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September 2013

# HEALTH CARE WORKFORCE

## HRSA Action Needed to Publish Timely National Supply and Demand Projections

## Why GAO Did This Study

For over a decade, government, academic, and health professional organizations have projected national shortages of health care professionals, which could adversely affect patients' access to care. However, there is little consensus about the nature and extent of future shortages, partly because of the complexity of creating projections and uncertainty about future health care system changes. Up-to-date workforce estimates are essential given the significant federal investment in health care training programs. Within HHS, HRSA is responsible for monitoring health care workforce adequacy; to do this, HRSA conducts and contracts for workforce studies.

GAO was asked to provide information about health care workforce projections. This report examines the actions HRSA has taken to project the future supply of and demand for physicians, physician assistants, and advanced practice registered nurses since publishing its 2008 report. GAO reviewed HRSA's contract documentation, select delivered products, and timeline goals for publication. GAO also interviewed HRSA officials, workforce researchers, and provider organizations.

## What GAO Recommends

GAO recommends that the Administrator of HRSA expedite the review and publication of HRSA's report on national projections for the primary care workforce, create standard written procedures for report review, and develop tools to monitor report review to ensure timeline goals for publication are met. HHS agreed with GAO's recommendations and provided technical comments.

View [GAO-13-806](#). For more information, contact Kathleen M. King at (202) 512-7114 or [kingk@gao.gov](mailto:kingk@gao.gov).

## HEALTH CARE WORKFORCE

### HRSA Action Needed to Publish Timely National Supply and Demand Projections

## What GAO Found

Since 2008, the Health Resources and Services Administration (HRSA) within the Department of Health and Human Services (HHS) has awarded five contracts to research organizations to update national workforce projections, but HRSA has failed to publish any new reports containing projections. As a result, the most recent projections from HRSA available to Congress and others to inform health care workforce policy decisions are from the agency's 2008 report, which is based on data that are more than a decade old. While HRSA created a timeline for publishing new workforce projection reports in 2012, the agency missed its goal to publish a clinician specialty report by December 2012 projecting the supply of and demand for health care professionals through 2025. HRSA officials attributed the delay in publishing this report to data challenges and modeling limitations. HRSA has also revised its timeline to postpone publication of two other health care workforce reports, as shown in the table below. HRSA officials said that the agency does not have standard written procedures for preparing a report for publication after final reports are delivered from contractors, which may impede its ability to accurately predict how long products will take to review and monitor their progress through the review process.

**Health Resources and Services Administration's (HRSA) Original and Revised Timelines for Publishing Updated Workforce Supply and Demand Projections**

Report	Description	Original goal for publication	Revised goal for publication
Primary care	Projects supply of and demand for the primary care workforce to 2020.	No goal date	Fall 2013
Clinician specialty	Projects supply of and demand for physicians, physician assistants, and certain advanced practice registered nurses <sup>a</sup> (APRN) to 2025.	December 2012	Summer 2014
Nursing workforce	Projects supply of and demand for nurses, including APRNs, to 2030.	September 2013	Fall 2014
Cross-occupations	Projects supply of and demand for more than 20 health professions to 2030.	2013	2014

Source: GAO review of HRSA information.

<sup>a</sup>Includes nurse practitioners, certified registered nurse anesthetists, and certified nurse-midwives. Clinical nurse specialists are not included.

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## Abbreviations

AAMC	Association of American Medical Colleges
ACO	accountable care organization
APRN	advanced practice registered nurse
BHPr	Bureau of Health Professions
FTE	full-time equivalent
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
NCHWA	National Center for Health Workforce Analysis
PCMH	patient-centered medical home
PPACA	Patient Protection and Affordable Care Act
PRM	Physician Requirements Model
PSM	Physician Supply Model

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September 30, 2013

The Honorable Tom Coburn  
Ranking Member  
Committee on Homeland Security and Governmental Affairs  
United States Senate

The Honorable Richard Burr  
Ranking Member  
Subcommittee on Primary Health and Aging  
Committee on Health, Education, Labor, and Pensions  
United States Senate

The Honorable Michael B. Enzi  
United States Senate

For over a decade, several government, academic, and health professional organizations have projected national shortages of health care professionals,<sup>1</sup> which could result in delays in getting care, or patients not receiving needed care.<sup>2</sup> However, there is little consensus about the nature and extent of any future shortages. In 2008, the Health Resources and Services Administration (HRSA)—the agency within the Department of Health and Human Services (HHS) responsible for monitoring the supply of and demand for health care professionals—published a physician workforce report that projected a shortfall of approximately 49,000 full-time equivalent (FTE) physicians by 2020.<sup>3</sup>

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<sup>1</sup>We use the term “health care professionals” to encompass allopathic and osteopathic physicians, and two groups of nonphysician providers—physician assistants and advanced practice registered nurses. These nonphysician providers generally hold graduate degrees and may be required to pass national certification exams in order to practice medicine. Advanced practice registered nurses can be further divided into nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, and certified nurse midwives.

