Health Project

The Complexities of National Health Care Workforce Planning

Executive Summary | 18 October 2011

BIPARTISAN POLICY CENTER

ACKNOWLEDGEMENTS

The Bipartisan Policy Center (BPC) Health Project appreciates the research and analysis provided by the Deloitte Center for Health Solutions and the guidance offered by BPC's Health Professional Workforce Initiative Expert Advisory Panel in the development of this report. Special thanks to Kavita Patel, MD, MSHS and Nena Peragallo, DrPH, RN, FAAN for their expertise and efforts as co-chairs of BPC's Health Professional Workforce Initiative.

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Executive Summary

Foreword

Health care systems around the globe are struggling to identify the adequate mix of health care professionals necessary to meet the needs of current and future patient populations. The U.S. is no exception. Due to the data currently available, it is difficult to offer both a complete forecast of the nation's health care workforce supply and assess its adequacy for meeting the demand for services in coming years. Indeed, with reforms underway across the country to drive improvements in the quality, efficiency and effectiveness of the health care system, in addition to the present-day context of national deficit reduction strategies, it is imperative that we examine the landscape of the American health care workforce. The following analysis explores the current and future supply of 12 different health care professions – all of which are integral to health care delivery. This report will help give state and local leaders the tools they need to assess workforce supply in a meaningful and consistent way. The question for the American health care workforce is not whether there will be more jobs; the job growth in the health care industry will continue to rise. Rather, the question is: what mix of health care professionals will best meet the demand for high quality services?

This Study

The Bipartisan Policy Center's (BPC) Health Professional Workforce Initiative is investigating workforce transformation by examining the current workforce landscape, incentives and innovations in care coordination as well as the future of the health care workforce. This study, conducted by the Deloitte Center for Health Solutions, is the first step in capturing and analyzing key supply-side workforce issues. With the guidance of BPC's Health Professional Workforce Expert Advisory Panel, Deloitte's Center for Health Solutions examined industry and occupation-specific primary databases, published data from occupational groups, national employment estimates and future projections and U.S. and international peer reviewed literature. The study adopts a broad definition of *health care professional workforce* ranging from the vocationally trained to post-tertiary clinical specialists. Examining 12 health care service delivery professions, this study offers an initial starting point – not a definitive landscape – from which to build an inter-professional 'whole of workforce' perspective. The following is an executive summary of the full report to be published in November 2011.

HEALTH CARE PROFESSIONS IN THIS STUDY INCLUDE:

- Chiropractors
- Dentists
- Home Health Aides
- Personal and Home Care Aides
- Licensed Practical/Licensed Vocational Nurses
- Nursing Aides
- Pharmacists
- Physical Therapists
- Physician Assistants
- Physicians (includes Surgical Specialists, Non-Surgical Specialists, Primary Care)
- Psychologists
- Registered Nurses (includes Advanced Practice Registered Nurses)

Background

Establishing future workforce requirements is an inherently imprecise activity. Health care is a complex environment with many uncertainties affecting workforce supply and demand. Characterized by multiple stakeholders at the national, state and local levels and within professional, educational and other jurisdictions, the interdependencies between the groups that make up the health care sector are complicated. Moreover, efficient and effective workforce planning and deployment is inextricably linked to changes in demand for services, clinical technologies that facilitate diagnosis and treatment, payments that influence provider behaviors, workforce policies that frame licensing and scope of practice, as well as the overall structure of the system especially as it is impacted by the recently-passed Patient Protection and Affordable Care Act of 2010.

Clearly, the health care industry offers consistent and continuous job growth in the United States. Employment in the health care industry rose from 8.7 percent in 1998 to 10.5 percent of the total U.S. civilian workforce in 2008 and is projected to increase to 11.9 percent by 2018. Total employment in health care is projected to increase from 15.8 million in 2008 to 19.8 million in 2018. While these numbers reflect substantial job growth, there is a pressing need to identify workforce priorities and policies that ensure a properly trained and effective workforce that leverages technologies and efficient operating models. Indeed, Section Five of the Patient Protection and Affordable Health Care Act of 2010 emphasizes the need for strategies to increase workforce supply and capabilities, develop workforce diversity, and strengthen professional areas where supply is weak. These strategies are necessary to plan for a supply of professionals that is able to meet the changing demands of the health care system.

