2025 International Health Workforce Modelling Innovation Lab:

Primer Package

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Introduction

The health workforce is an essential component of our healthcare delivery systems. Ongoing global and nation-level challenges with workforce shortages, unsafe or unsupportive work environments, upskilling and retention, rural and remote care delivery, and the need for integrated, interprofessional models of care, and other issues point to the need for ongoing learning and improvement.

To address these needs, a growing number of countries are advancing health workforce solutions. This includes innovative approaches to health workforce modelling and forecasting, investments to improve data infrastructure, and seeking new ways of translating evidence into action. There is also a strong desire amongst countries to learn from the advances and innovations of others.

To support shared learning and to strengthen the global dialogue, Health Workforce Canada (HWC), in partnership with the Government of Australia and Canadian Institute for Health Information (CIHI), is hosting the **2025 International Health Workforce Innovation Lab**. This virtual event brings together health workforce modellers, policy-makers, and decision-makers from a range of countries and organizations including – Australia, Canada, New Zealand, Norway, the Netherlands, the United Kingdom, the United States, Sweden, Scotland, the WHO, the OECD – to share innovations, challenges, and solutions for health workforce modelling and planning.

This primer has been developed as a resource for the Innovation Lab participants. It includes country snapshots that outline:

- Health workforce governance and planning structures;
- Current and emerging modelling activities, key institutions, data players, and;
- How evidence generated through modelling and forecasts inform policy, funding, and planning decisions.

Ultimately, the Innovation Lab aims to strengthen networks across borders, deepen technical and policy dialogues, and advance collective capacity to model, plan, and sustain the global health workforce of tomorrow.

Canada

1. Overview of Health Workforce Planning Structure

Canada has a federated healthcare system, meaning it is governed through a shared responsibility between the federal and provincial or territorial governments. While the federal government plays a coordinating role and provides funding to the provinces and territories, it does not directly deliver healthcare services (except for a set of targeted populations). The provinces and territories have primary jurisdiction over the administration and delivery of healthcare to serve their populations. This division allows each region to tailor healthcare to local needs while adhering to national principles of universality, accessibility, comprehensiveness, portability, and public administration.

2. Ongoing Modelling Activities

Pan Canadian Organizations and Initiatives: Health Workforce Canada (HWC), the Canadian Institute for Health Information (CIHI), Statistics Canada (SC) and other pan Canadian Health organizations (PCHOs), play key roles in advancing health workforce data, forecasting, and planning to support evidence-based decision-making across the country. Canada also has a variety of academic networks organized around health workforce improvements, including the Canadian Health Workforce Network (CHWN), and Health Data Research Network Canada (HDRN), which are committed to enhancing data and research that can support health human resources.

Health Workforce Canada (HWC)

HWC is an independent organization established in late 2023, focused on bringing together stakeholders to strengthen health workforce data and planning in Canada. The organization plays a centralizing function in health workforce modelling to optimize standardization of data, methods and tools, and to promote cross-country learning. At HWC, modelling activities include the development of a publicly available Personal Support Worker (PSW) agent-based microsimulation model to estimate supply and demand in Canada until 2048. HWC is also modelling student trajectories in postsecondary education, including enrollment patterns, academic progression, and outcomes. These publicly available microsimulation models will be expanded over time as the organization continues to grow.

Canadian Institute for Health Information (CIHI)

CIHI maintains and operates a pan-Canadian Physician Resource Planning (PRP) Tool which uses a data-rich deterministic model for forecasting that allows health workforce planners to create and compare user-defined policy scenarios and potential effects up

to 20 years in the future. This private tool is available to federal, provincial and territorial ministries of health and a select group of non-government organizations.

The tool is user adjustable and has three modules: 1) Supply (physician supply), 2) Demand (demand for physician services), and 3) Gap (the gap between the supply and demand). The stock-and-flow supply model uses inflows (e.g. medical school seats, residency programs, domestic and international graduates) and outflows (e.g. retirements, migration, deaths) to forecast the physician practice pool. Leveraging CIHI's POP Grouper, the demand model uses data on population demographic profiles, disease prevalence, physician service utilization, and physician workload to forecast demand. The POP Grouper profiles each person in the population using person-level demographic and clinical information and is used to help predict the population's health care needs.

