce planning.[1,2] Reliable workforce planning not only helps to ensure services are available where needed but also can help control health care costs by describing and predicting workforce shortages and surpluses and by supporting evaluations of workforce programs. Evidence-based workforce planning also provides valuable information for individuals making decisions about their education and career paths.

In Washington, as with other states and nationally, information generated from health workforce analyses support health care decision making. An important local application of this process is the Washington Health Workforce Council's annual recommendations to the Governor and Legislature, which are drawn from a variety of evidence of health workforce needs in the state.[3] For example, in 2024 the Council used data from a state-based demand data source, the Washington Health Workforce Sentinel Network, to recommended policy action on child care, housing, and transportation matters.[3] In addition, data and research conducted by the Washington Board of Nursing informs nursing education, licensing, and discipline policies.[4] Programs to improve access to the behavioral health workforce in Washington have recently drawn from legislated studies led by the Washington Workforce Training and Education Coordinating Board.[5, 6]

The right data are not always available, however, to address important questions driving health care and health workforce planning. Relevant useful data may be spread across locations and host agencies, often are generated for administrative purposes and not tailored for workforce analyses, and access may be limited due to proprietary rights and/or privacy issues. Details on what workforce-related data exist and how or whether they may be accessed is useful for researchers, planners and policy influencers. When relevant data exist but access is limited because they are not co-located and are governed by different entities, questions commonly arise regarding the feasibility and desirability of integrating some data sources to increase the efficiency of health workforce analyses.

The purpose of this study is to identify available data resources for health workforce policy and planning in Washington State, key uses and users of these data, high priority workforce-related questions for which data are needed, and gaps in the availability of data resources for addressing these questions. Based on the team's experience, internet searches, and interviews with key informants, the report includes detailed descriptions of data sources that may be used for health workforce analyses. It also includes the results of a stakeholder survey that prioritizes key workforce questions to be informed by the data and the frequency these users access, or would like to be able to access, workforce data resources. The report also includes recommendations for improving access to these data and associated analyses.

APPROACH

Creating a Catalog of Health Workforce Data Sources

To compile a catalog of relevant health workforce data sources available for Washington State analyses, we began with a previous environmental scan of 13 potential health workforce data sources completed by the Center for Access to Whole Person Care at the Washington State Department of Health. We then added data resources that the University of Washington Center for Health Workforce Studies (UW CHWS) has previously used in state-level analyses. UW CHWS has a long history of conducting health workforce research in the state and is one of the primary users of these types of data. To ensure completeness of this initial list, we then contacted key workforce analysts and users ('key informants') in the state to ask them what data sources they frequently use, and for what purposes. After speaking with 11 key informants from organizations across the state (**Box 1**), we began to compile the health workforce data catalog, engaging in an intentional iterative process to ensure we assembled accurate current descriptions of data resources that could provide important information on Washington's health workforce. We used UW CHWS' own experience and access to various data sources (when available, based on UW CHWS' previous work) and website descriptions to further detail these sources, and spoke with four additional individuals who are experts on specific data sources to fill in missing details.

Box 1. Health Workforce Data Key Informants' Affiliated Organizations

- Washington Workforce Training & Education Coordinating Board
- Washington State Board for Community and Technical Colleges
- Washington State Employment Security Department
- Washington State Department of Health, Executive Office of Healthcare Innovation and Strategy, Health Workforce and Primary Care Systems Development
- Washington State Office of Financial Management Health Care Research Center
- Washington Health Care Association
- Washington State Board of Nursing
- Washington State Hospital Association
- Washington State Department of Health, Executive Office of Prevention, Safety and Health, Center for Access to Whole Person Care
- Washington State Department of Health, Office of Health Professions
- Washington State Department of Health Center for Drug Systems, Data, and Science
- Washington State Health Care Authority
- Washington Center for Nursing

Inclusion/exclusion criteria

Data sources were included in the final data catalog if the available data could be used in analyses to describe questions related to the health care workforce in Washington State. National workforce data sources that do not provide estimates at the Washington state level were not included. We included data sources that were currently available and that were likely to continue to be collected.

Identifying Key Workforce Question Priorities

In September-October 2025, we surveyed individuals involved with Washington health care workforce policy, planning, education, advocacy, and research. These stakeholders were asked to rate the priority of a set of 18 common workforce-related questions, with the opportunity to add high priority questions not on the list. Respondents were also asked to indicate how frequently they accessed available workforce data resources and how frequently they anticipated accessing guidance in the use of the resources and an integrated data resource, if available.

The questionnaire was developed by first identifying various planning, practice, and policy questions known to the authors as commonly asked, and which may be addressed by the compiled data sources. Experience from previous research conducted by UW CHWS contributed to developing these key workforce questions. With input from key informants, we narrowed the list to ten supply-focused questions, five demand workforce questions, and three population need questions for survey respondents to prioritize in an online survey. Respondents were asked to prioritize each workforce question on a scale of 0 (not a priority) to 3 (high priority). Four questions about respondents' actual or anticipated frequency of use of data resources were also included, with response options of never, seldom, occasionally, and frequently. See **Appendix B** for the online questionnaire.

The survey invitation was initially sent to approximately 100 individuals known to have roles related to health workforce planning, policy and/or education. Access to the survey URL was public, and we encouraged this initial group to forward the invitation to colleagues. After cleaning for incomplete and duplicate responses, we identified 46 individual responses.

FINDINGS

Available Health Workforce Data for Washington Health Workforce Analyses

The following are relevant data sources currently available for analysis of the Washington State health workforce. These data sources were either used in studies by UW CHWS, previously identified by the study's sponsors at the Department of Health, and/or recommended by key informants with experience using data and findings for analyses of health workforce data. **Table 1** provides brief summaries of all identified data sources, organized by supply and demand, and Washington-state based or national. **Table 2** provides examples of health care occupations that could be analyzed with selected, applicable data sources. Detailed information on each data source is included in **Appendix A** at the end of this report.

Table 1.
Available Health Workforce Data Sources in Washington – At A Glance

Data Source Name	Geography [Smallest unit of analysis]	Description	Data Elements/Variables	Funder/ Sponsor	Data Universe/ Unit of Analysis	Accessibility
WASHINGTON STATE-BASED SUPPLY DATA SOURCES						
Healthcare Professionals Demographic Data Survey	ZIP Code	A new demographic survey required for all provider types (except MDs, PAs, and nurses) at time of license application and renewal, as required by ESHB 1503,[1] replacing the Washington Health Workforce Survey and implemented via HELMS[2] as of 2025.	Race*, ethnicity*, gender identity*, languages spoken*, provider specialty, currently practicing, primary and secondary practice location, and practice setting, as Legislatively mandated by ESHB 1503.[1] Respondents may decline to answer sensitive questions (indicated with *).	Washington State Department of Health (DOH)	All individuals credentialed in health care occupations in WA, except MDs, PAs and nurses (who are required to answer ESHB 1503[1] mandated questions via their profession-specific surveys).	Data not yet publicly available (as of December 2025) but will require DUA from DOH to access.
Health Care Provider Credential Data	ZIP Code	Licensure and renewal data; information on health professionals license status. Collected online via HELMS.[2]	Full name, credential type, credential status (i.e. active, expired, pending, etc.), birth year, first issue date, last issue date.	Washington State Department of Health (DOH)	All individuals credentialed in health care occupations in WA.	Publicly available, but some variables, including birth year and mailing address, only available via DUA with DOH.
Washington State Board of Nursing Workforce Survey	ZIP Code	A mandatory survey of all licensed nurses in WA, collected online via HELMS[2] at time of license application or renewal. Includes data on demographics, work characteristics, and educational background, and elements Legislatively mandated by ESHB 1503.[1]	In addition to mandated ESHB 1503[1] questions: education (entry degree into nursing; highest nursing degree; non-nursing degrees); employment status; board certifications (for ARNPs); practice characteristics (primary and secondary specialty; primary and secondary setting; practice ZIP Code; hours worked per week).	Washington State Board of Nursing (WABON)	All individuals licensed as nurses (RNs, LPNs, and ARNPs) in WA.	Raw data available through a DUA with WABON.
Allopathic Physician (MD) and Physician Assistant (PA) Demographic Census	ZIP Code	A mandatory survey MDs and PAs must complete with their license renewal every 2 years. Includes Legislatively mandated data elements from ESHB 1503[1] and collected online through HELMS.[2]	Specific to the Demographic Census, in addition to mandated ESHB 1503[1] questions: work status, residency and/or fellowship location, location of medical/ PA school, board certification(s), retirement status/intentions, and practice characteristics (size, arrangement, hours per week, area of practice).	Washington Medical Commission (WMC)	All licensed MDs and PAs in WA. Certified Anesthesiologist Assistants, a newly licensed occupation in WA, are scheduled to begin licensing through WMC in late 2025.	DUA with WMC required to obtain raw data for research. Aggregate demographic reports available online on WMC website.
Washington State Board of Nursing (WABON) Data Dashboard	County	The WABON Data Dashboard presents information on the WA state nursing workforce compiled from multiple sources of data which are organized into five dashboards: discipline; education; workforce; licensing; and preceptor grant.	Demographics, geography, education data, employment status, as well as number of active licenses, residence, primary place of sites practice, number of practice, and practice specialty.	Washington State Board of Nursing (WABON)	All actively credentialed RNs, LPNs, and ARNPs in WA, as well as Nurse Technicians, nursing students, and nursing assistant students.	Aggregate summary data publicly available online. Raw data can be requested and accessed by researchers via DUA.
Washington State All Payer Claims Database (WA-APCD)	ZIP Code of provider (facility organization) location	Data from WA health care payer files and includes data on health care items and services insured individuals receive and how much is paid for those items and services. Workforce data comes from billing and service provider indicated on claims and is categorized by care setting: inpatient hospital care and outpatient services.	Eligibility and claims data (claimant service level data), cost information (with some masking of provider and fee schedule), master listing of facility and individual providers; including primary care practitioner assignment to medical practices.	Washington State Health Care Authority (HCA)	Claims-level data from approximately 70% of WA residents, as insured through commercial, self-insured, PEBB, SEBB, Exchange, Medicaid, Medicare Advantage, Medicare FFS, dental, workers' compensation, etc.	Data can available through analytic enclave, data file extract, or DUA for "database upon request."

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Data Source Name	Geography [Smallest unit of analysis]	Description	Data Elements/Variables	Funder/ Sponsor	Data Universe/ Unit of Analysis	Accessibility
Washington State Medicaid Claims Data	ZIP Code of organization submitting the claim	Claims data submitted to HCA from the five Medicaid managed care entities in the state. Individual provider data available from billing and service provider on claims, and from network adequacy reports from Medicaid managed care providers.	Individual billing provider and service provider associated with the claim. Patient data may include diagnoses and procedures, provider organization and service type, patient characteristics, with access dependent on User's needs and HCA review/approval.	Washington State Health Care Authority (HCA)	All Medicaid encounters and claims submitted to HCA, from which it is possible to identify individual providers associated with the claims.	HCA data governance process through which specific data requests may be submitted.
Network Access Report	Latitude/ Longitude	Reports from WA health insurance plans, including data from commercial, Medicaid, and Medicare sources, containing records of health care providers in contract with an insurance company's provider network.	Name, credential, specialty and practice location(s) of medical professionals (MDs, NPs, PAs, massage therapists, chiropractors, etc.) that contract with insurance providers in WA. Does not include data from limited health plans (i.e. dental, vision, specific disease, or accident-only coverage).	Washington State Office of the Insurance Commissioner (OIC)	Health care professionals that are part of insurance networks that are registered with OIC.	Publicly available for download as text files, but significant effort needed to combine and clean all files.
Completions Over Time in Postsecondary Education in Washington	State-level only	Data on all WA education program completions (private career colleges, federally funded institutions, and apprenticeships) collected from multiple sources, and available by CIP code.	Includes total numbers of degree completions for each educational program by institution and year.	Washington Workforce Training and Education Coordinating Board (WTB)	All health-related occupations by CIP code.	Publicly available via WTB dashboard.
Washington State Education Research & Data Center (ERDC)	ZIP Code	Workforce supply information via six public data dashboards as well as a longitudinal restricted dataset: high school graduate outcomes, earnings for graduates, public four-year education (including degrees, enrollment, and completions), public four-year finance, and data on WA residents' educational and workforce experiences (the Preschool-to-Grade 20-to-Workforce [P20W] Data Warehouse).	Includes data on demographics, field and location of study, completions from education programs, and employment characteristics (e.g., wages, setting, employment ZIP Code).	Washington Office of Financial Management (OFM)	All individuals who accessed public K-12 and postsecondary educational institutions in WA.	Raw data available via a data request from OFM. Data summaries are publicly available via online reports and dashboards.
NATIONAL SUPPLY DATA SOURCES						
American Medical Association (AMA) Physician Professional Data	ZIP Code	Education, training, and professional certification information on MDs and DOs collected from medical school databases, state licensing boards, and professional certifications.	Demographics, education and training type and location, professional certification/specialty, practice type.	American Medical Association (AMA)	All licensed physicians (MDs and DOs, including AMA members and nonmembers), and physicians in residency, in the U.S.	Raw data is available for purchase through MMS.
American Dental Association (ADA) Dentist Masterfile	ZIP Code of dental practice	Database with information on all dentists in the U.S. Updated with state licensing data, death records, and ADA surveys.	Dentist name, age, gender, race, retirement info, office ZIP Code, active license states, state license number, specialty, work location type, graduation year, dental school name, and NPI.	American Dental Association (ADA)	All dentists (practicing and nonpracticing) in the U.S.	Aggregate reports from the ADA Health Policy Institute; state-level raw data through DUA with WSDA.

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Data Source Name	Geography [Smallest unit of analysis]	Description	Data Elements/Variables	Funder/ Sponsor	Data Universe/ Unit of Analysis	Accessibility
National Provider Identifier (NPI)	ZIP Code of provider	A unique 10-digit number assigned to health care providers (individual clinicians and health plans/provider groups) for identification in administrative and financial transactions as required by HIPAA.	Individual provider name, address, sex, date of birth, professional credentials, specialty, and practice address.	U.S. Centers for Medicare & Medicaid (CMS)	Any health care provider who is HIPAA-covered needs an NPI to bill Medicare, Medicaid and most other insurance.	The NPI Registry is a publicly available database for individual provider lookup as well as downloadable files.
Area Health Resource File (AHRF)	County	A publicly available dataset containing information on health professions, health facilities, population characteristics, economics, and hospital utilization at the county, state, and national level.	Includes population characteristics, economics, health professions training, hospital utilization, hospital expenditures, and environment at the county, state, and national levels for about 22 health professions.	U.S. Health Resources & Services Administration (HRSA), Bureau of Health Workforce	All individuals credentialed for about 22 health professions (see Table 2 for complete list) aggregated to U.S. County level (identified by FIPS code.)	Publicly available from HRSA website.
Occupational Employment and Wage Statistics (OEWS)	Metropolitan statistical areas (MSAs)	The OEWS survey collects data on employment and wages for workers in non-farm occupations across the U.S.	Occupation title, industry, estimate of number employed in each occupation, wage estimates, geographic area.	U.S. Bureau of Labor Statistics (BLS)	Employment and wage estimates for about 830 occupations, based on SOC code.	Publicly available for download from BLS.
American Community Survey (ACS)	Block group	An annual survey administered to a nationally representative sample of about 3 million U.S. households collecting detailed social, economic, housing, and demographic data.	Jobs and employment information, industry, educational attainment, race and ethnicity, income, and geographic data.	U.S. Census Bureau	A sample of all U.S. households available for analysis at the individual level.	Publicly available online as 1-year or 5-year files from IPUMS USA.
Current Population Survey (CPS)	State	A monthly survey administered to a random sample of over 65,000 households. These surveys gather information on education, labor force status, demographics, and other aspects of the U.S. population.	Occupation, industry, employment status, hours at work, full-time/ part-time status, reasons for unemployment, demographics.	U.S. Census Bureau; U.S. Bureau of Labor Statistics	Labor data is available on all sampled respondents age 16 and over.	Publicly available from IPUMS USA.
Integrated Postsecond-ary Education Data System (IPEDS)	ZIP Code	IPEDS is a system of interrelated surveys with information on education program completions by CIP code, institution, age, gender, race/ethnicity, among others.	Demographics, educational program completions, and institutional characteristics including geography, student aid data.	U.S. Department of Education, National Center for Education Statistics	Degree completions of all federally funded education institutions in the U.S.	Publicly available online.
Public Health Workforce Interests and Needs Survey (PH WINS)	Local health jurisdiction	A nationally representative survey of individual state and local governmental public health staff with information on staffs' employment experiences, skills and training needs, as well as demographics, education, and positions.	Demographics, education, employment status, turnover intention, job information (program area, skills needed, training needed, tenure), employment experience.	Association of State and Territorial Health Officials (ASTHO) and the de Beaumont Foundation	All individual state and local health department staff in the U.S.	De-identified, national- and regional-level data available to researchers with DUA.