Traditionally, health care workforce studies focus on one or two key professions that comprise only a portion of the industry's workforce. Historically, health professional groups – physicians, nurses, allied health professionals – have developed supply-demand analyses based on assumptions unique to their respective discipline discounting possibilities that limit substitutionary care by other professionals or reduced utilization as a result of payment changes or clinical technologies that support self-diagnoses and treatment by consumers. As a result, estimates of demand are based on historic utilization patterns void of possible "future state" changes in demand and the size of needed workforce.

A substantial component of the workforce – personal care and home care aides – includes semi-skilled or non-skilled workers. Studies of workforce supply-demand in these categories tend to be less sophisticated and based solely on population demand. The health care workforce, however, is no less dependent on the availability of these

work groups than for those more frequently studied. Therefore, this study includes major categories in the U.S. health care workforce as a necessary means of establishing its size and assessing future demand.

Results

Employment growth in the health care sector is expected to continue. Most notably, demographic and population health risk are expected to drive growth in the demand for health care services. Other factors will also contribute to health care work force demand and should be considered, including:

- Changes in the incidence and prevalence of disease in the U.S. population due to demographic, environmental and lifestyle trends.
- Changes in the clinical delivery of care reflecting personalized medicine, advanced diagnostics, consumer access to self-help tests and bio-monitoring data.
- Changes in the structure and organization of local delivery systems reflecting alignment of physicians and hospitals in clinically integrated systems to participate in bundled payments, accountable care and other programs.
- Changes in payments and incentives that encourage utilization of certain health services over others, framing compensation expectations especially for health professionals.
- Changes in consumer expectations about services provided by health professionals, especially their use of electronic health records in tandem with personal health records.
- Changes in the education, licensing and regulatory oversight of health professionals, especially as liability, error reporting, outcomes and cost information become publicly transparent.
- And, changes in costs and the financing mechanisms that facilitate or limit access to health professionals and the health care workforce overall.

A comprehensive workforce planning methodology will incorporate these factors. Although it does not currently exist, this type of methodology is necessary to capture an accurate picture of the health care workforce supply needed moving forward.

Our work highlights the following challenges and opportunities:

- The existing landscape of health care workforce supply lacks a consistent and comprehensive national overview of the full extent of professions and health workers active in the system. In particular, data on mid-level, allied health care and direct care workers such as home health aides is limited and poorly represents the full range of employment settings.

- Despite the health care sector being an area of strong employment growth over the past decade, challenges in current approaches to health workforce planning relate to fragmented data collection, occurring in a range of jurisdictions with variation in data definitions and data captured.
- Comprehensive and comparable data sources for health care workforce supply information across a broad range of professions are lacking; current sources are limited, inconsistent, profession-specific and non-comparable. A national picture is difficult to establish. The lack of timely, available information further complicates accurate supply trend projections.
- Workforce participation (entry, retention, exit and re-entry) is subject to unpredictable and variable supply-side influences including labor market factors such as access to professions, licensure requirements and skills portability, as well as structural workforce issues such as participation levels, workforce aging, lifestyle factors, and gender.
- Demand-side variables include shifting utilization patterns of evolving consumer expectations of health care; demographic characteristics such as population aging, past activity or utilization trends in service delivery, policy changes that impact pricing and payment systems; the uptake of insurance and evolving service delivery models.
- Workforce planning models must consider changes in practice patterns, provider skills required by new team-based service delivery models, funding and payment models, changes in health risk, staffing models, technology innovations, and provider activity and productivity. Other limitations of planning models include the comparability of data collected and the precision of data collection instruments.
- The National Health Workforce Commission and the National Center on Workforce Analysis at the Bureau of Health Professions are designed to address workforce planning. Furthermore, initial steps are being taken to collect a minimum data set. Several issues, however, require further examination and resolution, including but not limited to data collection, shared methodological approaches and alignment of workforce requirements with new service delivery models and funding for workforce development.