Federal Initiatives: Led by Health Canada and endorsed by federal/provincial/territorial Health Ministers, a study entitled, *Caring for Canadians: Canada's Future Health Workforce – The Canadian Health Workforce Education, Training and Distribution Study* was released in January 2025. This study focused on estimating the current and projected workforce supply of, and demand for, primary care professions, including family physicians, nurses, occupational therapists, physiotherapists, and pharmacists. This first of its kind pan-Canadian study confirmed a significant gap in the primary care health workforce of tomorrow.

Provincial and Territorial Initiatives: Provinces and territories across Canada conduct their own health workforce modelling to address local needs. These activities include forecasting for various health professions such as physicians, nurses, and other allied health professionals. Provincial and regional governments use a mix of data-driven and microsimulation models to predict future workforce trends and inform decision-making. Common challenges include consistencies in data sharing or access to key data, standardized definitions and methodologies, and a lack of national unique identifier for health workers resulting in difficulties in tracking workforce migration across Canada and internationally. Despite these challenges, provinces and territories are advancing their modelling efforts, focusing on both profession-specific and team-based care models.

3. Use of Modelling Estimates and Data to Guide Policy Decisions in Canada

How Modelling Supports Planning or Funding Decisions: Health workforce modelling estimates, primarily at the provincial and territorial government levels, have played a role in guiding government spending, determining education seats, and policy decisions pertaining to the overall management of the health workforce in Canada.

Other organizations beyond government, including unions, employers, and professional associations also produce health workforce models to support their own planning and priorities.

Real-World Examples of Impact: Across Canada, provinces and territories use health workforce modelling to address specific local needs and challenges. In one province, for example, forecasting data was used to secure increased nursing school seats by demonstrating that alternative approaches would not sufficiently meet the need. In another province, language preferences were integrated into health cards to plan bilingual services, a low-cost adjustment that is now informing similar efforts in other regions. In a different province, a forecasted shortage of ophthalmologists led to a cost/benefit analysis that secured funding for necessary resources. These examples illustrate how health workforce modelling estimates and data are used to guide policy decisions, support planning and funding, and ultimately improve the efficiency and effectiveness of the health workforce in Canada.

4. Key Organizations

Organization	Role/Focus	Website
Health Workforce Canada	Health Workforce Canada (HWC) is an independent organization established in 2023. Funded by Health Canada, HWC unites health workforce experts, policymakers, researchers, health workers, patients and caregivers to strengthen health workforce data and planning. HWC aims to ensure health workers are there to provide the care people need within a cost-effective and sustainable health care system.	Health Workforce Canada
Canadian Institute for Health Information	The Canadian Institute for Health Information (CIHI) is an independent, not-for-profit organization that provides essential information on Canada's health systems and the health of Canadians. CIHI works closely with federal, provincial and territorial partners and stakeholders throughout Canada to gather, package and	Canadian Institute for Health Information

Organization	Role/Focus	Website
	disseminate information to inform policy, management, care and research, for improved health outcomes for all Canadians.	
Employment and Social Development Canada	Employment and Social Development Canada (ESDC) is a federal department with the primary aim of improving the standard of living and quality of life for all Canadians. ESDC oversees the Canadian Occupational Projection System (COPS), which provides labour market projections for health and other professions.	Employment and Social Development Canada
Statistics Canada	Statistics Canada is a federal department, with the aim of producing high-quality, timely and relevant Official Statistics. The department collects and releases a broad range of data on the labour force, workforce vacancies, the health of the population, and the education of health care providers. It also hosts a number of Research Data Centres distributed across the country to provide access to record level and linked datasets for analytical purposes.	Statistics Canada
Health Canada	**Health Canada** is the federal department responsible for helping Canadians maintain and improve their health. The department leads national efforts to strengthen the health system, protect public health, and ensure access to safe and effective care.	Health Canada

Australia

1. Overview of Health Workforce Planning Structure

Australia's health workforce planning is shared between the Commonwealth and state and territory governments, with input from various organisations including universities and specialist colleges.