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Data Source Name	Geography [Smallest unit of analysis]	Description	Data Elements/Variables	Funder/ Sponsor	Data Universe/ Unit of Analysis	Accessibility
WASHINGTON STATE-BASED DEMAND DATA SOURCES						
Occupations in Demand	County	A dashboard providing information on what occupations are in demand in the state overall and in each county, using SOC codes to identify each occupation group.	Required education and training, average annual salary, average annual growth rate, and average annual total openings, by occupation. County and state categorization of " in demand", "balanced", or "not in demand" is determined based on average annual growth and percentage of total job openings in the state.	Employment Security Department (ESD)	All occupations in WA consisting of 50 or more jobs, based on SOC code.	Publicly available from ESD.
Health Workforce Sentinel Network	Accountable Community of Health (ACH)	Survey of health care employers in WA to understand employers' workforce needs – such as challenges related to recruitment, retention and needed skills – and make that information available to educators and policy makers.	Qualitative reasons for hiring and retention challenges by facility type and geographic region in the state.	University of Washington Center for Health Workforce Studies and WTB, Health Workforce Council	Health care employers in WA (e.g. dental offices and clinics, FQHCs, small hospitals, behavioral health agencies, and long-term care facilities).	Dashboards publicly available; de-identified source data available by request from UW CHWS.
Labor Market Supply/ Demand Report	Workforce Development Area (WDA)	A report comparing the number of open jobs (based on online job postings) to the number of people claiming unemployment benefits in WA.	Number of unemployment insurance claimants by occupation, and total online job postings by occupation.	Employment Security Department (ESD)	All individuals claiming unemployment insurance in WA, and counts of all open jobs in WA, by occupation (SOC code).	Publicly available reports and raw data available online from ESD.
Washington Unemploy-ment Insurance Claims and Benefits Data	County	Monthly initial and continuing unemployment claims filed by unemployed workers in WA, by industry group (individual occupations not available).	Number of individual unemployment benefit claims.	Employment Security Department (ESD)	All eligible, unemployed workers in WA who apply for unemployment benefits from the state.	Publicly available via online dashboard.
NATIONAL DEMAND & OTHER RELATED DATA SOURCES						
Real-Time Labor Market Information (RT-LMI)	ZIP Code, variable by source	Workforce demand data extracted ("scraped") from open internet sources, such as ads for job openings from employer, recruiter, and job boards, among other sources. Analyses can typically be rolled up to reflect regional or larger areas.	Job openings by occupation. May include skills required and specialties, wages offered, work locations, and other information about occupations being recruited.	Various companies: Monster, Lightcast, Burning Glass, LinkUp, and Chmura	All occupations for which jobs are posted on open internet sources, with variation in how different companies obtain and present data.	Some RT-LMI companies provide online portal access for queries, and some are able to provide dataset downloads.
O*Net Online	ZIP Code	A tool for career exploration and workforce development that includes occupation-level information and data about occupation requirements, characteristics, and employment outlook.	Descriptive information about specific occupations, including education/training requirements, pathways into the occupation, licensing/credentialing requirements, skills, wages, overview of job openings, and projected employment trends.	U.S. Department of Labor, Employment and Training Administration	All occupations in the federal SOC system.	Publicly available online.
National Association of County and City Health Officials (NACCHO) Profile of Local Health Departments	Local health jurisdiction	The survey provides information on the staffing infrastructure of local health departments (e.g., number of FTEs, job losses and gains, financing) and detailed information on the organizational structure and services provided.	Number of FTEs, occupational FTEs, changes in size of workforce over time (overall, by occupation), job losses and gains, budget changes, expect budget cuts, changes in services provided.	National Association of County and City Health Officials (NACCHO)	All local health jurisdictions in the U.S.	Data summaries available in reports. Publicly available to researchers via DUA.

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Data Source Name	Geography [Smallest unit of analysis]	Description	Data Elements/Variables	Funder/ Sponsor	Data Universe/ Unit of Analysis	Accessibility
Association of State and Territorial Health Officials (ASTHO) Profile	State	Profiles of the organizational structure, staffing, services, and financing of state and territorial public health agencies.	Number of FTEs, occupational FTEs, vacant positions, changes in size of workforce over time (overall, by occupation), job losses and gains, budget changes, expect budget cuts, changes in services provided.	Association of State and Territorial Health Officials (ASTHO)	All U.S. state and territorial public health agencies.	Data currently available in reports; full survey data available via DUA.
Quarterly Census of Employment and Wages (QCEW)	County	A quarterly count of employment and wages reported by employers. It counts workers covered by unemployment insurance programs who earned wages during the pay period that includes the 12th of the month.	Employment by industry, number of employers, and wages.	U.S. Bureau of Labor Statistics (BLS)	Data are available by detailed industry type at the NAICS 6-digit level. Information at the level of individual occupation titles is not available.	Data publicly available from BLS.
Quarterly Workforce Indicators (QWI)	Workforce Investment Board (WIB) Area	Job-level data linking workers to their employers to provide local labor market statistics by industry. Links between workers and firms also allow the QWI to identify worker flows – hires, separations, and turnover – as well as net employment growth.	Worker demographics, employer age and size with workers linked to their employers. Labor market data available by worker age, sex, educational attainment, and race/ ethnicity.	U.S. Census Bureau	All industries represented at the NAICS 4-digit level. Information on individual occupations is not available.	Data publicly available online.
Behavioral Risk Factor Surveillance System (BRFSS)	ZIP Code	A nationally-coordinated telephone survey on the health behaviors, chronic health conditions, and use of health services by U.S. residents. Each state implements their own version using a standardized questionnaire, optional modules, and state-added questions (examples in WA include access to behavioral health or oral health care and services).	Demographics (including age, sex, race/ethnicity, income, employment status), health behaviors (e.g., tobacco and substance use, doctors' visits, insurance coverage) and industry and occupation module (optional module, may include broad categories e.g., healthcare or medicine or hospital or clinic).	U.S. Centers for Disease Control and Prevention (CDC); Washington State Department of Health (DOH)	Adults aged 18 years and older living in private residences in the U.S. (or just WA, for WA-specific data).	All national data available online from CDC. WA state-specific data available via data request from DOH.

1. Engrossed Substitute House Bill 1503 (ESHB 1503): passed in 2023 and enacted in 2025, ESHB 1503 mandates that all licensure applicants provide and update at license renewal their race, ethnicity, gender identity, languages spoken, provider specialty (where applicable), practice status, primary and secondary practice location, and practice setting.
2. Healthcare Enforcement and Licensing Management System (HELMS):), a new vehicle to collect and manage licensing and related data for all healthcare professionals and facilities credentialed in Washington.

Abbreviations not previously defined in table (alphabetically)

ARNP: Advanced registered nurse practitioner
CIP: Classification of Instructional Programs
DO: Osteopathic physician
DUA/DSA: Data use agreement/data sharing agreement
ESHB 1503: Engrossed Substitute House Bill 1503
FFS: Fee for service
FIPS: Federal Information Processing Standards code
FTE: Full-time Equivalent
FQHC: Federally Qualified Health Center
HELMS: Healthcare Enforcement and Licensing Management System
HIPAA: Health Insurance Portability and Accountability Act of 1996
IPUMS USA: Integrated Public Use Microdata Series; houses ACS and CPS data
K-12: Kindergarten through 12th grade
LPN: Licensed practical nurse
MD: Allopathic physician
MMS: Medical Marketing Service, Inc.
NAICS: North American Industry Classification System
NP: Nurse practitioner
PA: Physician assistant
PEBB: Public Employee Benefits Board
RN: Registered nurse
SEBB: School Employees Benefits Board
SOC: Standard Occupational Classification; codes used by the federal government to classify workers in the U.S.
U.S.: United States
WA: Washington State
WSDA: Washington State Dental Association

Table 2.
Examples of Selected Health Occupations Included in Applicable Health Workforce Data Sources

Data Source	Allopathic Physicians (MDs)	Osteopathic Physicians (DOs)	Physician Assistants (PAs)	Advanced Registered Nurse Practitioners (ARNPs)	Registered Nurses (RNs)	Dentists	Pharmacists	Additional Occupations
WASHINGTON STATE-BASED SUPPLY DATA SOURCES								
Healthcare Professionals Demographic Data Survey		●				●	●	All credentialed health care occupations in WA, excluding MDs, PAs, nurses, and chiropractors.
Health Care Provider Credential Data	●	●	●	●	●	●	●	All credentialed health care occupations in WA.
Washington State Board of Nursing Workforce Survey				●	●			Also includes all actively credentialed LPNs.
Allopathic Physician (MD) and Physician Assistant (PA) Demographic Census	●		●					
Washington State Board of Nursing Data Dashboard (WABON)				●	●			Also includes all actively credentialed LPNs.
Washington State All Payer Claims Database (WA-APCD)	●	●	●	●		●	●	Health care occupations for which services can be billed to most insurers in WA.
Washington State Medicaid Claims Data	●	●	●	●		●	●	All Medicaid claims submitted to HCA, for health care occupations for which services can be billed.
Network Access Report	●	●	●	●	●	●	●	The law covers all medical providers, including massage therapists and chiropractors.
Completions Over Time in Postsecondary Education in Washington	●	●	●	●	●	●	●	All health-related occupations by CIP code.
NATIONAL SUPPLY DATA SOURCES								
American Medical Association (AMA) Physician Professional Data	●	●						
American Dental Association (ADA) Dentist Masterfile						●		
National Provider Identifier (NPI)	●	●	●	●	●	●	●	Any health care provider who is HIPAA-covered, and/or who bills Medicare.
Area Health Resource File (AHRF)	●	●	●	●	●	●	●	Other provider groups include LPNs, dental hygienists, chiropractors, optometrists, psychologists, social workers, physical therapists, occupational therapists, dietitians and nutritionists, emergency medical technicians and paramedics.

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Data Source	Allopathic Physicians (MDs)	Osteopathic Physicians (DOs)	Physician Assistants (PAs)	Advanced Registered Nurse Practitioners (ARNPs)	Registered Nurses (RNs)	Dentists	Pharmacists	Additional Occupations
Occupational Employment and Wage Statistics (OEWS)	●	●	●	●	●	●	●	All occupations with a SOC code.
American Community Survey (ACS)	●	●	●	●	●	●	●	All occupations with a SOC code.
Current Population Survey (CPS)	●	●	●	●	●	●	●	All occupations with a SOC code.
Integrated Postsecondary Education Data System (IPEDS)	●	●	●	●	●	●	●	All federally funded education institutions in the U.S., including for health occupations, by CIP code.
Public Health Workforce Interests and Needs Survey (PH WINS)	●	●	●	●	●	●	●	All individual U.S. state and local health department staff.
WASHINGTON STATE-BASED DEMAND DATA SOURCES								
Occupations in Demand	●	●	●	●	●	●	●	All occupations with a SOC code.
Health Workforce Sentinel Network	●	●	●	●	●	●	●	Occupations reported by WA employers to be experiencing workforce challenges and successes.
Labor Market Supply/Demand Report	●	●	●	●	●	●	●	All occupations with a SOC code.
NATIONAL DEMAND & OTHER RELATED DATA SOURCES								
Real-Time Labor Market Information (RT-LMI)*	●	●	●	●	●	●	●	All occupations for which jobs are posted on open internet sources.
O*Net Online	●	●	●	●	●	●	●	All occupations with a SOC code.
Association of State and Territorial Health Officials Profile (ASTHO)	●	●	●	●	●	●	●	U.S. state and territorial public health agencies. Physicians represented as "public health physicians"

*E.g., Monster, Lightcast, Burning Glass, LinkUp, Chmura.

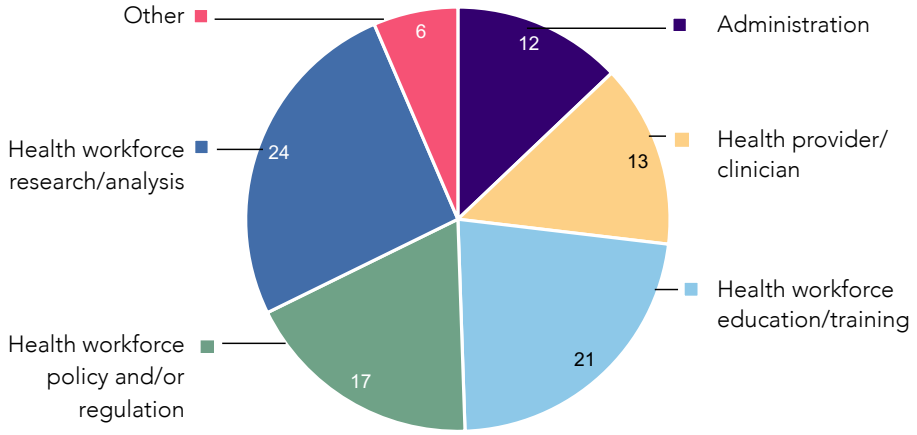
Abbreviations not previously defined in table (alphabetically)
CIP: Classification of Instructional Programs
DO: Osteopathic physician
HIPAA: Health Insurance Portability and Accountability Act
HCA: Health Care Authority
LPN: Licensed practical nurse
SOC: Standard Occupational Classification; used by the federal government to classify workers in the U.S.
U.S.: United States
WA: Washington State

Prioritizing Health Workforce Questions and Describing Frequency of Data Resource Use

We received survey responses from 46 health workforce stakeholders. A majority of respondents were involved in health workforce research and analysis, health workforce education and training, and a combination of both health research and analysis and health workforce policy (**Figure 1**). Over half of respondents (56.5%) selected multiple roles in which they were involved with health workforce policy and planning.

Respondents were asked to determine the extent to which key workforce supply, demand, and population need questions were a priority in their work and their use of health workforce data. The questionnaire included the caveat that the survey questions did not attempt to include all possible variations of related sub-questions including specific occupation(s) of interest, geography level, time trends, and combinations of specialty and setting.

Figure 1. Health Workforce Policy and Planning Roles of Survey Respondents (n=46)



Note: respondents could select "all that apply" in response to the question, "In what way(s) are you involved in health workforce policy and planning?"

The mean question ratings (from highest to lowest), are shown in **Tables 3-5**, along with the percentage of those who selected each rating level (high, moderate, low or not at all). For all questions with mean ratings of 2.0 or higher, the question is listed with notes on examples of the available data that could be used to answer the question, and comments on the strengths and weaknesses in the available data.

Supply Questions

The mean rating and distribution of respondents' ratings of nine questions related to health workforce supply are shown in **Table 3**. The majority of respondents rated these supply questions as either moderate or high priority for health workforce policy and planning in Washington. Following are notes on available relevant data sources to address the highest rated supply question.