Health Industry Employment

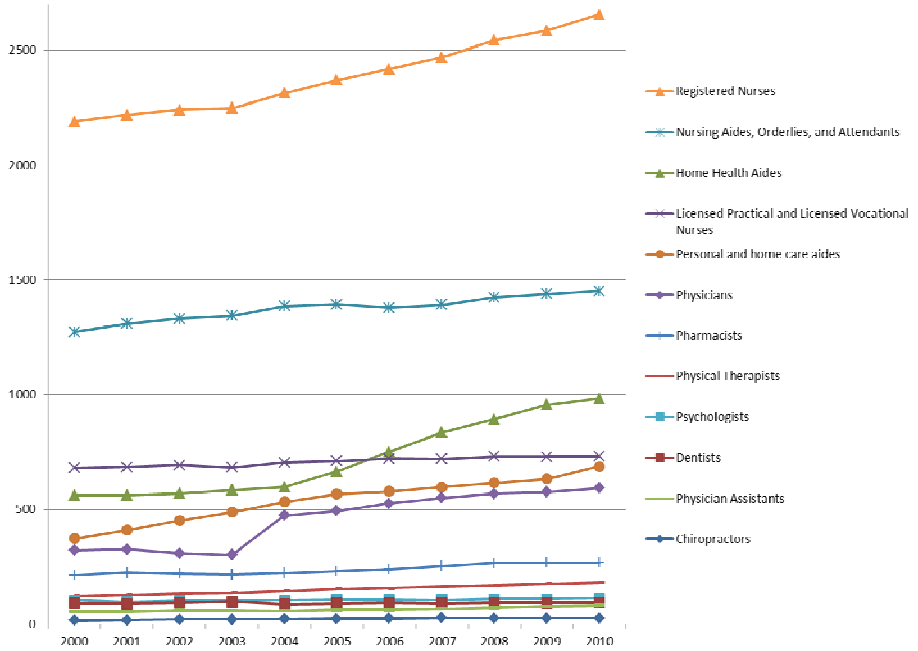
Health industry employment has increased and is projected to continue to grow

The Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) indicate that all professions or health occupations of interest in this study experienced growth over the past 10 years. The most notable increases occurred in the physician and nursing categories and in support worker categories such as home health aides and personal and home care aides (Figure 1).

Figure 1: National Occupational Employment Estimates, 2000-2010

National occupational employment estimates, 2000-2010 for selected professions

(Source: Occupational Employment Statistics, Bureau of Labor Statistics; in thousands)



Notes to Figure 1

Dental categories changed in 2004 to incorporate two categories "dentist, general" and "dentist, all other specialties"

Physicians work in one or more of several specialties including, but not limited to, anesthesiology, family and general medicine, general internal medicine, general pediatrics, obstetrics and gynecology, psychiatry, and surgery.[i] In 2004, category 'Physicians and surgeons, all other" added[ii]

Psychologist includes clinical, counseling and school psychologists. In 2004 category "Psychologists, all others" added

Registered Nurses includes Advanced Practice Registered Nurses

Every two years, the BLS publishes long-term national occupational employment projections with the most recent release covering a projection period from 2008 to 2018. Applying an input-output model, the employment projections reflect factors that influence occupational employment over time including population growth, industry output, technological change, occupational employment and openings and demand for goods and services.

BLS employment projections covering 2008 to 2018 suggest a strong growth in health care and related occupations. Over this time, the health care sector (which includes all jobs in health settings) is projected to grow by nearly 23 percent, compared to about nine percent for all other employment sectors, with over three million new jobs between 2008 and 2018. Employment of health practitioners and in technical health care occupations is expected to increase by 21.4 percent, resulting in 1.6 million new health care jobs. Employment in health care support occupations is projected to increase by 28.8 percent or 1.1 million new health care jobs over this period.