Health workforce matters are overseen by a governance structure led by the Commonwealth, State and Territory Health Ministers, which enables shared decision making. Health Ministers also have oversight of nationally consistent frameworks for practitioner registration, accreditation, and public safety. This function is delivered by the Australia Health Practitioner Regulation Agency (AHPRA) and the National Boards.

2. Ongoing Modelling Activities

The Commonwealth leads national supply and demand modelling rendering a comprehensive view of Australia's health workforce to guide workforce planning, responses to current and future workforce needs, addressing distributional issues and decision making. Modelling currently focusses on the nationally regulated professions with plans to include the self-regulated professions such as audiology, sonography, social workers in the future.

A combination of microsimulation and time series regression approaches are used for supply and demand modelling. The microsimulation approach provides maximum flexibility for adapting the model to different populations and unique supply scenarios. Modelling also includes baseline demand and where data is available unmet demand is also estimated. The prevalence rates of relevant chronic condition are accounted for in the modelling of some professions.

The supply and demand models will be made publicly available on the Health Workforce Data website and updated biennially. A scenario planner function to simulate complex policy scenarios and analyse workforce implications will be available to approved users in the Health Demand and Supply Utilisation Patterns Planning (HeaDS UPP) Tool.

To complement the modelling work, the Department is also pioneering improved data collection and sharing through systems and data governance innovations.

3. Use of Modelling to Inform Policy

Data modelling is used by Commonwealth and state and territory governments to identify current and emerging health workforce issues and challenges.

Data-driven insights have informed the development and implementation of targeted workforce strategies including the National Medical Workforce Strategy, the National Nursing Workforce Strategy and the National Aboriginal and Torres Strait Islander Strategic Health Framework and Implementation Plan and key reform programs such as the Independent Review of Health Practitioner Regulatory Settings (Kruk Review).

4. Key Organizations

Organization	Role/Focus	Website
Australian Government Department of Health, Disability and Ageing	Coordinates national data and undertakes national health workforce modelling.	Health Workforce Data
State and Territory Health Departments	Coordinates State/Territory data, undertake jurisdictional health workforce modelling and strategic planning for the public sector.	• New South Wales • Victoria • Queensland • Western Australia • South Australia • Tasmania • Australian Capital Territory • Northern Territory
Primary Health Networks	Primary Health Networks (PHNs) are independent organisations that the Commonwealth Government fund to manage health regions.	PHNs
Rural Workforce Agencies	The RWAs provide a range of activities and support to improve the recruitment and retention of GPs and health professionals to rural and remote areas.	RWAs

Netherlands

1. Overview of Health Workforce Planning Structure

Since 1999, The (Dutch) advisory committee on health workforce planning is an independent organization that executes health workforce planning in the Netherlands. Health workforce planning in the Netherlands is specifically in place to control the training inflow in medical school and its subsequent medical specialty trainings. This planning is based on a stock-and-flow and demand-based forecasting model, to project the expected available and required capacity of medical doctors and medical specialists in 12 to 18 years. This projection is refreshed every three years, by publishing medical profession-specific reports and training inflow advice to the Ministry of Health (MoH) and Ministry of Education, that control the annual medical school and specialty training budgets. Over the last 10 years, this system of health workforce planning has expanded to other health care professions, such as dentists, oral hygienists, advanced practice nurses, physician assistants, mental health professions, and specialized nurses.

Next to multiple data sources, qualitative data on future developments is collected by consulting multiple stakeholder organizations. The forecasting and planning analyses result in advice for the ministries of central Dutch government on the number of residents needed for medical specialties as well as the number of medical and dental students. In order to anticipate new developments, this advice is given once every three years.

The training inflow advice of the advisory committee on health workforce planning is given on a national level. Subsequently, it is decided by the ministries and professional associations how the annual budgeted training places are allocated among the regional training institutes, in most cases university medical centers.

2. Ongoing Modeling Activities

The forecasting model is not only based on available quantitative data on current trends, but also on stakeholders' perceptions of future trends. Collecting qualitative data is done by participatory policy analysis. Whereas it is hard to predict what 'exactly' will happen in the future, different possible scenarios are used more and more.