1. **How many of [occupation X] have active Washington licenses (or are otherwise credentialed to practice in Washington)?**
    a. *Example data source to answer*: **Health Care Provider Credential Data**
    b. *Strengths of using this data source:* Washington State **Health Care Provider Credential Data** includes the universe of all individuals with health care credentials/licenses in Washington, including by credential status, e.g. "active", "expired", "pending", etc.
    c. *Weaknesses of this data source for answering this question*: Credential frequencies by occupation are publicly available through open data portal(s), but more detailed data downloads require institutional approval.

Table 3.
Mean Priority Rating (0-3) of all Supply Health Workforce Questions

Question	Mean Rating	Distribution of priority ratings of health workforce supply questions by survey respondents (n=46)
How many of [occupation X] have active Washington licenses (or are otherwise credentialed to practice in Washington?	2.5	67.4% 19.6% 10.9% 2.2%
How many/what percentage of actively licensed [occupation(s)] are practicing in Washington?	2.5	59.6% 29.8% 8.5% 2.1%
What are the practice settings (e.g., hospital, ambulatory care, long term care) where [occupation(s)] with active WA licenses are currently practicing?	2.4	53.2% 31.9% 14.9% 2.1%
What are the demographic characteristics of [occupation(s)] (e.g., age, sex, gender, race/ethnicity, language spoken)?	2.4	61.7% 21.3% 17.0% 2.1%
How many average hours per week do [occupation(s)] work in each practice setting? How many hours per week in each setting are involved with providing direct clinical care vs. other work activities (e.g., administration, education)?	2.2	42.6% 31.9% 25.5% 2.1%
What populations are primarily served by [occupation(s)] in their practice?	2.2	48.9% 28.9% 17.8% 2.2%
What are average pre-tax annual earnings (including overtime and bonuses, but excluding sign-on bonuses) for [occupation(s)] practicing in Washington?	2.2	38.6% 43.2% 15.9% 2.3%
What are the practice specialties (through certification or credential) of the actively licensed [occupation(s)]?	2.1	42.2% 31.1% 24.4% 2.2%
Where did [occupation(s)] with active Washington licenses obtain their education/training qualifying them for their license?	1.9	33.3% 28.9% 31.1% 2.2%

Mean rating calculated from responses: 3=high priority, 2=moderate priority, 1=low priority, 0=not a priority.

2. **How many/what percentage of actively licensed [occupation(s)] are practicing in Washington?**
    a. *Example data source(s) to answer:* **MD/PA Demographic Census, Washington State Board of Nursing Workforce Survey, Healthcare Professionals Demographic Data Survey** (all other health occupations).
    b. *Strengths of using these data sources:* These state-based workforce surveys include questions relevant to identifying practice location.
    c. *Weaknesses of these data sources for answering this question*: Surveys conducted prior to Healthcare Enforcement and Licensing Management System (HELMS) implementation may not have high response rates. Practice ZIP Code, a variable collected in all three of these sources and often used to confirm practicing in Washington, may come from the license mailing address and not reflect primary practice location.

3. **What are the practice settings (e.g., hospital, ambulatory care, long term care) where [occupation(s)] with active WA licenses are currently practicing?**
    a. *Example data source to answer:* **MD/PA Demographic Census, Washington State Board of Nursing Workforce Survey, Healthcare Professionals Demographic Data Survey** (all other health occupations).
    b. *Strengths of using these data sources:* When accessible, these surveys include questions relevant to identifying practice setting.
    c. *Weaknesses of these data sources for answering this question*: Washington surveys conducted prior to HELMS implementation may not have high response rates. Categories of practice setting type may vary among surveys, and may not be highly detailed, or comparable between occupations.

4. **What are the demographic characteristics of [occupation(s)] (e.g., age, sex, gender, race/ethnicity, language spoken)?**
    a. *Example data sources to answer:* **Healthcare Professionals Demographic Data Survey** (all health occupations), **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey, American Community Survey (ACS)**, and **Public Health Workforce Interests and Needs Survey (PH WINS).**
    b. *Strengths of using these data sources:* With implementation of Engrossed Substitute House Bill 1503, beginning in 2025 demographic questions are now required with licensing and renewal through HELMS using the **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey,** and the **Healthcare Professionals Demographic Data Survey** for all health care occupations in Washington. These questions include race, ethnicity, gender, languages spoken, specialty (where applicable), and primary and secondary practice locations. **PH WINS** provides details, including demographic information, of public health occupations not found in other surveys/data sources.
    c. *Weaknesses of these data sources for answering this question*: Washington surveys conducted prior to HELMS implementation may not have high response rates. The **ACS** uses Standard Occupational Classification (SOC) codes which may combine diverse roles. The **ACS** is a sample survey, and there may be high margins of error when looking at smaller subgroups. Smaller units of analysis, such as geography, may only be available using the 5-year data. **PH WINS** is also a sample survey which may have high margins of error.

5. **How many average hours per week do [occupation(s)] work in each practice setting? How many hours per week in each setting are involved with providing direct clinical care vs. other work activities (e.g., administration, education)?**

    a. *Example data sources to answer:* Practice setting, but not hours, are included in the Washington State **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey, Healthcare Professionals Demographic Data Survey** (all other health occupations), and the **American Community Survey (ACS).**

    b. *Strengths of using this data source*: **ACS** asks respondents about hours worked per week for the sample of Washington residents included in the survey.

    c. *Weaknesses of this data source for answering this question:* Hours per week and/or work activity are not available on an ongoing basis from Washington state data sources. **ACS** data come from a survey sample, and small sample sizes may limit generalizability for specific occupations and sub-state areas. **ACS** does not ask about specific activities conducted by workers.

6. **What populations are primarily served by [occupation(s)] in their practice (e.g., social workers serving school aged children vs. geriatric; RNs in public health vs. school nursing vs. acute care)?**

    a. *Example data sources to answer:* **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey, AMA Masterfile, Public Health Workforce Interests and Needs Survey (PH WINS).**

    b. *Strengths of using these data sources:* The Washington-based demographic surveys ask about work settings such as long-term care facilities, or schools, where different populations are served. **PH WINS** includes questions of where occupations may specialize, such as social workers who work in program areas like maternal and child health, or substance use disorders, which also indicate specific populations served.

    c. *Weaknesses of this data source for answering this question:* Some populations may not receive services in facilities or settings included in the survey options.

7. **What are average pre-tax annual earnings (including overtime and bonuses, but excluding sign-on bonuses) for [occupation(s)] practicing in Washington?**

    a. *Example data sources to answer:* **Occupational Employment and Wage Statistics (OEWS), Community Population Survey (CPS).**

    b. *Strengths of using these data sources:* **OEWS** and **CPS** contain data on occupation-level wages and are both frequently updated data sources.

    c. *Weaknesses of theses data source for answering this question:* Different data sources collect information on wages in different ways. **OEWS** and **CPS** use SOC codes to classify occupations, which may combine occupations.

8. **What are the practice specialties (through certification or credential) of the actively licensed [occupation(s)] [e.g., for physicians - family medicine, surgery, urology; for ARNP roles - women's health, CRNA])?**

    a. *Example data sources to answer:* **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey,** the **National Provider Identifier (NPI).**

    b. *Strengths of using these data sources*: The **MD/PA Demographic Survey and Washington State Board of Nursing Workforce Survey** provide detailed specialty information for those specific occupations. **NPI** data provides access to multiple occupations and their reported specialties.

c. *Weaknesses of these data sources for answering this question:* Washington surveys conducted prior to HELMS implementation may not have high response rates. **NPI** may not contain up-to-date information including whether the individual is still actively licensed and current practice ZIP Code.

Respondents were asked to comment on additional health workforce supply-related questions that they considered high priority. Added questions included the following topics:

- Does [occupation] take Medicaid, Medicare Advantage, others?
- Can [occupation] find jobs in their desired area of healthcare provision?
- What is the practice location of [occupation] (by Zip Code(s) or County)?
- Does [occupation] offer telehealth services?
- What percentage of the [occupation] income is derived from Medicaid payor billing?
- How much did [occupation] training cost?
- How many other and what type of occupation(s) do you work with in your current employment setting?
- What are the patient care outcomes or other provider quality indicators of the facilities where the above practice?
- How many of [occupation X] have active Washington associate licenses (or are otherwise credentialed to practice under supervision or working toward full licensure in Washington)?
- Average number of years employees have been in current position and field of practice.

Demand Questions

The distribution of respondents' ratings of five questions related to health workforce demand, and the mean rating of responses for each demand question are shown in **Table 4**. The majority rated all questions in the survey as either moderate or high priority questions for health workforce policy and planning in Washington. Following are notes on available relevant data sources to address the highest rated demand questions.

1. **What are vacancy rates for [occupation(s)] in [setting] (e.g., RN positions vacant out of total [employed plus vacant] and being recruited in skilled nursing facilities)?**

    a. *Example data sources to answer:* **Occupations in Demand, Labor Market Supply/Demand Reports,** and **Association of State and Territorial Health Officials (ASTHO) Profile data.**

    b. *Strengths of using these data sources:* To estimate vacancy rates, multiple data sources may be needed. The **Occupations in Demand** public dashboard provides information on what occupations are in demand in the state overall and in each county, using SOC codes to identify occupations and can be used as a proxy to estimate vacancy rates. Data include if the occupation is in demand, required education and training, average annual salary, average annual growth rate, and average annual total openings. County and state categorization of "in demand," "balanced," or "not in demand" is categorized by average annual growth and percent of job openings. **ASTHO** data contains the number of vacant positions and number of budgeted positions at state health departments, allowing for calculations of a vacancy rate.

    c. *Weaknesses of these data sources for answering this question:* With the absence of mandatory reporting and variation in definitions across data sources, vacancy rate data is difficult to capture. Vacancy rates are not specifically measured by these data sources. For **Occupations in Demand**, the data indicate whether an occupation is in demand in a particular county.

Table 4.
Mean Priority Rating (0-3) of all Demand Health Workforce Questions

Question	Mean Rating	Distribution of priority ratings of health workforce demand questions, by survey respondents (n=46)
What are vacancy rates for [occupation(s)] in [setting]?	2.6	68.2% 22.7% 9.1%
How many [occupation] are employed in [setting]?	2.2	43.5% 37.0% 17.4% 2.2%
What special skills/qualifications are being sought/required by employers in specific settings?	2.1	36.4% 36.4% 25.0% 2.3%
To what extent do health care organizations staff with permanent/ regular employees vs. contract (short term) employees? Which occupations/ how many positions are employed as remote/telework positions?	2.0	37.0% 39.1% 13.0% 10.9%
Which occupations/how many FTEs have recently been laid off/furloughed/ reduced in [setting type]?	2.0	39.1% 30.4% 26.1% 4.3%
		High priority Moderate priority Low priority Not a priority

Mean rating calculated from responses: 3=high priority, 2=moderate priority, 1=low priority, 0=not a priority.

2. **How many [occupation] are employed in [setting]? (e.g., # of ADNs employed in acute care; # ARNPs providing primary care, # of physical therapists employed in acute care hospitals)**

    a. *Example data source to answer:* the Washington State **MD/PA Demographic Survey, Washington State Board of Nursing Workforce Survey.**

    b. *Strengths of using these data sources:* Surveys include questions about work setting for MDs and PAs, and for nurses (ARNPs, RNs and LPNs).

    c. *Weaknesses of these data sources for answering this question:* To date, while survey response rates are relatively high, responses are not provided by all licensed professionals which limits the accuracy of employment estimates.

3. **What special skills/qualifications are being sought/required by employers in specific settings (e.g., experience using AI tools; non-English language proficiency)?**

    a. *Example data sources to answer:* **Real-Time Labor Market Information (RT-LMI)**

    b. *Strengths of using this data source:* **RT-LMI** includes data on the skills required by employers with open positions, by occupation.

    c. *Weaknesses of this data source for answering this question:* The methods used to extract skills data from job

ads may vary, depending on the specific company (e.g., LinkUp, Burning Glass, Monster, Chmura, Lightcast, etc.), and as such can be inconsistent.

4. **To what extent do health care organizations staff with permanent/regular employees vs. contract (short term) employees? Which occupations/how many positions are employed as remote/telework positions?**
    a. *Example data sources to answer:* **Health Workforce Sentinel Network, Association of State and Territorial Health Officials (ASTHO) Profile Data.**
    b. *Strengths of using this data source:* **Health Workforce Sentinel Network** data includes special questions to identify signals of changes related to staffing trends. **ASTHO** asks about temporary employment among state public health department workers.
    c. *Weaknesses of these data sources for answering this question:* A lot of data on this question is not available. The **Health Workforce Sentinel Network** staffing trends questions are not asked regularly.

5. **Which occupations/how many FTEs have recently been laid off/furloughed/reduced in [setting type]?**
    a. *Example data source to answer:* **Association of State and Territorial Health Officials (ASTHO) Profile Data, Community Population Survey (CPS).**
    b. *Strengths of using these data sources*: **ASTHO** provides detailed data regarding reductions in public health occupations along with ongoing vacancies. **CPS** provides detailed information across health occupations related to employment status and reasons for unemployment.
    c. *Weaknesses of these data sources for answering this question:* **CPS** is a sample survey and small sample sizes may limit generalizability for specific occupations and sub-state areas.

Respondents were asked to comment on additional health workforce demand-related questions that they considered high priority. Added questions included (note - there were no duplicates among the added questions):

- What is the average amount of time it takes to fill a vacant position by occupation and ZIP Code?
- Vacancy rates for occupations by ZIP Code. Information about calibrated skilled/credentialed dental assistant program offered through high school career workforce education programs.
- To what extent does workplace culture affect regular employment vs contract/short term employment in a healthcare organization/office?
- Why are many workers leaving their profession?
- Are the vacancies part-time or full-time. Are they evenings or weekends?
- Do some offices have more turnover and why?
- How many dental hygienists are exclusively temporary hires vs employed by dentists/DSOs/corporates?
- Is your employer currently looking for additional dental hygienists?

Population Need Questions

The mean rating score and distribution of respondents' ratings of three questions related to the population's need for health services and the related health workforce are shown in **Table 5**. The majority rated all population need questions as either moderate or high priority questions for health workforce policy and planning in Washington. Following are notes on available relevant data sources to address the highest rated population need questions.

Table 5.
Mean Priority Rating (0-3) of all Population Need Health Workforce Questions

Question	Mean Rating	Distribution of priority ratings of health workforce population need questions, by survey respondents (n=46)
What percentage of the population has health insurance? What percent of the insured population has Medicaid coverage? Medicare? Do available providers accept patients' insurance?	2.6	
What are the demographic characteristics of the population of interest, and are there providers available who are appropriate for their care where it's needed?	2.5	
What are the average transportation times of the population to services and does transportation hinder access to care?	2.3	
		High priority Moderate priority Low priority Not a priority

Mean rating calculated from responses: 3=high priority, 2=moderate priority, 1=low priority, 0=not a priority.

1. **What percentage of the population has health insurance? What percentage of the insured population has Medicaid coverage? Medicare? Do available providers accept patients' insurance?**
    a. *Example data sources to answer:* **The American Community Survey (ACS),** and the **Behavioral Risk Factor Surveillance System (BRFSS).**
    b. *Strengths of using these data sources:* The **ACS** asks about household health insurance coverage, and when aggregated can be used to answer the question of health insurance coverage in the state. **BRFSS**, a national survey on the health behaviors and use of health services by U.S. residents, includes questions about health insurance coverage and use, and can be analyzed at the state level.
    c. *Weaknesses of these data sources for answering this question:* Regularly collected data sources do not obtain information about patients' insurance types accepted by providers.