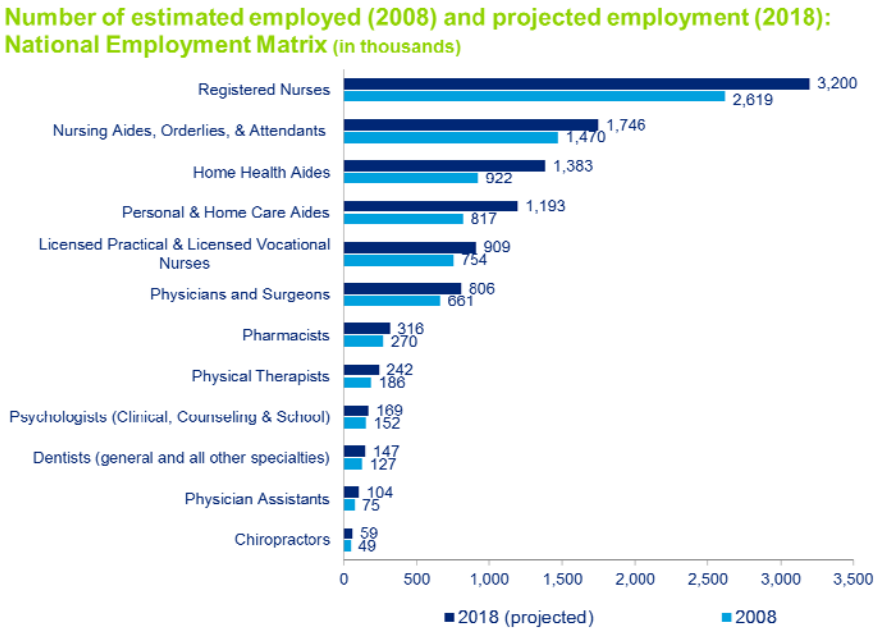
These projections are informed by demand assumptions including changing health care utilization patterns of an aging population, new service innovations and technologies, a consumer preference for home-based rather than institutional care and a growth in use of personal support services to assist people living at home with activities of daily living. Growth settings are expected to be in non-traditional locations such as home-based care, offices of health practitioners and in nursing and residential care facilities. The BLS also estimates that an aging health care workforce will lead to significant job openings between 2008 and 2018 through retirement and attrition.

The BLS projects that, between 2008 and 2018, the biggest increases in job growth will occur in the following professions (see Figure 2):

- Registered nurses – 581,500 new jobs with projected growth rate of 22.2 percent
- Licensed practical and licensed vocational nurses – 155,600 new jobs with projected growth rate of 20.7 percent
- Home health aides – 460,900 new jobs with projected growth rate of 50.0 percent
- Nursing aides, orderlies, and attendants – 276,000 new jobs with projected growth rate of 18.8 percent
- Personal and home care aides – 375,800 new jobs with projected growth rate of 46.0 percent
- Physicians and surgeons – 144,100 new jobs with a projected growth rate of 21.8 percent

Figure 2: Employment and Projected Employment for Selected Professions: 2008.

(Source: National Employment Matrix, Occupational Employment Projections, Bureau of Labor Statistics; in thousands)



The BLS 2008-2018 projections of employment growth reflect expectations of increased demand for services in the health care sector. BLS projections give an overview of broad trends across occupational groups and potential numbers of new jobs in those groups. These projections, however, do not necessarily reflect the full extent of changes anticipated in the health care delivery system.

Workforce Requirements and Supply

Supply and demand determine workforce requirements, both of which are characterized by uncertainties and difficulties in the identification and collection of suitable data. Developing a universally accepted group of variables for national and state-based health care workforce modeling is highly complicated. It is likewise difficult to ensure that uniform, valid and reliable data could be applied to these models.

Supply is influenced by labor market factors that vary by profession including income relativities across the professions, work hours, licensure requirements, access to professions and skills portability. Furthermore, supply is influenced by structural workforce issues such as workforce aging, lifestyle factors and gender. All of these may impact participation in the health care workforce (entry as well as exit). Other factors that impact supply include technological advances that may influence productivity through changes in workforce practices, but may also introduce new fields of medical endeavor.

Demand is influenced by shifting utilization patterns as a result of evolving consumer expectations, demographic characteristics (i.e., aging), utilization trends in service delivery, policy changes that affect pricing and payment systems, the uptake of insurance and the optimal mix of service provider skills.