Especially scarcity of care professionals and financial means for employers triggers the advisory committee on health workforce planning to make a difference between realistic and preferable scenarios. When considering stakeholders' perceptions of future trends, it is needed to be aware of possible desirable futures that are in favour of stakeholders' interests.

Moreover, to enable governmental decision making, the advice of the advisory committee should be feasible. For example, how to deal with the situation that the expected shortage of general practitioners will rapidly increase, whereas the numbers of medical students that want to become a resident in general practitioner care is still decreasing. Therefore, the expected inflow or feasibility of residents is specifically modelled and taken into account. Likewise, the organization of care may change due to the shortage of general practitioners. New developments in substitution may emerge which can influence the number of residents needed in the future. Due to these shifts in organization of care, modelling and decision making as well as the interconnection between new developments, they must be viewed as a complex social system. Therefore, measures other than inflow of residents can also influence the outcomes and the number of residents that are needed in the future.

3. Use of Modeling to Inform Policy

As stated above, the health workforce modelling activities of the advisory committee on health workforce planning basically supports the training inflow regulation policies of the Dutch Ministry of Health (and the Ministry of Education). The three advice planning cycles are accompanied by constant monitoring of the labour market of the health professions in scope, and consultation of their professional associations. On a regular basis, the (Dutch) advisory committee on health workforce planning publishes reports and outsources research do deepen knowledge on certain health professions or developments. In this respect, the (Dutch) advisory committee on health workforce planning functions as a key organization that brings together different stakeholders. Professional associations, training institutes, health insurers, patient organizations and regional policy makers sometimes have different interests in the funding of training places and the level of workforce capacities. But they are brought together by the planning model of the (Dutch) advisory committee to collectively contribute to a health labour market in balance, avoiding both undersupply (i.e. shortages and underserving) and oversupply (unemployment and talent waste).

4. Key Organizations

A wide variety of key organizations is involved in the health workforce planning process in the Netherland:

- The MoH decides on the budget available to train the (post)graduate health workforce (residence places for e.g. general practitioners, surgeons, health psychologists, dentists, physician assistants, specialized nurses, etc.)
- The Ministry of Education allocates the regular budgets for higher medical education, in particular nursing and healthcare assistant training

- Health care research organization, Nivel, collaborates with the advisory committee on health work force planning on updating and improving the forecasting model.
- Data collection takes place by researchers of the advisory committee or is outsourced to research institutes (Nivel and others).
- Participative policy analysis involves social insurance companies, health professional associations, and educational institutes. Representatives of these stakeholders are also involved in the governance structure of the advisory committee on health workforce planning.
- Health workforce monitoring for the total workforce is done by the Health and Care Labour Market program (in Dutch 'AZW') as a governmental agency, supported by research institutes

All stakeholders have their own skills according to the task they have within health workforce planning.

Appendix:

1. Health workforce planning in the Netherlands: how a projection model informs policy regarding the general practitioner and oral health care workforces. | Nivel
2. See Chapter 7 on the Dutch health workforce planning system in: OECD (2023), Medical Education and Training in Israel: Towards a Better Governance Structure for Health Workforce Planning and Policy Making, OECD Publishing, Paris, https://doi.org/10.1787/4125e770-en.
3. Link to the latest report of the Advisory Committee: 2020_02_12-Capaciteitsplan-2021-2024-Hoofdrapport-DEFINITIEF-EN.pdf

New Zealand

1. Overview of Health Workforce Planning Structure

Health New Zealand | Te Whatu Ora is the national organization responsible for delivering public health services and leading workforce planning across Aotearoa New Zealand. It was established in 2022 to unify the previously fragmented system of 20 District Health Boards and centralize functions previously held by the Ministry of Health New Zealand.

New Zealand has approximately 140,000 regulated health professionals, of which around 55,000 are employed directly by Health New Zealand in the public health system

Health New Zealand's Workforce Analytics and Forecasting section, part of National People Services, leads the organization's health workforce modelling and analysis efforts.

2. Ongoing Modeling Activities

This section has developed over 1,500 forecasting models, covering: nearly all regulated health professions, selected unregulated roles, and entire public hospital workforces across New Zealand.