2. **What are the demographic characteristics of the population of interest, and are there providers available who are appropriate for their care where it's needed? (e.g., pediatricians, geriatricians, women's health care specialists)?**
    a. *Example data source to answer:* **Area Health Resource File (AHRF)**
    b. *Strengths of using this data source:* **AHRF** provides publicly available county level data describing multiple community and provider characteristics.
    c. *Weaknesses of this data source for answering this question:* Because **AHRF** is comprised of multiple sources of data, each source having strengths and weaknesses, knowledge of the component data is needed for appropriate use. For example, occupation counts and distribution may come from **National Provider Identifier** data, which is not always up to date. Additionally, some **AHRF** indicators may lag by 2-3 years.

3. **What are the average transportation times of the population to services and does transportation hinder access to care (e.g., to primary care providers, to women's health care specialists/maternity care, to behavioral health services)?**

    a. *Example data source to answer*: **The Behavioral Risk Factor Surveillance System (BRFSS).**

    b. *Strengths of using this data source:* **BRFSS** survey asks if a lack of reliable transportation has kept the respondent from medical appointments in the past year. The survey sample provides sub-state estimates.

    c. *Weaknesses of this data source for answering this question:* Question is not specific to types of health care needs that may be missed, such as primary care, behavioral health care, etc. **BRFSS** is a national sample survey, so sub-state estimates may have high margins of error.

Respondents were asked to comment on additional health workforce supply-related questions that they considered high priority. Added questions included (note - there were no duplicates among the added questions):

- It would be great if adding in geographic regions, by urban/rural areas, counties, etc. to reflect the regional differences in population need/access, as transportation time or options of care providers may vary by urban/rural.
- How long is the wait for the population of interest in accessing the healthcare that they need (e.g., time from scheduling until appointments with PCPs, with specialists, etc.) and how does this vary by insurance carrier and geographic location?
- Would love some questions about waiting times both in office (how long does it take to be seen by a provider) and appointment waiting times (how far out do patients need to schedule their appointments for [occupation]? The goal is seeing if patients are waiting days, weeks, or months to see certain specialists.
- Please don't just ask if the providers accept Medicaid. Please ask what percentage of their practice income is derived from Medicaid payment. This is far more accurate accounting of Medicaid providers.

Additional workforce-related questions of interest and relevant comments from survey respondents included:

- It would be helpful to have more detailed data on the behavioral health workforce, disaggregated by MH [mental health] and SUD [substance use disorder], inpatient and outpatient, and Licensed, Associates, or below associates level providers.
- When inquiring about reasons for dental hygiene workforce shortages, it would be best to survey dental hygienists, rather than employer/dentists as the perspectives differ greatly.
- I did not see where to input this, but it would also be helpful to assess: (1) retention and attrition of healthcare workers and (2) something around country of origin (given the current administration's changing policies around things like H-1B visas).
- I think researchers may need to know what kinds of data employers collect about employees.
- I would be interested in hearing more about what health systems are doing to address health workforce shortages and the work they are doing to recruit future workforce. Are groups partnering with K-12? How early are groups working to raise awareness about careers?
- A modern data dashboard with built in functionality through Microsoft BI or Tableau would be an excellent tool for those with and without deep data skills.
- Language preference in patient populations versus providers' language abilities for different facilities and areas.

Accessibility of Workforce Data

Given the many current workforce data sources in the state, survey respondents were asked how often they are able to identify and find the appropriate data and information they are looking for, as well as how frequently they currently use health workforce data in their work (**Table 6**). Respondents were also asked if they would use guidance on these data sources if provided, and how often they would use an integrated workforce data system.

More than 80% of respondents either frequently (41.3%) or occasionally (43.5%) access Washington's current health workforce data sources, but when asked if they were able to find the information of interest, only one-quarter of respondents indicated that they were frequently able to find the information, while half of respondents said they occasionally were able to access desired information. Respondents indicated a desire for additional guidance on how to use or access health workforce data resources, with more than half saying they would frequently use such a resource. Finally, over three-quarters of respondents indicated that if an integrated data system were available for health workforce data, they would use it frequently.

Table 6.
Distribution of Responses to Accessibility of Health Workforce Data Questions

Question	Distribution of frequency ratings of accessibility of health workforce data questions, by survey respondents (n=46)
About how often do you access online data resources about Washington's health workforce (e.g., Health Professions License Data, WA Board of Nursing workforce dashboard, Employment Security Department "Occupations in Demand")?	41.3% / 43.5% / 8.7% / 6.5%
When you want to access data about Washington's health workforce, how often are you able to find the information you're seeking?	26.1% / 50.0% / 23.9%
If guidance about how to use/access health workforce data from various sources were available, how often would you be likely to use it?	58.7% / 19.6% / 19.6% / 2.2%
If an integrated data system were available that provided online access to health workforce supply and demand data for Washington, how often would you be likely to use it?	76.1% / 15.2% / 6.5% / 2.2%

Frequently Occasionally Seldom Never

DISCUSSION AND TAKEAWAYS

As described in this report, there are many different sources of data that can be used to address key health workforce questions asked by people who need to know about Washington's health care workforce supply, demand, and factors affecting changes over time. Some data that are useful for health workforce analyses are collected primarily for workforce tracking purposes, including professional organizations' datasets such as the American Medical Association's Physician Professional Data describing the national physician workforce, and data collected in association with professional licensing and renewal such as the Washington State Board of Nursing Workforce Survey (WABON). Other commonly used data are collected primarily for administrative purposes and not specifically for health workforce planning, such as Washington's Network Access Report, health care claims data, and the National Provider Identifier (NPI). Users conducting analyses to inform health workforce planning and policy frequently must access multiple data sources, and as a result need to understand what data elements are (and are not) comparable among the data sources and acknowledge where data gaps exist.

Workforce Data Gaps

This report describes the major sources of data that may be useful in addressing high priority health workforce planning and policy questions, such as those rated by the stakeholders we contacted. There remain, however, weaknesses and gaps in the data that limit the information available about Washington's health workforce. Some of these gaps will be filled when the Healthcare Professionals Demographic Data Survey is fully implemented, once the state's new Healthcare Enforcement and Licensing Management System (HELMS) professional licensing and renewal portal has captured data across each occupation's full license renewal cycle. These data, mandated to be collected by the Washington Legislature through Engrossed Substitute House Bill 1503, will complement the demographic data already being provided by physicians and nurses to describe all licensed occupations' race, ethnicity, languages spoken, specialty, and if and where they are practicing. However, there remain many workforce questions that data from HELMS, as currently being implemented, will not be able to address (e.g., hours worked, work setting payment structure, other occupations at work setting, and patient population). To bridge these remaining data gaps, findings from this study suggest future data resource planning should support collection of the following data elements for some or all health occupations:

- Work/practice details, include hours worked per week, in what roles (e.g., clinical, education, administrative), employment status (e.g., employed vs. contract), income, etc.
- Patient/client populations served by the clinician and their practice (e.g., rural vs. urban, insurance type/status, underserved status, age group(s), etc. and setting type such as long-term care facility, other residential, acute care, etc.).
- Workforce vacancy rates for occupations by geographic region, employer type and setting.
- Detailed information about employers' ability to recruit and retain workers with needed skills, by occupation and work setting.
- Occupation- and setting-specific details of layoffs and position reductions.
- Quantification and description of the telehealth workforce in the state, including the proportions of distant health workers serving specific geographic areas.
- Commuting factors related to population access to available health care providers, including transportation resources and transport time.
- Regularly collected data on factors that influence healthcare workers' decisions on where they work and how long they stay in a job.

These data gaps have occurred largely because much of the available health workforce data, especially from state sources, has been collected for administrative and not workforce planning purposes.

Access to Workforce Data

Users of data related to the health workforce, as well as the results of analyses based on the data, include educators, planners, researchers, and policymakers, among others. Appropriate data to address health workforce questions are not always complete and/or available, but even when the data exist, access may be limited depending on ownership, access costs, and privacy/security factors. The costs of accessing these data vary depending on data ownership and usage rules, and who (from what institution) is accessing the source.

Access to Individual-level and Source Data

Some users, such as researchers and agency analysts, need access to source data about the workforce (e.g., individual-level demographic survey and licensure data) for their analyses. At this level, users may be required to secure data use agreements with the data owner, complete human subjects review by the appropriate Institutional Review Board (IRB) and pay any associated fees. The extent to which these steps are required often depends on the affiliation of the user. For example, academic researchers typically must show completion of IRB reviews while analyses to inform or evaluate education programs generally are considered to not be research requiring IRB review. As described in this report, data sources requiring a data use agreement for access include individual-level demographic data from the Washington Medical Commission and from the Washington State All Payer Claims Database from the Washington Health Care Authority.

Access through Workforce Data Dashboards

Analyses using several of the data sources described in the report are made available through publicly accessible data dashboards. One example is the WABON Data Dashboard that combines information from the Health Care Provider Credential Data and WABON's Workforce Survey to provide an interactive resource that can be used to answer questions about Washington nurses' supply size, distribution, education, and work characteristics. National health workforce data, with state- and county-level estimates, are similarly consolidated and made publicly available through the Health Resources and Services Administration's Area Health Resource File (AHRF). AHRF provides information from many different sources about not only the workforce, but also presents information about areas' health care facilities, utilization, and population characteristics. The Washington Oral Health Workforce (WOHW) Tracking Program, developed by the University of Washington Center for Health Workforce Studies, has analyzed and presents aggregated data about the state's dental occupations into a publicly available dashboard.[7] WOHW has accessed secondary sources including Washington's Health Care Provider Credential Data, Washington's Health Workforce Sentinel Network, and the Integrated Postsecondary Education Data System, as well as new primary data from surveys, to describe the different dental occupations in the state, including supply size and distribution over time, their demographic characteristics, and education pathways and trends over time. Funding for WOHW (initiated in 2022) ends in December 2025. The costs of preparing and maintaining publicly accessible data dashboards are typically borne by the dashboard host, who may incur expenses to acquire and analyze the data presented.

Integrating Health Workforce Data Sources

When available, resources that integrate multiple types of workforce data and facilitate access for users can facilitate timely health workforce analyses, freeing users from accessing the component data sources individually. As rated by stakeholders responding to this project's survey, if an integrated system were available that provided online access to health workforce supply and demand data for Washington, more than three quarters of respondents said they would use it frequently.

Operationalizing the integration of health workforce data, however, can be very complex. In addition to identifying the goals of integration, including identifying the specific data elements desired to be accessed from one source, factors related to data ownership, comparability, and supporting resources must be considered. Specifically, each data source has associated technical, legal, operational, financial, and timeline characteristics which may or may not be amenable to integration into

one resource. To determine the steps and any barriers to overcome when developing a data integration plan, the following questions should be asked and specific answers addressed. Depending on the data of interest, and responses to these (and other related) questions, the feasibility of integration may be determined:

- What data are feasible, or "eligible" for integration – data within one agency only, or also from across agencies?
- If data integration involves multiple data owners (e.g., state agencies), would integration require changing ownership of the collection and maintenance of the data source? Would that involve regulatory or statutory changes?
- What are the costs of transitioning to an integrated workforce data system? What are the maintenance costs? Do the costs involve shifts in existing resources or require new funding resources?
- If the data sources considered for integration are identified to not include all data elements needed to address key workforce questions, does that lessen their likelihood of being integrated?
- Does the integrated data system have support for maintenance and regular updating?

If these operational factors are identified and able to be successfully addressed, it may be reasonable to pursue integration of the health workforce data resources.

CONCLUSIONS

This project and the resulting report describe the major data resources that can be used to address questions important for health workforce planning and policy in Washington.

Key findings include:

- There are many sources of data that can be used to address questions about Washington's health workforce. These data are collected and maintained by state government entities as well as private and federal sources, and many contain data collected for administrative purposes which may limit their completeness and accessibility for health workforce planning.
- The questions about workforce supply given the highest priority ratings by stakeholders include knowing how many of each licensed occupation have active Washington licenses, the percentages of those occupations practicing with their license in the state, their practice settings, and their demographic characteristics. Workforce demand questions rated highest priority included knowing the vacancy rates for different occupations across work settings and knowing the number of each occupation employed in various work settings. Also given high priority by stakeholders was knowing the details of insurance coverage across different populations in the state and assessing the extent to which available providers accept patients' insurance. Question rankings can provide guidance for where to prioritize workforce data collection.
- Gaps and weaknesses in the available data about Washington's health workforce limit the information that can be learned from analyses of the data. These gaps include incomplete data on the workforce from surveys based on population samples and low survey response rates, as well as datasets that lack key variables relevant to workforce analyses. Some of these gaps will be filled when the state's Healthcare Professionals Demographic Data Survey is fully implemented, which will occur once the state's new HELMS professional licensing and renewal portal has captured data across each occupation's full license renewal cycle. Additional identified gaps, such as specific work/practice details or patient/client populations served by the clinician and their practice, may need to be filled through new data collection efforts, if deemed to be of sufficient priority.

- There are various ways to access health workforce data including directly accessing source data and viewing data through interactive public dashboards that consolidate findings from multiple data sources. Efficient access can be achieved when multiple data sources are integrated and made available to users. Data source integration can take a variety of forms, all of which require a host with resources sufficient to develop and maintain the resource.
- There are many Washington researchers and policymakers accessing and analyzing a wide variety of sources of workforce data, as evidenced by input from the stakeholders we interviewed for this project. This reflects the wide range of health workforce research and analysis occurring in the state. Communication among these different research and analysis groups, however, and sharing of their research findings to better inform statewide workforce planning, is limited. In addition to improving the amount of, and access to, health workforce planning data, increasing ways to share the research findings among potential users could help maximize resource use and benefit workforce planning in Washington.

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APPENDIX A – AVAILABLE HEALTH WORKFORCE DATA SOURCES IN WASHINGTON – DETAILED DESCRIPTIONS

CONTENTS – WASHINGTON HEALTH WORKFORCE DATA SOURCES

Contents continued on next page

WASHINGTON STATE-BASED SUPPLY DATA SOURCES

Healthcare Professionals Demographic Data Survey

1. **Data Category** Supply
2. **Description**
   The Healthcare Professionals Demographic Data Survey is a new demographic survey (replacing the Washington Health Workforce Survey) required by the Washington State Legislature through Engrossed Substitute House Bill (ESHB) 1503 (2023) for all provider types at the time of license application and renewal. The requirement applies to all licensed health care professionals except for allopathic physicians, physician assistants, and nurses, who have mandatory profession-specific demographic surveys conducted by their own professional organizations (see entries for the Washington State Board of Nursing Workforce Survey and the MD/PA Demographic Survey, below). The Healthcare Professionals Demographic Data Survey is administered online through the Healthcare Enforcement & Licensing Management System (HELMS), a new vehicle to collect and manage licensing and related data for all healthcare professionals and facilities, which was fully implemented in May 2025.
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code
4. **Funder/Sponsor**
   Washington State Department of Health (DOH)
5. **Data universe and unit of analysis**
   All individuals credentialed in health care occupations in Washington, except allopathic physicians, physician assistants, and nurses, who are required to answer ESHB 1503-mandated questions via their profession-specific surveys.
6. **Notable data elements and variables**
   ESHB 1503 mandates that all licensure applicants beginning in 2025 provide and update at license renewal their race*, ethnicity*, gender identity*, languages spoken*, provider specialty (where applicable), practice status, primary and secondary practice location, and practice setting (behavioral health agency, hospital, community clinic, private clinic, etc.). Although responding to the survey is required, respondents may decline to answer sensitive questions (indicated with *).
7. **Data format and accessibility**
   The full dataset is not yet available but expected in 2027. When data are available, data requests will require a data use agreement or public records request from DOH.
8. **Links to access/how to access**
   Not yet available, as of December 2025.
9. **Examples of prior uses**
   N/A
10. **Notes/guidance on data use**
    All professions have the same questions mandated by the Washington State Legislature through ESHB 1503, except for answer options for the question of practice area, which are different for the following specific health care occupation groups: substance use disorder professionals, counseling, osteopaths, naturopaths, dental occupations, chiropractors, pharmacists, audiologists, speech language pathologists, physical therapy, occupational therapy, and podiatry.