Additional factors that may influence the workforce supply, composition and forward planning include:

- Educational cycles, training time, training capacity limitations, clinical education shortages, availability and location of graduate medical education (GME) positions, and faculty shortages;
- Uncertainty of future supply in some professions due to lengthy training periods and likely entrance of intake cohorts into the workforce;
- Variations in capabilities, active participation, retention and re-entry due to interstate and intrastate variations in training programs, licensure laws and scope of practice restrictions;
- Workforce participation patterns and preferences (i.e., age and gender), opportunity costs or trade-offs associated with willingness to work at different remuneration levels, work hours or locations; and

- Issues specific to some vocations such as high turnover rates, worker satisfaction, low remuneration levels and lack of career growth.

Given the broad range of variables and the complexities of identifying and measuring these factors, the task of forecasting the supply of health professionals is challenging to say the least.

Approaches for Addressing Workforce Needs

Health care workforce models provide a mechanism for making future projections testing possible solutions. These models range from simple to complex and can produce highly varied results. They tend to employ population-based forecasting methods; in particular, the “stock and flow” approach captures estimates of existing workforce numbers and utilization data and then translates these into estimates of required full-time equivalent workers. Other approaches to workforce modeling less commonly used include econometric modeling and simulation modeling. Some studies or projections adopt a heterogeneous approach, combining a number of elements within a single study to account for a broader range of key factors that need to be considered.

Limitations with workforce planning models include accounting or making provision for uncertainties such as changing practice patterns, new service delivery models, changes in funding or payment models, changes in health risk, any relationship of staffing models to quality of care provided and the impact of technology innovations on patterns of care and provider activity and productivity. Other limitations include cost, comparability of data collected and the precision of data collection instruments.

Comprehensive and comparable data for health care workforce supply across a broad range of professions are lacking; existing sources of information are limited, inconsistent, profession-specific and non-comparable. Currently there is a depth of workforce research around the supply and demand for physicians and nurses but less so for other professions which are integral to the overall health care workforce. State oversight of licensing and training contributes to data variability, creating a complex set of projections at the aggregate or national level.

A number of factors may impact future supply deliberations, including:

- Correlations between quality of care in acute and sub-acute settings and required levels of staffing by nurses, technicians and caregivers;

- New technology for distance medicine, self-care, bio-monitoring and e-visits that reduce demand for in-person visits to physicians, allied health clinics and other ambulatory facilities;
- Health promotion and wellness as well as the addition or substitution of alternative forms of care such as natural medicine, naturopathy, and Traditional Chinese Medicine in either a substitutionary or complementary manner;
- Re-casting of traditional work roles and responsibilities ranging from utilizing trained workers to the full extent of their training and employing support workers to alleviate certain administrative duties;
- The use of non-traditional care providers such as unpaid or informal caregivers;
- Practice variations which suggest that provider behavior such as responsiveness and propensity to intervene have implications for both the cost of care and also the systemic capacity to provide care; and
- Consumer engagement, patient self-management and patient activation strategies designed to facilitate assumption of personal responsibility for managing health.

Data and Research Issues

A sound information base is crucial for workforce planning. Current data collection systems, however, appear to be disconnected and suffer from a lack of reliable data on many aspects of the U.S. health care system. Data on workforce employment and supply is available from a range of sources. National databases such as the U.S. Bureau of Labor Statistics and the Census Bureau collect employment information in a consistent manner across most professions. State-based licensure re-certification cycles are important sources of active supply information but do not offer a consistent national picture. Licensure information may also be somewhat misleading as individuals may hold licenses for several jurisdictions.

One long-established way of explaining supply is by establishing the ratio of the total number of a particular professional group available to the population. Professional membership organizations such as those representing physicians (for example AMA, AAMC), dentists (ADA), nurses (for example AACN, AANP), pharmacists (for example AACP, ASHP) provide additional sources of data collections and industry research. Profession-based sources of data vary widely in terms of data collection methodologies, often between different avenues of the same profession.

The end result is a variety of supply estimates, often inconsistent, and mostly non-comparable to estimates of supply for other groups of health care workers. A snapshot of projected supply of the 12 health sector groups in this study is summarized in Figure 3, with further detail contained in the full report to be published in November 2011 that follows this Executive Summary.