The workforce supply models are built using individual-level practitioner data. These models consider: New entries, re-entries, and exits from the workforce by tracking annual changes in each practitioner's work history and aging of individual over time.

The section also links those forecasting models against utilization of services in private and public by age ethnicity, gender, location, deprivation at individual level and their comorbidities.

3. Use of Modeling to Inform Policy

This approach enables dynamic forecasting of workforce supply by age, gender, ethnicity, location, and other sensitive factors. It supports evidence-based planning and investment in health workforce training and funding, as well as assessing the feasibility of government health initiatives from workforce perspective.

The model outputs are shared with all medical colleges, universities, workforce regulatory authorities, the Ministry of Health, key health sector leaders, and every part of Health New Zealand where workforce considerations are essential.

4. Key Organizations

Organization	Role/Focus	Website
Health New Zealand	Coordinates national data and models for health workforce planning and funding.	https://www.tewhatuora.govt.nz/

Norway

1. Overview of Health Workforce Planning Structure

In Norway, the health workforce (HWF) planning process is working relatively well, with very good data available; and several forecasting models for HWF needs developed over the years. The main challenge is to make better use of the models and to refine some of them (for example provide forecasts from the national level model on regional level); and for staff at municipal level to have more time and resources to use forecasts and other available information to plan ahead. Coordination between the different actors could also be improved.

Norwegian health care system is decentralized, both with regard to responsibility and to physical presence. Extensive primary health care is provided in many small locations/villages, due to the decentralized population pattern. A population of 5,5 million is spread across a 2000 km long country.

Primary health care is the responsibility of 357 Norwegian municipalities, which vary enormously in geographical and population size, from a population of about 200 in the smallest locations to over 700 000 in Oslo.

Dental health care is the responsibility of the 15 counties.

The Ministry of Health (i.e., state level) owns the four regional health trusts, which in turn are responsible for providing specialized health care services through the hospital trusts.

Each level is responsible for planning and forecasting their own health care services.

2. Ongoing Modeling Activities

There are several HWF planning tools and models in use. Two will be described here. In addition to these two on national and regional level, there exist some simple models to calculate approximately how many health care workers are needed at municipal level, but we are not aware that this is widely used. No models exist for forecasting for dental health care services as far as we know.

a) Statistics Norway's planning model is the main national model and includes planning and forecasting for 14 occupations. The occupations in the model are, for example, medical doctors, nursing professionals, midwifery professionals, dentists, dental/medical assistants, physiotherapists and more. With these occupations the model covers a large part of the HWF in Norway.

Model Scope and Main Functions

Focus on tax-financed services: The model exclusively concentrates on the demand for tax-financed health and care services and excludes market-oriented services. These account for about 85 % of total health care (HC) expenditures in Norway.

Main function: Calculates the number of health professionals needed to provide specific health care services, based on year, gender, and age.

Calculation: It uses a formula that multiplies the number of people in a specific age and gender group, how often these people use the service in a specific year (unique user frequency), and the number of HWF person-years per unique user (service standard).

b) The second model is developed and used by the Regional Health Authorities and their hospitals. It is built on a conceptual model, consisting of four elements:

1. Supply (future competence pool)
2. Demand (future skill needs based on activity projection)
3. Skills gap (the difference between demand and supply)
4. Scenario (modifying factors defined in three scenarios constitute a possibility space)

Data that are loaded into the model are HR data, data from the Medical Employment Registry, NPR activity data and population growth projections from Statistics Norway.

The needs are calculated in the model in the following way:

- The model is based on activity data from the specialist health service.
- Activity drivers (most doctors and some psychological specialists) are then linked to activity codes to calculate the need for this type of personnel.
- The need for other personnel (nurses etc.) is further linked to the activity drivers within the various specialties by a ratio. Staffing needs in the future can be estimated linearly based on the current number of doctors and changes in activity per health and disease category.

3. Use of Modeling to Inform Policy

The central ministries (Ministry of Health and Care Services; Ministry of Education and Research, and Ministry of Finance) are important in that they are both setting entry quotas for certain groups like e.g. medical students and deciding on the university and higher education budgets, and they all have an interest in the planning and projection process for future labour market needs including budgets for the hospital health care services.