    Before HELMS implementation, osteopathic physicians and surgeons (DOs) were surveyed by the Washington Board of Osteopathic Medicine and Surgery at time of license renewal (2015 – 2025). DOs are now included in the health occupations required to complete the Healthcare Professionals Demographic Data Survey, and do not have a separate workforce survey.

Washington Health Care Provider Credential Data

1. **Data Category** Supply
2. **Description**
   Health Care Provider Credential Data contains information on individuals with health care credentials/licenses in Washington state, including credential/license status. As of November 2024, credential data is collected and maintained online via the Healthcare Enforcement & Licensing Management System (HELMS), a new vehicle to collect and manage licensing and related data for all healthcare professionals and facilities, replacing the previous database, the Integrated Licensing and Regulatory System (ILERS).
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code
4. **Funder/Sponsor**
   Washington State Department of Health (DOH)
5. **Data universe and unit of analysis**
   All individuals credentialed in health care occupations in Washington.
6. **Notable data elements and variables**
   Credential number, full name, credential type, credential status (i.e. active, expired, pending, etc.), birth year, continued education due date, first and last issue dates, expiration date, and mailing address.
7. **Data format and accessibility**
   The Washington State Open Data Portal provides the ability to look up specific providers or to look up individuals by credential type and status using a publicly available web-based data tool. Data can be exported in various formats from the web portal. Some variables, such as birth year and mailing address are only accessible with a data sharing agreement (DSA) with DOH.
8. **Links to access/how to access**
   https://data.wa.gov/health/Health-Care-Provider-Credential-Data/qxh8-f4bd/about_data
9. **Examples of prior uses**
   - Analyses conducted by the Washington Oral Health Workforce Tracking Program of the University of Washington Center for Health Workforce Studies used health care provider credential data to describe oral health occupations in Washington: https://familymedicine.uw.edu/chws/resources/wohw/workforce-data/current-supply/
   - Washington State Department of Health Licensee Counts by Year: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdoh.wa.gov%2Fsites%2Fdefault%2Ffiles%2F2023-09%2F631106-LicenseeCountsbyProfession.xlsx&wdOrigin=BROWSELINK
10. **Notes/guidance on data use**
    Although mailing address ZIP Code is available to researchers accessing the data by DSA, this field may not be an accurate representation of practice location.

Washington State Board of Nursing Workforce Survey

1. **Data Category** Supply
2. **Description**
   Data for nurses (LPNs, RNs, and ARNPs) in Washington are collected through the mandatory Washington State Board of Nursing (WABON) Workforce Survey during licensing renewal (and application). Data collected include demographics, work characteristics, and education background, along with data elements from the Healthcare Professionals Demographic Data Survey as mandated by ESHB 1503. This survey is collected via the Healthcare Enforcement & Licensing Management System (HELMS), a new vehicle to collect and manage licensing and related data for all healthcare professionals and facilities, which was fully implemented in May 2025. Prior to the WABON Workforce Survey, similar data were collected via Nursys e-Notify, a national nursing workforce survey; these data are current through November 2024.
3. **Geography**
   Largest: National / Smallest: ZIP Code
4. **Funder/Sponsor**
   Washington State Board of Nursing (WABON)
5. **Data universe and unit of analysis**
   All individual Registered Nurses (RNs), Advanced Registered Nurse Practitioners (ARNPs), and Licensed Practical Nurses (LPNs) licensed in Washington.
6. **Notable data elements and variables**
   Demographics; education (entry degree into nursing; highest nursing degree; non-nursing degrees); employment status; board certifications (for ARNPs); practice characteristics (primary and secondary specialty; primary and secondary setting; practice ZIP Code; hours worked per week), in addition to the variables required by the Legislature through ESHB 1503 (race, ethnicity, gender, languages spoken, specialty, currently practicing, and primary place of practice).
7. **Data format and accessibility**
   Raw data are available through a data service agreement with WABON along with approval from the Washington State Department of Health Institutional Review Board. Data summaries are also available through online dashboards.
8. **Links to access/how to access**
   Data request form: https://forms.office.com/g/CC6Gz9itzy
9. **Examples of prior uses**
   WABON Workforce Survey data was used for analysis of the Certified Registered Nurse Anesthetist (CRNA) workforce in the University of Washington Center for Health Workforce Studies report: Washington State's Anesthesia Workforce
10. **Notes/guidance on data use**
    Survey data can be linked to licensure data to determine the overall response rate and to include data elements maintained as part of the nursing license, such as license status. The survey applies to all nurses licensed in Washington, but practice locations may include other states, territories or countries.

Allopathic Physician (MD) and Physician Assistant (PA) Demographic Census

1. **Data Category** Supply
2. **Description**
   The MD/PA Demographic Census is a mandatory survey required of all allopathic physicians (MDs) and physician assistants (PAs) at the time of their license renewal every two years. It includes questions on educational background, practice characteristics, and individual demographics, as well as data elements from the Healthcare Professionals Demographic Data Survey, as mandated by the Washington State Legislature via ESHB 1503. The MD/PA Demographic Census is an online survey collected via the Healthcare Enforcement & Licensing Management System (HELMS), a new vehicle to collect and manage licensing and related data for all healthcare professionals and facilities, which was fully implemented in May 2025. While MDs and PAs are prompted to complete the census via HELMs online, some may opt to complete a paper form. Prior to the implementation of HELMS, similar survey data was collected in a separate system by the Washington Medical Commission.
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code
4. **Funder/Sponsor**
   Washington Medical Commission (WMC)
5. **Data universe and unit of analysis**
   All MDs and PAs licensed through the WMC.
6. **Notable data elements and variables**
   In addition to the variables required by ESHB 1503 (race, ethnicity, gender, languages spoken, specialty, whether currently practicing, and primary place of practice), the Demographic Census asks about areas of practice in which the licensee completed an accredited residency or fellowship, location of medical/PA school, board certification(s), retirement status/intentions, and practice characteristics (location of practice sites, average hours per week at each site, practice size and arrangement).
7. **Data format and accessibility**
   A data use agreement (DUA) with the WMC is required to obtain raw data for research purposes. Data access also requires approval via the Washington State Department of Health Institutional Review Board. Aggregate demographic reports for MDs and PAs are available online on the WMC website.
8. **Links to access/how to access**
   - Contact the WMC to initiate the DUA process: https://wmc.wa.gov/contact-us
   - Demographic reports for data collected before HELMS implementation: https://wmc.wa.gov/resources/md-and-pa-demographics
9. **Examples of prior uses**
   MD/PA Demographic Census data was used for analysis of the MD anesthesiologist workforce in the University of Washington Center for Health Workforce Studies report: Washington State's Anesthesia Workforce
10. **Notes/guidance on data use**
    Response rates for this survey are relatively high as physicians are required by law to provide this information when applying for and renewing their license. However, licenses will still be issued even if the demographic survey is not completed.

    The survey is sometimes filled out by an administrator rather than the physician, which can contribute to incomplete responses. The survey can be linked to licensure data to determine the overall response rate and to include data elements maintained as part of the medical license, such as license status. The survey applies to all MDs licensed in Washington, but practice locations may include other states, territories or countries. A newly licensed occupation in Washington, Certified Anesthesiologist Assistants (CAAs), are also licensed through WMC as of December 2025 and data will be available in the future.

Washington State Board of Nursing (WABON) Data Dashboard

1. **Data Category** Supply
2. **Description**
   The Washington State Board of Nursing Data Dashboard (WABON) Data Dashboard presents information on the Washington state nursing workforce compiled from multiple sources of data which are organized into five dashboards: discipline; education; workforce; licensing; and preceptor grant. Each dashboard is interactive, provides various data visualizations, and allows the user to sort the data on various factors, such as demographics, geography, and employment status.
3. **Geography**
   Largest: Washington State / Smallest: County
4. **Funder/Sponsor**
   Washington State Board of Nursing
5. **Data universe and unit of analysis**
   All individual Registered Nurses (RNs), Advanced Registered Nurse Practitioners (ARNPs), and Licensed Practical Nurses (LPNs) in Washington as well as Nurse Technicians (NTECs), nursing students, and nursing assistant students.
6. **Notable data elements and variables**
   Number of active licenses, demographics, education levels, residence, employment status, primary place of practice, number of practice sites, specialty, education data (admission and graduation, student and faculty demographic data, specialties of post-licensure, clinical hours).
7. **Data format and accessibility**
   Aggregate summary data are publicly available through the online data dashboard. Some raw data may be available through a data use agreement (DUA) with the Washington Department of Health and may first require approval or a statement of exemption from the Washington State Institutional Review Board.
8. **Links to access/how to access**
   - Nursing Data Dashboard: https://nursing.wa.gov/research-and-data/data-dashboards
   - DUA: https://forms.office.com/pages/responsepage.aspx?id=F-LQEU4mCkCLoFfcwSfXLaR8oF9fsrdInyRD5Hnqf5lUQVJSVEZMSTVOTFpaMUEySjNOU0pDSDMyTS4u&route=shorturl
9. **Examples of prior uses**
   WABON Annual Education Reports: https://nursing.wa.gov/research-and-data/reports#EducationReports
10. **Notes/guidance on data use**
    N/A

Washington State All Payer Claims Database (WA-APCD)

1. **Data Category** Supply
2. **Description**
   The Washington State All Payer Claims Database (WA-APCD) contains data from health care public and private payer files in Washington with comprehensive information on what health care items and services insured individuals receive and how much is paid for those items and services. Workforce data come from the billing and service provider indicated on claims and are categorized by care setting: inpatient hospital care and outpatient services. Information includes medical, pharmacy, behavioral health, and dental services. Also see https://www.wahealthcarecompare.com/washingtons-apcd.
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code of provider (facility/organization) location
4. **Funder/Sponsor**
   WA-APCD was established in 2014 by Chapter 43.371 RCW. Currently managed by the Washington State Health Care Authority; previously managed by the Washington State Office of Financial Management 2014-2020.
5. **Data universe and unit of analysis**
   Data for most (about 70%) of Washington residents' health care claims. Over time, the claims sources have expanded. Currently includes the following market segments: commercial, self-insured, public employees benefits board, school employees benefits board, Exchange, Medicaid, Medicare Advantage, Medicare fee-for-service, as well as dental, worker's compensation, and Out-of-state lives. Some tribal care, self-funded care, and Veterans Administration care are among the groups/markets not included in the WA-APCD.
6. **Notable data elements and variables**
   Eligibility and claims data (claimant service level data); cost information; and master listing of facility and individual providers, including primary care practitioner assignment to medical practices. Data are refreshed quarterly with the most recent quarter of data.
7. **Data format and accessibility**
   Users have the choice of four data products: access to the analytic enclave; a data file extract; a custom analytic report prepared by APCD analysts; or "release upon request" data sets. The Analytic Enclave is a managed, cloud-based analytic environment that enables secure access to the all-payer data, added-value data augmentation services and a set of analytic tools. Clients access the all-payer data via a dedicated, virtual private cloud.
8. **Links to access/how to access**
   - Eligible users: https://www.wahealthcarecompare.com/eligible-data-users
   - Descriptions of access types: https://www.wahealthcarecompare.com/data-products
   - Applications for use: https://www.wahealthcarecompare.com/placing-data-request
9. **Examples of prior uses**
   NORC at the University of Chicago created the Physician and Physician Practice Research Database (3P-RD), a database that captures information on physician and physician practice characteristics in 13 states. 3P-RD aims to address gaps in the availability of physician data at the state and market level.
10. **Notes/guidance on data use**
    May be used to identify billing and servicing individual providers. Lack of detailed clinical, demographic, and contextual provider information can lead to gaps that require supplementation from additional data sources for certain use cases.

Washington State Medicaid Claims Data

1. **Data Category** Supply
2. **Description**
   Washington State Medicaid Claims Data are encounter data submitted to the Washington State Health Care Authority from the five Medicaid managed care entities and claims data from fee-for-service in the state. For workforce supply analyses, the individual provider identity on the claims (billing provider and servicing provider) can be matched with the National Provider Identifier (NPI) to describe individual providers involved with the claims. The five managed care plans also submit information on individual providers for network adequacy reports.
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code of organization submitting the claim (from provided full address)
4. **Funder/Sponsor**
   Washington State Health Care Authority (HCA)
5. **Data universe and unit of analysis**
   All Medicaid encounters and claims submitted to HCA, from which it is possible to identify individual providers associated with the claims.
6. **Notable data elements and variables**
   Individual billing provider and service provider associated with the claim. Patient data may include diagnoses and procedures, provider organization and service type, patient characteristics, with access dependent on user's needs and HCA review/approval. A provider dashboard shows billing and service providers by county (in Washington and neighboring states): https://www.hca.wa.gov/about-hca/data-and-reports/apple-health-provider-data-dashboard.
7. **Data format and accessibility**
   Raw data are available via a data request process required by the HCA. This applies to accessing Washington Medicaid data, as well as other data held by HCA (Public Employees, School Employees, Behavioral Health).
8. **Links to access/how to access**
   Information on HCA data and external requests through data governance site: https://www.hca.wa.gov/about-hca/data-and-reports/data-hca
9. **Examples of prior uses**
   Study using Washington Medicaid data to describe utilization by Medicaid enrollees in emergency departments:
   Sabbatini AK, McConnell KJ, Parrish C, et al. Impact of a statewide Emergency Department Information Exchange on health care use and expenditures. Health Serv Res. 2022;57(3):603-613. doi:10.1111/1475-6773.13963 https://onlinelibrary.wiley.com/doi/abs/10.1111/1475-6773.13963

Washington Network Access Reports

1. **Data Category** Supply
2. **Description**
   Network Access Reports come from Washington health insurance plans, including data from commercial insurers, Medicaid, and Medicare sources, containing records of individual health care providers contracted with an insurance company's provider organization network. Provider Network Form A is the relevant form and must be downloaded for each insurance plan for a given month and year. Rosters of contracted medical providers from active plans can be combined to understand the supply of health care professionals that are part of insurance networks registered with the Office of the Insurance Commissioner.
3. **Geography**
   Largest: Washington State / Smallest: Latitude/Longitude
4. **Funder/Sponsor**
   Washington State Office of the Insurance Commissioner (OIC)
5. **Data universe and unit of analysis**
   Health care professionals that are part of insurance networks registered with the Washington State OIC. Limited health plans, such as dental, vision, specific disease or accident-only coverage are not included.
6. **Notable data elements and variables**
   Medical professionals that contract with insurance providers, such as physicians, nurse practitioners, physician assistants, massage therapists, and chiropractors, among others, are represented. Name, occupation, credential number, languages spoken, and work location are available.
7. **Data format and accessibility**
   Publicly available for download as text files, but significant effort needed to combine and clean all files.
8. **Links to access/how to access**
   - Search companies by selecting "Company Search:" https://fortress.wa.gov/oic/consumertoolkit/Search.aspx
   - FAQ document: https://www.insurance.wa.gov/sites/default/files/2024-09/provider-network-form-a-project-faqs.pdf
   - Data dictionary for File A: https://www.insurance.wa.gov/sites/default/files/2025-03/network-access-provider-network-form-a-file-definition.pdf
9. **Examples of prior uses**
   The Office of Financial Management used these data to capture health care providers who are actively practicing in Washington and where their practice is located (which has not been readily available from data sources such as pre-Health Enforcement and Licensing Management System licensure data): 2021–23 Physician Assistant Supply in Provider Networks: Estimates for Washington
10. **Notes/guidance on data use**
    While the data files are publicly available, significant work is needed to download and de-duplicate all of the files needed for a complete supply analysis of a given healthcare profession.