Figure 3: Supply of Health Professionals as a Ratio per Population; Projected Supply as Estimated by Profession-specific Organizations

(various sources)

PROFESSIONAL GROUP	PER 100,000 POPULATION (YEAR OF ESTIMATE)	PROJECTED SUPPLY (AS ESTIMATED BY PROFESSIONAL GROUPS)
Chiropractors	29.1/100,000 (2004)[iii]	Not available
Dentists	59.0/100,000 (2005)[iv]	184,578 projected (2010); 195,267 projected (2020)[v]
Home Health Aides	212.6/100,000 (2004)[vi]	Not available
Licensed Practical & Licensed Vocational Nurses	239.0/100,000 (2004)[vii]	Not available
Nursing Aides, Orderlies, & Attendants	475.0/100,000 (2004)[viii]	Not available
Personal & Home Care Aides	Not available	Not available
Pharmacists	77.0/100,000 (2004)[ix]	304,986 projected (2020)[x]
Physical Therapists	49.5/100,000 (2004)[xi]	Not available
Physician Assistants	16.9/100,000 (2004)[xii]	83,466 projected (2010)[xiii]
Physicians	277.0/100,000 (2010)[xiv] 317/100,000 (2009)[xv] ~259/100,000 (2005-2020)[xvi] 228/100,000 (2006)[xvii]	872,900 projected (2010); 951,700 projected (2020)[xviii]
Psychologists	33.5/100,000 (2004)[xix]	Not available
Registered Nurses (includes Advanced Practice Registered Nurses)	802/100,000 (2004)[xx]	2,069,369 projected FTE (2010); 2,001,998 projected FTE (2020)[xxi]

Consultation with a few health workforce planning experts[xxii] suggested that regularly collected supply data, at a minimum, should include:

- Demographics (age, race/ethnicity, gender);
- Education (training, licensure, specialty); and
- Practice pattern or current capacity information (productivity, employment setting, geographic location, services provided, work hours devoted to direct care vs. non-direct care, such as administration).

Looking Ahead: Workforce Innovations in the U.S.

A number of key steps are planned or in place at the federal level to address issues related to the health care workforce landscape including:

NATIONAL HEALTH WORKFORCE COMMISSION	A 15-member committee (as yet unfunded) appointed by the General Accountability Office, the National Health Care Workforce Commission is required to review health care workforce supply and demand and make recommendations regarding national priorities and policy. Other areas of focus will involve review of the implementation of state health workforce development grants program and workforce development actions including career pathways, policies and practices regarding recruitment, retention and training of the health care workforce.
NATIONAL CENTER FOR HEALTH WORKFORCE ANALYSIS[xxiii]	A key initiative of the National Center for Health Workforce Analysis is the development of guidelines for a uniform minimum health data set across health professions in order to improve data collection and allow for comparisons over time, across states, jurisdictions and professions.
STATE HEALTH CARE WORKFORCE DEVELOPMENT GRANTS[xxiv]	Provides competitive grants to enable state partnerships to conduct comprehensive planning and carry out health care workforce development strategies at state and local levels.
OTHER	In addition, professional organizations are increasingly sharing knowledge across their respective disciplines to better understand and meet the demands and requirements of the evolving health care workforce.

Findings

The U.S. health care industry is capital intense, highly regulated and labor intensive. These three factors complicate efforts to radically and/or quickly change its workforce composition. Health care consumes 17 percent of the U.S. gross domestic product (GDP), and the U.S. consistently spends more on health care per capita than other developed countries.[xxv] As widely noted, health care costs exceed $9,000 per capita and will increase at six percent annually for the next decade.[xxvi] Innovative approaches to educating and training the health care workforce are imperative to effectively manage increased demand for services while reducing costs and improving quality. Traditional supply-demand analyses for the health care industry workforce fall short in addressing both objectives. Fragmented and inconsistent data collection, variance in methodological assumptions and rigor, mistrust between professional groups and wide differences in regulatory and educational context contribute to an incomplete understanding of workforce supply and demand.

To ensure an adequate, effective workforce in the U.S. health care system, a fresh approach is critical. The National Health Workforce Commission as well as the National Center for Health Workforce Analysis are integral to the transformation of the US health care system. These bodies must lead in the creation of a solid methodological foundation upon which workforce shortages, demand and regulatory oversight must be constructed.