On the employment side, the municipalities, counties and regional health trusts have a large degree of freedom as to how they organize the health and care services and how many and which type of employees they want to use, as long as they comply with the health care laws. They are generally not governed by set staffing ratios they are required to have, but by a quality criterion (which translates as a “soundness requirement”). They use their own models and data in this process.

The Norwegian Directorate of Health has an important role in giving annual independent recommendations regarding future needs of different types of students (i.e. future workforce) to the Ministry of Health and Care Services, which in turn engages in the dialogue with the other ministries about the number of students. In the Directorate we are using the national level planning model developed by Statistics Norway as an important tool in this work, along with information about the number of students, employees, future plans for the health care services and so forth.

The estimates from the national forecasting model also provided key information for a report written by an independent commission on health care personnel, commissioned by the Ministry of Health and Care. This report stated that we cannot continue to increase the health workforce in the way it has been done until now and have to look for other solutions and reorganize the health care services in the future. The report generated a lot of debate and informed a later government white paper.

4. Key Organizations

Organization	Role/Focus	Website
Ministry of Health and Care Services	Coordinates overall health care policy, owns the regional health trusts (steering the hospitals).	https://www.regjeringen.no/en/dep/hod/id421/
Norwegian Directorate of Health	Technical executive body under the Ministry of Health and Care, provides e.g. analyses.	https://www.helsedirektoratet.no/english
Regional Health Trusts and Health Trusts	Steering bodies for the hospital sector.	**One of them**: https://www.helse-sorost.no/south-eastern-norway-regional-health-authority/
Statistics Norway	Provides data and forecasting.	https://www.ssb.no/en
Ministry of Education and Research	Provides budgets for health care studies.	https://www.regjeringen.no/en/dep/kd/id586/
The County Municipalities	Responsible for dental health care, and responsible for education at the upper secondary school level.	**One of them:** https://innlandetfylke.no/
356 Norwegian municipalities	Responsible for extensive primary care.	**One of them:** https://www.oslo.kommune.no/english/
Norwegian Association of Local and Regional Authorities	The Norwegian Association of Local and Regional Authorities is both an interest organization for the municipalities and an employer organization for them. In the health workforce field, they largely have an advisory role	https://www.ks.no/om-ks/ks-in-english/

United Kingdom

1. Overview of Health Workforce Planning Structure

- National workforce planning is the responsibility of a government agency, NHS England – although NHS England is being merged back into the Department of Health and Social Care (DHSC) and future responsibilities are not yet determined.
- NHS England has seven regional teams who work with local health systems and providers to provide a more local planning perspective.
- Operational planning generally happens annually, with local health systems planning for the next year, but also indicating expectations over the next five years.

2. Ongoing Modeling Activities

- NHS England has a long-term workforce model, built in Python, covering the whole NHS workforce (66 professions). It projects out 15 years across all major health care settings.
- Medical specialty modelling is in development but focused on a shorter term
- Operational modelling assists local areas to predict imminent workforce pressures and flows.

3. Use of Modeling to Inform Policy

- Workforce modelling was used to help inform and develop the NHS Long Term Workforce Plan, published in June 2023. This plan was backed with a multi-year funding commitment from the government at the time.
- Since the change of government, the plan is now being updated, although the modelling has already been used to inform the government's spending review for the next three years.

4. Key Organizations

Organization	Role/Focus	Website
Department of Health and Social Care	Supports ministers in leading the nation's health and social care to help people live more independent, healthier lives for longer. Leads on workforce policy, including pay. Negotiates funding.	https://www.gov.uk/government/organisations/department-of-health-and-social-care
NHS England	NHS England leads the National Health Service (NHS) in England. As part of this it ensures the training, education and planning for the workforce meet the needs of the NHS.	https://www.hee.nhs.uk/
NHS England regional teams	We have seven regions who support local systems to provide more joined up and sustainable care for patients. The regional teams work with local systems and education providers to deliver workforce training.	https://www.england.nhs.uk/about/regional-area-teams/
Integrated care systems	The 42 ICSs in England are local partnerships that bring health and care organisations together to develop shared plans and joined-up services. They are formed by NHS organisations and upper-tier local councils in that area and also include the voluntary sector, social care providers and other partners with a role in improving local health and wellbeing.	https://www.england.nhs.uk/integratedcare/what-is-integrated-care/