Completions Over Time in Postsecondary Education in Washington State

1. **Data Category** Supply
2. **Description**
   The Washington Workforce Training and Education Coordinating Board (WTB) compiles data on all Washington State education program completions from private career colleges, federally funded institutions, and apprenticeships, available by the U.S. National Center for Education's Classification of Instructional Program (CIP) code. Sources include the U.S. National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) for accredited federally funded program completions; the WTB's Web-Based Data and Reporting System (WBDRS) for private career college completions; and the Washington Department of Labor and Industries for completions from apprenticeship programs.
3. **Geography**
   Largest: Washington State / Smallest: N/A; state-level only
4. **Funder/Sponsor**
   Washington Workforce Training and Education Coordinating Board (WTB)
5. **Data universe and unit of analysis**
   All health-related occupations by CIP code.
6. **Notable data elements and variables**
   Data include the total number of completions from all types of Washington education programs (not just federally funded programs). Data is not broken down by demographic, background, or institutional characteristics (as is available in IPEDS). Includes total numbers of completions for each educational program (public, private, or apprenticeship) by institution and year.
7. **Data format and accessibility**
   Raw data are publicly available to view on a dashboard or to download.
8. **Links to access/how to access**
   Data access: https://public.tableau.com/views/Completionsovertime-indexandcount/CountsLookup
9. **Examples of prior uses**
   - This dataset has been used to supplement data from IPEDS on completions from dental and oral health professions education and training programs from private career schools in the Washington Oral Health Workforce Tracking Program of the University of Washington Center for Health Workforce Studies: https://familymedicine.uw.edu/chws/resources/wohw/workforce-data/education-training/.
   - These data have also been used in the Washington Health Workforce Council Annual Reports, find 2024 here: https://wtb.wa.gov/wp-content/uploads/2025/03/Health-Workforce-Council-2024-Report.pdf.
10. **Notes/guidance on data use**
    Data are publicly available through an interactive Tableau dashboard with multiple tabs. Completions data are found on the "Counts Lookup" tab, and filtered by "Program Group", "CIP Code", "School", and "Year" of interest. Program completions from IPEDS data do not include completions by "Nonresident Alien" race categories.

Washington State Education Research & Data Center (ERDC)

1. **Data Category** Supply
2. **Description**
   The Washington State Education Research & Data Center (ERDC) provides workforce supply information via summary data dashboards as well as a longitudinal, restricted dataset. The ERDC has six publicly available dashboards, which include high school graduate outcomes, earnings for graduates, public four-year education (including degrees, enrollment, and completions), and public four-year finance. Restricted data (through the Preschool-to-Grade 20-to-Workforce [P20W] Data Warehouse) is in the form of a deidentified longitudinal data set with information on Washington residents' educational and workforce experiences.
3. **Geography**
   Largest: Washington State / Smallest: ZIP Code
4. **Funder/Sponsor**
   Washington State Office of Financial Management (OFM)
5. **Data universe and unit of analysis**
   Individuals who accessed public K-12 and postsecondary educational institutions in Washington state.
6. **Notable data elements and variables**
   Includes data on demographics, field and location of study, completions from education programs, and employment characteristics (e.g., wages, setting, employment ZIP Code).
7. **Data format and accessibility**
   Raw data are available via a data request with OFM. Data summaries are available online via reports and dashboards.
8. **Links to access/how to access**
   - Dashboards: https://erdc.wa.gov/data-dashboards
   - Data requests: https://erdc.wa.gov/data-resources/data-request-submission
9. **Examples of prior uses**
   Riggs S, Cigarroa Kennedy C. *Career and technical education in Washington state: A longitudinal study of student access, participation, and outcomes.* Education Northwest. 2025. Accessed December 18, 2025. https://erdc.wa.gov/sites/default/files/2025-09/WA_CTE_Report_508c.pdf
10. **Notes/guidance on data use**
    Restricted data requests should be made specifically for healthcare occupations of interest due to the large size of the dataset.

NATIONAL SUPPLY DATA SOURCES

American Medical Association (AMA) Physician Professional Data

1. **Data Category** Supply
2. **Description**
   The American Medical Association (AMA) Physician Professional Data provides education, training and professional certification information on Doctors of Medicine (MD) and Doctors of Osteopathic Medicine (DO) in the United States, Puerto Rico, Virgin Islands and certain Pacific Islands. Data included come from medical school databases, state licensing boards, and professional certifications. An individual MD's record starts when they enter a Liaison Committee on Medical Education (LCME) accredited medical school, or for international medical graduates (IMG) and DOs, when they enter an Accreditation Council for Graduate Medical Education (ACGME) accredited residency. Additional professional certification information is added as a physician's career continues.
3. **Geography**
   Largest: National / Smallest: Zip Code
4. **Funder/Sponsor**
   American Medical Association (AMA)
5. **Data universe and unit of analysis**
   MD and DO physicians (including AMA members and nonmembers) and physicians in residency.
6. **Notable data elements and variables**
   Multiple data elements including over 250 primary or secondary specialties, practice setting, board certifications and expiration dates, geographic locations, state of birth, year of birth, state trained or state of license (ties to states), and residency programs. Identifiers include AMA's unique 11-digit medical education (ME) number and the National Physician Identifier (NPI).
7. **Data format and accessibility**
   Raw data available from MMS (a third-party organization that AMA licenses to provide access to its Physician Masterfile).
8. **Links to access/how to access**
   Database licenses available for purchase data through MMS: https://www.mmslists.com/ama-research.
9. **Examples of prior uses**
   Analyses conducted by the University of Washington Center for Health Workforce Studies on the Washington state physician workforce: https://familymedicine.uw.edu/chws/wp-content/uploads/sites/5/2022/08/Washington_Physicians_FR_2022-JULY.pdf

American Dental Association (ADA) Dentist Masterfile

1. **Data Category** Supply
2. **Description**
   The American Dental Association (ADA) Dentist Masterfile is a database with information on all dentists in the United States, both practicing and non-practicing. It is updated through various methods, including reconciliation with state licensure databases, death records, and surveys conducted by the ADA.
3. **Geography**
   Largest: National / Smallest: Practice ZIP Code
4. **Funder/Sponsor**
   American Dental Association (ADA)
5. **Data universe and unit of analysis**
   All dentists, practicing and nonpracticing, in the U.S. Includes private practice, dental school or faculty staff members, armed forces, other federal services (e.g., Veterans Affairs, Public Health Service), state/local government employees, hospital staff dentists, graduate students, interns, residents, and other health or dental organization staff members.
6. **Notable data elements and variables**
   Dentist name, age, gender, race, retirement status, retired date, office ZIP Code, active [state] license, and [state] license number, specialty, work location type, graduation year, dental school name, and National Provider Identifier (NPI).
7. **Data format and accessibility**
   ADA Health Policy Institute provides customizable aggregate reports, including state reports. Individual-level data may be available through the state dental association.
8. **Links to access/how to access**
   Aggregate reports: https://www.ada.org/resources/research/health-policy-institute/state-level-data
9. **Examples of prior uses**
   Analyses conducted by the Washington Oral Health Workforce Tracking Program of the University of Washington Center for Health Workforce Studies used health care provider credential data to describe the race and ethnicity of dentists in Washington state: https://familymedicine.uw.edu/chws/wp-content/uploads/sites/5/2025/01/Data-Brief-WA-Dentist-RaceEthnicity-2022.pdf
10. **Notes/guidance on data use**
    Previous use with 2015-2022 Washington state data found practice ZIP Code was available for approximately 85-90% of entries.

National Provider Identifier (NPI) Data

1. **Data Category** Supply
2. **Description**
   The National Provider Identifier (NPI) is a unique 10-digit number assigned to health care providers and health plans/provider groups for identification in administrative and financial transactions as required by the Health Insurance Portability and Accountability Act of 1996 (HIPAA). The National Plan and Provider Enumeration System (NPPES) collects associated data with each NPI which is available in the NPPES database.
3. **Geography**
   Largest: National data collection system / Smallest: Provider ZIP Code
4. **Funder/Sponsor**
   U.S. Centers for Medicare & Medicaid Services (CMS)
5. **Data universe and unit of analysis**
   All individual providers (clinicians) with an NPI. All HIPAA-covered providers in the U.S. are required to have an NPI, which is a unique identifier needed to submit HIPAA-compliant health care transactions (e.g., for Medicare, Medicaid, and most private insurance claims).
6. **Notable data elements and variables**
   Provider name, sex, date of birth, professional credentials, specialty, and practice address.
7. **Data format and accessibility**
   The NPI Registry is a publicly available database that can be queried for individual level data associated with each provider entry. The NPI Downloadable File is also publicly available in several forms, including the full NPI file, monthly incremental NPI file, and full NPI deactivation file.
8. **Links to access/how to access**
   - NPI Registry: https://npiregistry.cms.hhs.gov/search
   - NPI Downloadable File: https://download.cms.gov/nppes/NPI_Files.html
9. **Examples of prior uses**
   - A presentation by the University of Washington Center for Health Workforce Studies and Rural Health Research Center on experiences using NPI data for health workforce research: https://www.healthworkforceta.org/wp-content/uploads/2023/07/HWTAC_Webinar_Experiences_Using_NPI.pdf
   - A report from the Washington Office of Financial Management estimating physician supply: https://ofm.wa.gov/sites/default/files/public/dataresearch/healthcare/workforce/physician_supply_2019-20.pdf
   - A report from the Washington Office of Financial Management estimating the supply of Advanced Registered Nurse Practitioners: https://ofm.wa.gov/wp-content/uploads/sites/default/files/public/dataresearch/healthcare/workforce/ARNP_supply_2021-23.pdf
10. **Notes/guidance on data use**
    Providers are responsible for making updates to their NPI records with NPPES. Active providers who need accurate information associated with their NPI for billing and records management purposes are incentivized to keep their NPI record updated. Providers who are no longer active or otherwise do not rely on their NPI record lack the incentive to update their records, and as a result the NPI database includes many non-active and otherwise out-of-date provider entries. NPI data is often used as a starting point to identify provider supply, subsequently crossed with other provider supply data such as professional licensure records to distinguish likely active from non-active provider records.

Area Health Resource File (AHRF)

1. **Data Category** Supply and Population Need
2. **Description**
   The Area Health Resource File (AHRF) is an annually updated dataset containing information on health professions, health facilities, population characteristics, economics, and hospital utilization at the county, state, and national level.
3. **Geography**
   Largest: National / Smallest: County
4. **Funder/Sponsor**
   U.S. Health Resources and Services Administration (HRSA), Bureau of Health Workforce
5. **Data universe and unit of analysis**
   All data are aggregated to the U.S. County level (identified by the county Federal Information Processing System [FIPS] code). Specific to health occupations, information provided is the total county-level count of individuals in a specific health profession for about 22 health professions.
6. **Notable data elements and variables**
   Variables include total counts of 22 health professions (e.g., total count of physicians in primary care, total count of certified nurse midwives, total count of registered nurses), hospitals, hospital services (e.g., obstetrics), and population characteristics (e.g., total number of births, number unemployed, number above 25 years of age with less than high school degree). Counts are disaggregated by race/ethnicity and sex. The full list of variables can be found here: https://data.hrsa.gov/topics/health-workforce/ahrf.
7. **Data format and accessibility**
   Raw data publicly available.
8. **Links to access/how to access**
   Data download: https://data.hrsa.gov/data/download
9. **Examples of prior uses**
   Analyses conducted by the University of Washington Center for Health Workforce studies identified county-level characteristics in AHRF data as part of examining differences in county-level birth outcomes according to the availability of perinatal staff in federally-funded health centers: Low Birthweight Rate Differences Associated With Distinct Perinatal Staffing Mixes at Federally Funded Health Centers
10. **Notes/guidance on data use**
    Multiple data sources are used for compiling this data file which employ varied methods for producing the data. Users should examine the data sources for the specific variables they are interested in.

Occupational Employment and Wage Statistics (OEWS)

1. **Data Category** Supply
2. **Description**
   The Occupational Employment and Wage Statistics (OEWS) survey collects data on the number of jobs and wage rates for about 830 non-farm occupations in the United States.
3. **Geography**
   Largest: National / Smallest: Metropolitan Statistical Areas
4. **Funder/Sponsor**
   U.S. Bureau of Labor Statistics (BLS)
5. **Data universe and unit of analysis**
   Employment and wage estimates for about 830 occupations across more than 400 industries, based on Standard Occupational Classification (SOC) and North American Industry Classification System (NAICS) codes.
6. **Notable data elements and variables**
   Occupation title, industry, estimate of number employed in each occupation, wage estimates, geographic area (national, state, metropolitan or nonmetropolitan area).
7. **Data format and accessibility**
   Data publicly available for download in various formats (xlsx, txt, html).
8. **Links to access/how to access**
   - Data downloads: https://www.bls.gov/oes/tables.htm
   - Methodology: https://www.bls.gov/oes/methods_24.pdf
9. **Examples of prior uses**
   Researchers studying the U.S. workforce can use OEWS data to analyze labor market trends, compare wages across regions and sectors, and inform policy or economic development initiatives.
   - Studies by the University of Washington Center for Health Workforce Studies are one data source to estimate supply of healthcare occupations:
     - https://familymedicine.uw.edu/chws/wp-content/uploads/sites/5/2021/11/Leveraging-Data-States-FR-2021.pdf
     - https://familymedicine.uw.edu/chws/wp-content/uploads/sites/5/2017/01/leveraging_data_allied_health_supply_estimates_fr_dec_2016_skillman.pdf
   - Relevant publications from BLS: https://www.bls.gov/oes/publications.htm
10. **Notes/guidance on data use**
    Employment and wage estimates are based on surveys of about 1 million non-farm employers in the U.S. Sampling weights are applied by BLS such that each panel represents the universe of establishments. OEWS uses three-year estimates to smooth employment and wage data.

American Community Survey (ACS)

1. **Data Category** Supply
2. **Description**
   The American Community Survey (ACS) is an annual survey administered to a nationally representative sample of about 3 million U.S. households that collects detailed social, economic, housing, and demographic data.
3. **Geography**
   Largest: National / Smallest: Block group
4. **Funder/Sponsor**
   U.S. Census Bureau
5. **Data universe and unit of analysis**
   A sample of all U.S. households available for analysis at the individual level. Respondents indicate their occupation, which is then coded based on the Standard Occupational Classification (SOC) system, also allowing for a nationally representative analysis at the occupation level.
6. **Notable data elements and variables**
   Variables include jobs and employment information, industry, educational attainment, race and ethnicity, income, and geographic data, and individual household identifiers.
7. **Data format and accessibility**
   Raw data publicly available for download from the IPUMS U.S.A. website, along with information on how to analyze, details on the variables, data collection processes, and more.
8. **Links to access/how to access**
   - Data download: https://usa.ipums.org/usa-action/variables/group
   - Information on data and methods: https://usa.ipums.org/usa/doc.shtml
9. **Examples of prior uses**
   The University of Washington Center for Health Workforce Studies showed the estimated number of health care workers and described important methodological considerations when using ACS 1-year files: https://familymedicine.uw.edu/chws/resources/leveraging-data/supply-estimates/
10. **Notes/guidance on data use**
    1-year and 5-year files allow analysis at different levels of analysis (state, county, block group, etc.). Survey weights required for analysis.