Key insights and future steps for an effective health care system workforce may include:

1. Coordinated workforce planning framework and infrastructure that:

- Advances a planning agenda that provides a complete picture of the health care workforce as well as the drivers behind supply and demand;
- Champions a national supply and demand model covering both a macro viewpoint (entire health workforce) and specialty-specific, to inform and assist states with locally-based planning and provision;
- Recognizes the differing needs of geographic areas (local, state, regional and national);
- Adopts an inter-professional approach to workforce research and planning;
- Links research and planning in both the health and higher education sectors;
- Supports workforce planning infrastructure capabilities at the state level and ensures states become collaborators in the framework;

- Incorporates strategies to address such things as maldistribution of the health care workforce and gaps or low supply in areas of practice such as primary care and specialty areas (i.e., aged care);
- Enables new channels of health care delivery through retail health, group visits, direct access by consumers to diagnostic exams and bio-monitoring devices, and payment methods that encourage engagement of consumers in self-care;
- Considers the changing role of insurance and employers as influencers/gatekeepers in accessing health providers;
- Factors the impact of information technologies that equip consumers and clinicians to better understand treatment options and relate decisions to outcomes and costs;
- Considers the evolution of health service research that correlates optimal outcomes with core competencies and performance measurement for caregivers; and
- Incorporates changes in educational, licensing, and disciplinary infrastructures, programs and institutions to yield a more productive, better prepared workforce.

2. Data and research

Improved coordination between federal and state entities is needed to resolve issues related to data collection and research, in addition to directed guidance for states with respect to developing a common approach to workforce measurement and forecasting methodologies which may include some of the following key components:

DATA AND RESEARCH	**Organizing principles of data collection and forward-planning may consist of:** • Consistent collection and processing arrangements; • Institutional structures to support data collection, analysis, interpretation and publication; identification of a data 'custodian'; • Consistent concepts through a common definition set and a minimum data set(s); • Measures that can be scaled up or down at the state level according to need; and • Recognition that data collection requirements will differ by geographic location (local, state, regional or national). **Baseline information or minimum data sets for workforce planning could include:** • Demographic characteristics including age, gender, location, and diversity; • Qualifications, training or certification achievements including type, source and date of qualification or certification acquired; • Workforce characteristics such as labor force status, job tenure, specialty area, classification level, hours worked, hours spent in patient-care, industry and sector of employment, earnings, and geographic location/distribution;

	• Current and projected workforce entrants; • Inward and outward migration data of health workers; • Current and projected workforce exits; and • Time spent outside of the workforce as well as re-entries.
ADDITIONAL DATA	**Workforce projections may require different data resources, such as:** • Productivity of health providers over time; • Impact of behavioral factors such as motivation, compensation, and litigation; • Impact of innovation on productivity; • Cost of doing business including medical liability insurance; • Short and long-term impact of prevailing economic conditions on supply; • Longitudinal career entry and trajectory studies; • Impact of technology on workload and work tasks; • Impact of technology on patient activation; • Re-allocation of administrative burden from professionals; and • Work role re-delineation and the complimentary or substitutionary trade-offs between highly trained professions and professions with shorter training times and faster entry pathways into the workforce.
PROJECTION METHODOLOGIES	**Design principles may include:** • A wide range of relevant demand, supply and productivity scenarios; • A 'toolbox' approach toward meeting differing requirements; • Concentration on the major health workforce groups, recognizing that projections for smaller or diverse groups may be needed on a less regular basis; • Regular updates aligned with education and training planning cycles; • Timely, dynamic style of modeling; • Evidence-based care models that identify the balance of professions and necessary skill-mix and productivity measures or factors that influence productivity; and • Key baseline measures that capture demand drivers including demographics, population health information, and service delivery characteristics.

3. Scenario testing

Evidence-based scenarios that identify optimal mix of health care team staffing and skills necessary for meeting patient care needs in new team-based service delivery models such as clinical care organizations.

- Model supply of workforce by population-based health outcomes using a combination of supply variables in a range of demand, supply and productivity scenarios in four to six communities including those experiencing supply problems such as rural/remote areas and/or underserved populations.
- Scenario comparisons are needed to identify which approaches are likely to be most cost-effective in improving the accessibility, quality and sustainability of health workforce services.

Endnotes

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