United States of America

1. Overview of Health Workforce Planning Structure

In the United States, health workforce planning is a collaborative effort that involves federal, state, and local entities, including:

- **U.S. Department of Health and Human Services (HHS):** HHS programs help to train health care providers, provide financial support to health care providers, and advance innovative ways to deliver care like telehealth. HHS programs also provide health care to people who are geographically isolated and economically or medically vulnerable.
- **The National Center for Health Workforce Analysis (NCHWA):** A center within HHS, NCHWA collects data, conducts research, and generates information about the U.S. health care workforce to inform and support public- and private-sector decision making.
- **U.S. Department of Labor (DOL):** The DOL provides labor market data like employment, prices, compensation, and productivity.
- **State Departments of Labor:** These departments facilitate workforce training, development, and investment in their respective states.
- **State Health Departments:** These departments support health workforce development activities through funding and technical assistance.
- **Local government entities:** These entities identify community-level health needs and address them through health workforce investment and development.
- **Nongovernmental entities:** These entities include professional organizations, nonprofits, and licensing/certification boards.

Planning responsibilities are distributed across levels of government, with federal agencies providing guidance and resources, while state and regional authorities tailor strategies to local needs. This multi-level structure allows for flexible and responsive workforce planning across the U.S. health care landscape.

2. Ongoing Modeling Activities

NCHWA conducts modeling and forecasting activities to support health workforce planning across the United States. It projects the future supply, demand, and distribution of health providers, including physicians, nurses, behavioral health providers, and allied health workers. NCHWA uses the Health Workforce Simulation Model (HWSM) which integrates data from multiple sources, including professional organizations, licensure and certification boards, the U.S. Census Bureau, and the DOL. These model components account for workforce trends such as retirement rates,

changing education and training capacity, population growth, and shifts in health service utilization. The model projects health workforce supply and demand 15 years into the future. Data are annually updated to reflect changing health care environments and policies.

NCHWA disseminates the data through an interactive dashboard, briefs, and reports. The Workforce Projections Dashboard is an interactive tool developed by NCHWA that provides visualizations and downloadable data that help users explore supply and demand projections for various health professionals across the United States. Users can explore projections for over 100 health professions. The dashboard provides national and state-level projections. It also provides metro and nonmetro projections for selected occupations.

Health workforce organizations and state health departments also conduct forecasts of the future demand and supply of the health workforce to support planning. For example, the Association of American Medical Colleges (AAMC) conducts projections of the future demand and supply of the physician workforce, while the Virginia Department of Health Professions is an example of a state that generates its own projections, here for the primary care workforce.

3. Use of Modeling to Inform Policy

NCHWA's projections allow HHS and other government entities to identify priority areas and professions to support with training, scholarships, and loan repayment programs. For example, HHS used NCHWA data to identify states projected to have primary care provider shortages. This information allowed HHS to target the states projected to have the most acute shortages.

4. Key Organizations

Organization	Role/Focus	Website
U.S. Department of Health and Human Services (HHS)	Leads health workforce efforts through funding training programs, managing workforce data, and supporting underserved areas.	https://www.hhs.gov/ (Agency within HHS: https://www.hrsa.gov)
National Center for Health Workforce Analysis (NCHWA)	A center in HHS that publishes projections and research on the supply, demand, and distribution of the health workforce.	https://bhw.hrsa.gov/data-research/review-health-workforce-research
Association of American Medical Colleges (AAMC)	Provides research and projections on the physician workforce.	https://www.aamc.org
National Council of State Boards of Nursing (NCSBN)	Administers exams necessary for licensure of nurses.	https://ncsbn.org/
U.S. Department of Labor	Generates data for health care occupations used in workforce planning.	https://www.dol.gov/ (Agency within DOL https://www.bls.gov)