Current Population Survey (CPS)

1. **Data Category** Supply
2. **Description**
   The Current Population Survey (CPS) is administered to over 65,000 households monthly, gathering information on education, labor force status, demographics, and other aspects of the U.S. population. The CPS is the basis upon which federal statistics on unemployment are calculated monthly and can be used to examine characteristics of a range of health occupations as identified by Standard Occupation Codes (SOC).
3. **Geography**
   Largest: National / Smallest: State
4. **Funder/Sponsor**
   Jointly sponsored by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics
5. **Data universe and unit of analysis**
   A sample of all U.S. households available for analysis at the individual level. All individuals aged 15 or older and not in the Armed Forces or institution are eligible to complete the questionnaire if sampled. Labor data is available for respondents age 16 and over.
6. **Notable data elements and variables**
   Occupation, industry, employed, unemployed, not in labor force, hours at work, full-time/part-time status, reasons for unemployment. Other data include demographics and supplemental data on fertility, tobacco use, volunteer activities, voter registration, computer and internet use, food security, and more.
7. **Data format and accessibility**
   Publicly available from IPUMS.
8. **Links to access/how to access**
   Data access: https://cps.ipums.org/cps/
9. **Examples of prior uses**
   - Frogner BK, Dill JS. Tracking turnover among health care workers during the COVID-19 pandemic: A cross-sectional study. *JAMA Health Forum*. 2022;3(4):e220371. doi:10.1001/jamahealthforum.2022.0371
   - Woodward, K.F., Dill, J., Trotter, L. et al. Beyond the pandemic: the relationship between macroeconomic conditions and healthcare worker shortages in the United States. *BMC Health Serv Res*. 2025;25(637). doi: 10.1186/s12913-025-12780-z

Integrated Postsecondary Education Data System (IPEDS)

1. **Data Category** Supply
2. **Description**
   The Integrated Postsecondary Education Data System (IPEDS) is a system of interrelated surveys conducted annually by the National Center for Education Statistics, a part of the Institute for Education Sciences within the U.S. Department of Education. IPEDS contains information on completions by Classification of Instructional Programs (CIP) code, institution, age, gender, and race/ethnicity, among others and can be used to understand education completions for a range of health occupations.
3. **Geography**
   Largest: National / Smallest: ZIP code and individual institution
4. **Funder/Sponsor**
   U.S. Department of Education, National Center for Education Statistics (NCES)
5. **Data universe and unit of analysis**
   Degree completions of all federally funded education institutions in the U.S.
6. **Notable data elements and variables**
   Demographics, educational program completions, institutional characteristics, including geography, student aid information, among others.
7. **Data format and accessibility**
   Data are publicly available.
8. **Links to access/how to access**
   Data access: https://nces.ed.gov/ipeds/
9. **Examples of prior uses**
   The Washington Oral Health Tracking Program of the University of Washington Center for Health Workforce Studies uses IPEDS data in a dashboard on oral health education and training in Washington: https://familymedicine.uw.edu/chws/resources/wohw/workforce-data/education-training/.
10. **Notes/guidance on data use**
    Data can either be downloaded as a full data set for each year and area of interest, can be refined into a specific search, or can be presented as summary and descriptive tables. More information on CIP codes is available from NCES: https://nces.ed.gov/ipeds/cipcode/Default.aspx?y=56

Public Health Workforce Interests and Needs Survey (PH WINS)

1. **Data Category** Supply
2. **Description**
   Public Health Workforce Interests and Needs Survey (PH WINS) is a nationally representative survey of individual state and local governmental public health staff with information on staffs' employment experiences, skills and training needs, as well as demographics, education, and positions. The most recent survey data available is from 2024.
3. **Geography**
   Largest: National / Smallest: Local health jurisdiction
4. **Funder/Sponsor**
   The Association of State and Territorial Health Officials (ASTHO) and the de Beaumont Foundation
5. **Data universe and unit of analysis**
   All individual state and local health department staff in the U.S.
6. **Notable data elements and variables**
   Demographics, education, employment status, turnover intention, job information (program area, skills needed, training needed, tenure), employment experience.
7. **Data format and accessibility**
   Data suitable for analysis at a national level is available through a data service agreement. Public access is limited to de-identified data. Data with county-level or state identifiers only available in specialized circumstances.
8. **Links to access/how to access**
   Data requests: https://survey.debeaumont.org/jfe/form/SV_b2STc7O0eae7JVc
9. **Examples of prior uses**
   PH WINS data has been used by the University of Washington Center for Health Workforce Studies to examine characteristics, competencies, and training needs of the public health workforce:
   - Competencies, training needs, and turnover among rural compared with urban local public health practitioners: 2021 Public Health Workforce Interests and Needs Survey
   - Why public health nurses matter: Bringing specialized skills to advancing health equity
10. **Notes/guidance on data use**
    Sample and replicate weights are required for analysis. Also see: https://debeaumont.org/phwins/what-is-phwins/ for more information on the survey.

WASHINGTON STATE-BASED DEMAND DATA SOURCES

Washington Occupations in Demand

1. **Data Category** Demand
2. **Description**
   The Occupations in Demand dashboard provides information on what occupations are in demand in Washington overall and in each county, using Standard Occupation Codes (SOC) to identify each occupation group. Data to create the list of occupations in demand is compiled via a collaboration between the Washington State Employment Security Department and Washington's 12 Local Workforce Development Boards.
3. **Geography**
   Largest: Washington State / Smallest: County
4. **Funder/Sponsor**
   Washington State Employment Security Department
5. **Data universe and unit of analysis**
   All occupations in Washington with employment in base year 2022 and consisting of 50 or more jobs, based on Standard Occupational Classification (SOC) codes.
6. **Notable data elements and variables**
   Information includes whether the occupation is in demand (categorized as "in demand," "balanced," or "not in demand" based on annual growth and percent of total job openings in the state), required education and training, average annual salary, average annual growth rate, and average annual total openings.
7. **Data format and accessibility**
   A data dashboard summarizes statewide and county demand for each occupation. A .csv file with the source data used to create the dashboard can also be downloaded.
8. **Links to access/how to access**
   - Data access: https://esd.wa.gov/jobs-and-training/labor-market-information/learn-about-occupation
   - Methodology: https://esd.wa.gov/media/pdf/2704/oid2024methodologypdf/download?inline
9. **Examples of prior uses**
   The Occupations in Demand list is used for decisions about program eligibility, including Training Benefits, Workforce Innovation and Opportunity Act and more. Eligibility for training programs often hinges on the ability to demonstrate that the chosen occupation is likely to grow and support program participants in the future.
10. **Notes/guidance on data use**
    The specificity of the occupations that can be studied depends on how SOC codes are devised and reported.

Washington Health Workforce Sentinel Network

1. **Data Category** Demand
2. **Description**
   The Health Workforce Sentinel Network is a voluntary survey of health care employers in Washington to understand employers' workforce needs – such as challenges related to recruitment, retention and needed skills – and make that information available to educators and policy makers.
3. **Geography**
   Largest: Washington State / Smallest: Accountable Community of Health
4. **Funder/Sponsor**
   Funded by Washington State Legislature to the Washington Workforce Training and Education Coordinating Board, Health Workforce Council, through a contract to the University of Washington Center for Health Workforce Studies.
5. **Data universe and unit of analysis**
   Survey of health care employers in the state conducted yearly in the spring. Health care employers may include, but are not limited to, dental offices and clinics, federally qualified health centers, small hospitals, behavioral health agencies, and long-term care facilities. Efforts are made to elicit a high number of responses, but the survey is not designed to be representative of all health care facility types or geographic regions.
6. **Notable data elements and variables**
   Qualitative reasons for hiring, retention, and emerging challenges by facility type and geographic region. The survey uses Standard Occupational Classification (SOC) codes to classify occupations, with some modifications, which employers use to describe occupations experiencing vacancies, recruitment and retention efforts, and other workforce issues at their organization.
7. **Data format and accessibility**
   Dashboards publicly available; de-identified source data are available by request.
8. **Links to access/how to access**
   Data access and dashboards: https://wa.sentinelnetwork.org/
9. **Examples of prior uses**
   These data have been presented during meetings of the Health Workforce Council, and used in the Washington Health Workforce Council Annual Reports: https://wtb.wa.gov/wp-content/uploads/2025/03/Health-Workforce-Council-2024-Report.pdf.
10. **Notes/guidance on data use**
    The Health Workforce Sentinel Network is designed to provide signals of health workforce demand over time, and is not intended to be representative of all healthcare employers in the state.

Washington Labor Market Supply/Demand Reports

1. **Data Category** Supply/Demand
2. **Description**
   The Labor Market Supply/Demand report is an ongoing monthly gap analysis comparing the number of open jobs based on online job postings to the number of people claiming unemployment benefits in Washington. An annual report additionally includes new graduates entering the workforce.
3. **Geography**
   Largest: Washington State / Smallest: Workforce Development Area
4. **Funder/Sponsor**
   Washington State Employment Security Department (ESD)
5. **Data universe and unit of analysis**
   All individuals claiming unemployment insurance in Washington, and all open jobs in Washington. Counts are available by occupation, as categorized by Standard Occupation Classification (SOC) codes.
6. **Notable data elements and variables**
   Supply: number of unemployment insurance claimants by occupation
   Demand: total online job postings by occupation
7. **Data format and accessibility**
   Publicly available reports and raw data available.
8. **Links to access/how to access**
   Gap analysis, raw data, and aggregated reports are publicly available from ESD: https://esd.wa.gov/jobs-and-training/labor-market-information/employment-and-wages/supplydemand-report
9. **Examples of prior uses**
   The Labor Market Supply/Demand Report, available for download as an Excel file at the link above, contains historical data 2015-2025.

Washington Unemployment Insurance Claims and Benefits Data

1. **Data Category** Demand
2. **Description**
   The Unemployment Insurance Claims and Benefits data tracks how many workers are filing for unemployment benefits across Washington.
3. **Geography**
   Largest: Washington State / Smallest: County
4. **Funder/Sponsor**
   Washington State Employment Security Department (ESD)
5. **Data universe and unit of analysis**
   All eligible workers in Washington who become unemployed (and meet certain eligibility requirements) and apply for unemployment benefits through the state's Unemployment Insurance program. Data are available by industry sector, as defined by North American Industry Classification System (NAICS) 3-digit classification.
6. **Notable data elements and variables**
   Number of individual unemployment claims by industry.
7. **Data format and accessibility**
   Weekly claims data, broken down by county and/or industry, are available via a data download from the Department of Labor data dashboard.
8. **Links to access/how to access**
   - Data dashboard: https://public.tableau.com/app/profile/jeff.robinson/viz/InitialClaimsapplicationsforUnemploymentInsurance-WA_ETA539-/Story1
   - To download raw data and aggregate reports and figures: https://esd.wa.gov/jobs-and-training/labor-market-information/labor-force-and-unemployment/unemployment-insurance-claims-and-benefits-data
9. **Examples of prior uses**
   Reports from the Economic Security Department using these data: https://esd.wa.gov/jobs-and-training/labor-market-information/labor-market-report-library
10. **Notes/guidance on data use**
    Data on specific health care occupations are not available.

NATIONAL DEMAND AND OTHER RELATED DATA SOURCES

Real-Time Labor Market Information (RT-LMI)

1. **Data Category** Demand
2. **Description**
   The Real-Time Labor Market Information (RT-LMI) is workforce demand data extracted ("scraped") from open internet sources, such as ads for job openings from employer, recruiter, and job boards, among other sources. RT-LMI data can be used to monitor employer demand, and may include skills required and specialties, wages offered, work locations, and other information about occupations being recruited.
3. **Geography**
   Largest: National / Smallest: ZIP Code
4. **Funder/Sponsor**
   Varying for-profit companies, e.g., LinkUp, Burning Glass, Monster, Chmura, Lightcast.
5. **Data universe and unit of analysis**
   All occupations for which jobs are posted on open internet sources. There is variation in how different companies obtain their data and present the results.
6. **Notable data elements and variables**
   Job openings by occupation (e.g., nurses, medical assistants). May include skills required and specialties, wages offered, work locations, and other information about occupations being recruited.
7. **Data format and accessibility**
   Varies by RT-LMI company. Some provide online portal access for queries, and some can provide dataset downloads.
8. **Links to access/how to access**
   Data are typically available for purchase from RT-LMI vendors.
9. **Examples of prior uses**
   - A report examining use of RT-LMI data for monitoring health workforce demand: Stubbs BA, Frogner BK, Skillman SM. The value of real time labor market information for monitoring health workforce demand: a case study examining employer demand for health information technology skills. Center for Health Workforce Studies, University of Washington, Mar 2017.
   - A report examining how emerging roles have been incorporated into job titles and occupation descriptions using RT-LMI data: Frogner BK, Stubbs BA, Skillman SM. Emerging Roles and Occupations in the Health Workforce. Center for Health Workforce Studies, University of Washington, Aug 2018.
10. **Notes/guidance on data use**
    Vendors may not use standard occupation nomenclature or codes (e.g., SOC codes). Individual job ads may represent more than one job opening, and employers may advertise on multiple ad sites resulting in potential for over-counting of available positions.

O*Net Online

1. **Data Category** Other – detailed descriptions of occupations
2. **Description**
   O*Net Online is a tool for career exploration and workforce development that includes occupation-level information and data about occupation requirements, worker characteristics, experience requirements, and employment outlook. It serves as a comprehensive database for understanding what specific jobs entail.
3. **Geography**
   Largest: National / Smallest: ZIP Code
4. **Funder/Sponsor**
   U.S. Department of Labor, Employment and Training Administration
5. **Data universe and unit of analysis**
   All occupations in the federal Standard Occupation Classification (SOC) system.
6. **Notable data elements and variables**
   Detailed descriptions of each occupation, including typical knowledge, skills, licensing, and education requirements, typical work activities, technology uses, and occupational outlook.
7. **Data format and accessibility**
   All data summaries are available on the searchable O*NET website. The complete database or individual files can be downloaded manually or through the ONET Web Services API in various formats (Excel, text, MySQL, SQL Server, Oracle).
8. **Links to access/how to access**
   - Website: https://www.onetonline.org/
   - Manual downloads: https://www.onetcenter.org/database.html#all-files
   - API: https://services.onetcenter.org/
   - Historical databases: https://www.onetcenter.org/db_releases.html
9. **Examples of prior uses**
   The O*NET Resource Center keeps a running list of all references that use its data and related resources: https://www.onetcenter.org/references.html
10. **Notes/guidance on data use**
    O*NET data are collected through surveys of incumbent workers. The resulting ratings represent averages and do not capture variations due to industry, geography, or individual differences. Only a sample of approximately 200 occupations is updated each year, meaning the information presented for some occupations may not reflect the very latest labor market conditions. O*Net data are continually updated, but historical databases are available for download.

National Association of County and City Health Officials (NACCHO) Profile of Local Health Departments

1. **Data Category** Supply/Demand
2. **Description**
   The National Association of County and City Health Officials (NACCHO) Profile survey is conducted every 3-4 years and is sent to all local health jurisdictions in the U.S., with an approximately 60% response rate. This survey provides information on the staffing infrastructure of local health departments (e.g., number of FTEs, job losses and gains, financing) as well as detailed information on the organizational structure and services provided.
3. **Geography**
   Largest: Washington State / Smallest: Local health jurisdiction
4. **Funder/Sponsor**
   National Association of County and City Health Officials (NACCHO)
5. **Data universe and unit of analysis**
   All local health jurisdictions in the U.S. See additional explanatory notes below.
6. **Notable data elements and variables**
   Total number of FTEs, occupational FTEs, changes in size of workforce over time (overall, by occupation), job losses and gains, budget changes, expect budget cuts, changes in services provided, partnerships with other health organizations in the county.
7. **Data format and accessibility**
   Raw data available through a data use agreement.
8. **Links to access/how to access**
   Data requests: https://www.naccho.org/resources/lhd-research/national-profile-of-local-health-departments#data-requests
9. **Examples of prior uses**
   - Used to identify whether local health department's director had a nursing degree:
     Kett PM, Shahrir S, Bekemeier B. Public health nurses' proficiencies and training needs in an emergency response: A cross-sectional observational study. *J Public Health Manag Pract.* 2024;30(3):354-366. doi:10.1097/PHH.0000000000001888
10. **Notes/guidance on data use**
    All data are self-reported by local health department (LHD); LHD defined as "an administrative or service unit of local or state government, concerned with health, and carrying some responsibility for the health of a jurisdiction smaller than the state." (NACCHO, 2022)

    Each respondent to the survey has a unique ID. These IDs can be cross-walked to county-level FIPS codes to merge the dataset with other county-level information.

Association of State and Territorial Health Officials (ASTHO) Profile

1. **Data Category** Other
2. **Description**
   The Association of State and Territorial Health Officials (ASTHO) Profile, first fielded in 2007, profiles public health agency activities, structures, and resources to define the scope of state and territorial public health services and identify variations in practice among state and territorial public health agencies. The ASTHO survey is sent to all state and territorial public health agencies in the U.S.
3. **Geography**
   Largest: National / Smallest: State
4. **Funder/Sponsor**
   Association of State and Territorial Health Officials (ASTHO)
5. **Data universe and unit of analysis**
   All state and territorial public health agencies in the U.S.
6. **Notable data elements and variables**
   Supply: number of FTEs, occupational FTEs, changes in size of workforce over time (overall, by occupation), job losses and gains, budget changes, expect budget cuts, changes in services provided.
   Demand: vacant positions
7. **Data format and accessibility**
   Data are publicly available via the Inter-university Consortium for Political and Social Research (ICPSR). Summary data reports are also available.
8. **Links to access/how to access**
   - Data reports: https://astho.shinyapps.io/profile/
   - Raw data: https://www.icpsr.umich.edu/web/HMCA/studies/39285/datadocumentation
9. **Examples of prior uses**
   - Halverson PK, Lumpkin JR, Yeager VA, Castrucci BC, Moffatt S, Tilson H. High turnover among state health officials/ Public health directors: Implications for the public's health. *J Public Health Manag Pract.* 23(5):p 537-542. doi: 10.1097/PHH.0000000000000639
   - Leider JP, Balio CP, Hogg-Graham R, Weiss NM, Vogel A, Onal SO, Zang X, Kett PM, Edmonds J, Karnik H, Dockery N, Joseph B, Pak M, Thomas AB, Bekemeier B. Enumeration 2024: What we know and what we wish we knew about the governmental public healht workforce in a COVID-19 recovery landscape. *Am J Public Health.* 115, 707:715. doi: 10.2105/AJPH.2024.307960
10. **Notes/guidance on data use**
    Access does not require affiliation with an ICPSR member institution.

Quarterly Census of Employment and Wages (QCEW)

1. **Data Category** Other
2. **Description**
   The Quarterly Census of Employment and Wages (QCEW) is a quarterly count of employment and wages reported by employers. It counts workers covered by unemployment insurance programs who earned wages during the pay period that includes the 12th of the month. The QCEW covers more than 95% of U.S. jobs.
3. **Geography**
   Largest: National / Smallest: Metropolitan Statistical Areas
4. **Funder/Sponsor**
   U.S. Bureau of Labor Statistics
5. **Data universe and unit of analysis**
   Data are available by detailed industry type, based on the North American Industry Classification System (NAICS) at the 6-digit level. Information at the level of individual occupation titles is not available.
6. **Notable data elements and variables**
   Employment by industry code, wages, number of employers.
7. **Data format and accessibility**
   Data are publicly available and can be downloaded from the website in csv format or directly accessed using various programming languages.
8. **Links to access/how to access**
   Data access: https://www.bls.gov/cew/additional-resources/open-data/home.htm
9. **Examples of prior uses**
   Overview of publications using QCEW data: https://www.bls.gov/cew/publications-overview.htm
10. **Notes/guidance on data use**
    The primary source for the QCEW is administrative data from state unemployment insurance (UI) programs, supplemented by data from two U.S. Bureau of Labor Statistics surveys. Therefore, it does not contain information on self-employed workers or if employers do not submit unemployment insurance reports. The QCEW and Quarter Workforce Indicators (QWI) have several areas where their methods overlap, including where their data are derived from, counting jobs rather than employed workers, and including private sector jobs covered by unemployment insurance (excluding federal workers, self-employed workers, and independent contractors). Job counts from the QCEW and QWI may differ due to the QWI counting all jobs within a quarter and the QCEW counting jobs on the 12th of every month.

Quarterly Workforce Indicators (QWI)

1. **Data Category** Other
2. **Description**
   The Quarterly Workforce Indicators (QWI) provide local labor market statistics derived from state administrative records and demographics from the U.S. Census Bureau by industry, worker demographics, employer age and size. Unlike statistics tabulated from firm or person-level data, the QWI source data are unique job-level data that link workers to their employers. Because of this link, labor market data in the QWI are available by worker age, sex, educational attainment, and race/ethnicity. Links between workers and firms also allow the QWI to identify worker flows – hires, separations, and turnover – as well as net employment growth.
3. **Geography**
   Largest: National / Smallest: Workforce Investment Board (WIB) Areas
4. **Funder/Sponsor**
   U.S. Census Bureau
5. **Data universe and unit of analysis**
   All industries represented in the North American Industry Classification System (NAICS) at the 4-digit level. Information on individual occupations is not available.
6. **Notable data elements and variables**
   Industry, worker demographics, employer (company) age and employer (company) size.
7. **Data format and accessibility**
   Data publicly available.
8. **Links to access/how to access**
   Data access: https://lehd.ces.censUS.gov/data/#qwi
9. **Examples of prior uses**
   - Chatterjee P, Lin Y, Venkataramani AS. Changes in economic outcomes before and after rural hospital closures in the United States: A difference-in-differences study. *Health Serv Res.* 2022;57(5):1020-1028. doi:10.1111/1475-6773.13988
   - Xu L, Sharma H, Wehby GL. The effect of nursing home closure on local employment in the United States. *Health Serv Res.* 2023;58(3):744-752. doi:10.1111/1475-6773.14125
10. **Notes/guidance on data use**
    The Quarterly Census of Employment and Wages (QCEW) and QWI have several areas where their methods overlap, including where their data are derived from, counting jobs rather than employed workers, and including private sector jobs covered by unemployment insurance (excluding federal workers, self-employed workers, and independent contractors). Job counts from the QCEW and QWI may differ due to the QWI counting all jobs within a quarter and the QCEW counting jobs on the 12th of every month.

Behavioral Risk Factor Surveillance System (BRFSS)

1. **Data Category** Population need
2. **Description**
   The Behavioral Risk Factor Surveillance System (BRFSS) is a national survey of U.S. residents' health-related behaviors, chronic health conditions, and use of preventive services. Although BRFSS is coordinated nationally by the U.S. Centers for Disease Control and Prevention (CDC), it is a state-based survey and is implemented locally in Washington by the Washington State Department of Health (DOH) under a cooperative agreement with CDC. Surveys are conducted by telephone (via both cell phone and landline) continuously throughout the year, using a standardized questionnaire, with optional modules (e.g., cognitive decline, caregiving), and state-added questions (examples in Washington include access to behavioral health or oral health care and services).
3. **Geography**
   Largest: National/Washington State / Smallest: ZIP Code (if using state-specific data)
4. **Funder/Sponsor**
   U.S. Centers for Disease Control and Prevention (CDC); Washington State Department of Health (DOH)
5. **Data universe and unit of analysis**
   Adults aged 18 years and older living in private residences in Washington State.
6. **Notable data elements and variables**
   Demographics (including age, sex, race/ethnicity, income, employment status), health behaviors (e.g., tobacco and substance use, doctors' visits, insurance coverage) and industry and occupation module (optional module, may include broad categories e.g., healthcare or medicine or hospital or clinic).
7. **Data format and accessibility**
   Annual national BRFSS survey data from 1990-2024 are available online from the CDC, free of charge.
   Washington State's specific BRFSS data is available 2011-2024 by request.
8. **Links to access/how to access**
   - National data are accessible online from the CDC: https://www.cdc.gov/brfss/annual_data/annual_data.htm
   - Washington State data can be requested online from the DOH, through the BRFSS Request Form.
9. **Examples of prior uses**
   - The Washington Oral Health Workforce Tracking Program of the University of Washington Center for Health Workforce Studies published a brief describing population need for oral health services in relation to the distribution of licensed dentists using 2022 BRFSS data: Dentist Distribution and Population Need
   - The State Health Access Data Assistant Center has created an interactive dashboard comparing state health data: https://www.shadac.org/news/brfss-maps-charts-exploring-brfss-data-state-health-compare.
   - In Washington, BRFSS is used to publish Community Health Improvement Plans: https://doh.wa.gov/data-statistical-reports/data-systems/behavioral-risk-factor-surveillance-system-brfss/resources-brfss-results
10. **Notes/guidance on data use**
    Data are weighted and because this is a sample survey there may be response bias and small response numbers when conducting certain sub-state analyses.

APPENDIX B – WASHINGTON HEALTH WORKFORCE DATA RESOURCES – PRIORITIES SURVEY QUESTIONNAIRE

SURVEY QUESTIONNAIRE

Washington Health Workforce Data Resources: Prioritizing common workforce-related planning questions

Background: Following are questions commonly asked about the health care workforce—such as how many workers there are, where they're needed, and who they serve. Answers to these questions frequently are used for health care education, practice, and policy planning. Your input will help us understand which questions are most important and what data is needed to answer them.

Instructions: Please read each question and rate how important you think it is for health workforce planning and policy in Washington, based on your experience. You can also suggest other high-priority questions that you believe are important for effective planning. Overarching concepts to keep in mind when reviewing and prioritizing the questions:

- The questions you are asked to prioritize reflect general categories of questions about the workforce. As written, these questions do not attempt to include all possible variations of related sub-questions such as specific occupation(s) of interest, geography level, time trends, combinations of specialty and settings, etc. The five statements below apply to most workforce analyses and should be presumed to apply to the questions being rated:
- Collecting data at the smallest feasible level of geography enables aggregation at various larger levels. For example, ZIP Codes can be aggregated into county estimates, and counties can be used to identify Accountable Communities of Health. Similarly, rural areas can be identified from ZIP Codes or counties, depending on the rural taxonomy used.
- Analyses of data from multiple points in time can be used to address trends over time. Collecting data in comparable ways (e.g., using the same question wording in a survey questionnaire) is important to be able to track trends.
- Multiple domains can be addressed by specific research questions, e.g., "What percent of primary care physicians, PAs and NPs in rural areas of Washington appear to be nearing retirement age (>60 years)?" And "Are vacancy rates for registered nurses greater in small hospitals (<25 beds) compared with larger hospitals?"
- Frequency of data collection/analysis is typically annual. Some types of data are collected and made available more, or less, frequently (e.g., for occupations whose professional license renewal is required every two years).
- Health workforce may include many different types of workforces and services, including medical, behavioral health, oral health, public health, and long term care, among others. The questions below are intended to be applied to any or all licensed/registered health care occupations in the state.

In what way(s) are you involved with health workforce policy and planning? (select all that apply)

- □ Health workforce research/analysis
- □ Health workforce policy and/or regulation
- □ Health workforce education/training
- □ Health provider/clinician
- □ Administration
- □ Other

You selected: "**other**." Describe:

Key Workforce Supply Questions

Please rate the importance of each question on a scale from 0 to 3, where: 0 = "not a priority", 1 = "low priority" (e.g., information needed infrequently), 2 = "moderate priority" (e.g., information is needed periodically), and 3 = "high priority" (e.g., information needed regularly - at least every 1-2 years).

How many of [occupation X] have active Washington licenses (or are otherwise credentialed to practice in Washington)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
How many/what percentage of actively licensed [occupation(s)] are practicing in Washington?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What are the practice settings (e.g., hospital, ambulatory care, long term care) where [occupation(s)] with active WA licenses are currently practicing?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
How many average hours per week do [occupation(s)] work in each practice setting? How many hours per week in each setting are involved with providing direct clinical care vs. other work activities (e.g., administration, education)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What populations are primarily served by [occupation(s)] in their practice (e.g., social workers serving school aged children vs. geriatric; RNs in public health vs. school nursing vs. acute care)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What are the practice specialties (through certification or credential) of the actively licensed [occupation(s)] [e.g., for physicians - family medicine, surgery, urology; for ARNP roles - women's health, CRNA])?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What are the demographic characteristics of [occupation(s)] (e.g., age, sex, gender, race/ethnicity, language spoken)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What are average pre-tax annual earnings (including overtime and bonuses, but excluding sign-on bonuses) for [occupation(s)] practicing in Washington?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
Where did [occupation(s)] with active Washington licenses obtain their education/training qualifying them for their license? (e.g., from an education institution in Washington, outside of Washington, via distance education vs. in person)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority

Are there any other high priority **supply** questions that you would like to add?

Key Workforce Demand Questions

Please rate the importance of each question on a scale from 0 to 3, where: 0 = "not a priority", 1 = "low priority" (e.g., information needed infrequently), 2 = "moderate priority" (e.g., information is needed periodically), and 3 = "high priority" (e.g., information needed regularly - at least every 1-2 years).

What are vacancy rates for [occupation(s)] in [setting] (e.g., RN positions vacant out of total [employed plus vacant] and being recruited in skilled nursing facilities)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
How many [occupation] are employed in [setting]? (e.g., # of ADNs employed in acute care; # ARNPs providing primary care, # of physical therapists employed in acute care hospitals)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
To what extent do health care organizations staff with permanent/regular employees vs. contract (short term) employees? Which occupations/how many positions are employed as remote/telework positions?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
Which occupations/how many FTEs have recently been laid off/furloughed/reduced in [setting type]?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What special skills/qualifications are being sought/ required by employers in specific settings (e.g., experience using AI tools; non-English language proficiency)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority

Are there any other high priority **demand** questions that you would like to add?

Key Population Need/Access Questions

Please rate the importance of each question on a scale from 0 to 3, where: 0 = "not a priority", 1 = "low priority" (e.g., information needed infrequently), 2 = "moderate priority" (e.g., information is needed periodically), and 3 = "high priority" (e.g., information needed regularly - at least every 1-2 years). Use the slider provided to record your rating for each question.

What are the demographic characteristics of the population of interest, and are there providers available who are appropriate for their care where it's needed? (e.g., pediatricians, geriatricians, women's health care specialists)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What percentage of the population has health insurance? What percent of the insured population has Medicaid coverage? Medicare? Do available providers accept patients' insurance?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority
What are the average transportation times of the population to services and does transportation hinder access to care (e.g., to primary care providers, to women's health care specialists/maternity care, to behavioral health services)?	0 - Not a priority	1 - Low priority	2 - Moderate priority	3 - High priority

Are there any other high priority **population need/access** questions that you would like to add?

Please estimate the frequency you now access data and resources related to the health workforce and may access in the future.

About how often do you access online data resources about Washington's health workforce (e.g., Health Professions License Data, WA Board of Nursing workforce dashboard, Employment Security Department "Occupations in Demand")?

- ○ Never
- ○ Seldom
- ○ Occasionally
- ○ Frequently

When you want to access data about Washington's health workforce, how often are you able to find the information you're seeking?

- ○ Never
- ○ Seldom
- ○ Occasionally
- ○ Frequently

If guidance about how to use/access health workforce data from various sources were available, how often would you be likely to use it?

- ○ Never
- ○ Seldom
- ○ Occasionally
- ○ Frequently

If an integrated data system were available that provided online access to health workforce supply and demand data for Washington, how often would you be likely to use it?

- ○ Never
- ○ Seldom
- ○ Occasionally
- ○ Frequently

Is there anything else you would like to add on this topic or anything not covered in this questionnaire?