<sup>2</sup>See, for example, Health Resources and Services Administration, *The Physician Workforce: Projections and Research into Current Issues Affecting Supply and Demand* (Rockville, Md.: 2008); M. J. Dill and E. S. Salsberg, *The Complexities of Physician Supply and Demand: Projections through 2025* (Washington, D.C.: 2008); and J. M. Colwill, J. M. Cultice, and R. L. Kruse, “Will Generalist Physician Supply Meet Demands of an Increasing and Aging Population?” *Health Affairs*, vol. 27, no. 3 (2008).

<sup>3</sup>Health Resources and Services Administration, *The Physician Workforce*.

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That same year, the Association of American Medical Colleges (AAMC) projected a gap of 124,000 FTE physicians by 2025.<sup>4</sup> In contrast, one recently published study found that increases in physician productivity due to greater use of technology and incorporation of nonphysician providers into team-based care delivery models could offset projected shortages of primary care physicians.<sup>5</sup> Differences among projections may arise partly because accurately determining the supply of and demand for health care professionals is a difficult task due to gaps in available supply data, especially for nonphysician providers, and a number of uncertainties that affect future demand, such as technological advances in medicine and changes in disease prevalence. HRSA and others attempting to develop new projections must also account for a changing health care landscape, due in part to the implementation of the Patient Protection and Affordable Care Act (PPACA), as amended by the Health Care and Education Reconciliation Act of 2010.<sup>6</sup> The Congressional Budget Office has estimated that PPACA will extend health insurance coverage to 25 million uninsured individuals beginning in 2014. PPACA also contains provisions that have the potential to change the way health care is delivered, as well as the size and composition of the health care workforce. To ensure an adequate health care workforce for the nation, the federal government makes a significant investment in training programs. For example, total federal spending for workforce training was about \$14 billion in fiscal year 2012.<sup>7</sup> Up-to-date workforce estimates are essential information for Congress as it considers policy options to address health care workforce issues, including targeted funding for training programs.

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<sup>4</sup>Dill and Salsberg, *The Complexities of Physician Supply and Demand*.

<sup>5</sup>L. V. Green, S. Savin, and Y. Lu, "Primary Care Physician Shortages Could Be Eliminated through Use of Teams, Nonphysicians, and Electronic Communication," *Health Affairs*, vol. 32, no. 1 (2013). In recent work, HRSA has defined primary care physicians to be those practicing in family medicine, general practice, general internal medicine, general pediatrics, and geriatrics.

<sup>6</sup>Pub. L. No. 111-148, 124 Stat. 119 (2010), as amended by Pub. L. No. 111-152, 124 Stat. 1029 (2010). For purposes of this report, references to PPACA include the amendments made by the Health Care and Education Reconciliation Act of 2010.

<sup>7</sup>GAO, *Health Care Workforce: Federally Funded Training Programs in Fiscal Year 2012*, [GAO-13-709R](#) (Washington, D.C.: Aug. 15, 2013). This report focused on federal programs that provided postsecondary training or education for health professionals or supported the costs of such training in fiscal year 2012, including the cost of postsecondary graduate medical education residency positions for physicians.

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HRSA is the primary federal agency responsible for ensuring and increasing access to health care services, particularly for medically underserved populations, and for enhancing the capacity of the health care workforce. Within HRSA, the Bureau of Health Professions (BHP) has multiple responsibilities related to workforce development, including conducting and contracting for studies on the supply of and demand for health care professionals. In 2006, we found that HRSA had published few national workforce projections despite the importance of such assessments to setting health care workforce policy, and we recommended that HRSA develop a strategy and establish timeframes to more regularly update and publish national workforce projections for the health professions.<sup>8</sup> In 2012, HRSA created a timeline, establishing goals for producing national projections and a schedule for periodic updates.

Given the wide range of estimates that have been generated about how many health care professionals may be needed, you asked us to provide information about health care workforce supply and demand projections. This report examines the actions HRSA has taken to project the future supply of and demand for physicians, physician assistants, and advanced practice registered nurses (APRN) since publishing its 2008 physician workforce report.

To examine actions HRSA has taken to project the future supply of and demand for health care professionals, we reviewed relevant sections of HRSA's contracts with research organizations that produce workforce models and projections, including statements of work and timelines for deliverables. To obtain more detailed information about delivered products, we reviewed a published report and a data and methodology guide provided by a contractor to HRSA. We also reviewed a workforce projection model created under contract and used it to examine projected differences between the supply of and demand for physicians by specialty in 2025 with and without the addition of nonphysician providers. To enhance our understanding of the model's capabilities and structure, HRSA officials provided us with a demonstration and tutorial on the use of this model to create workforce projections. Although our reporting objective encompassed workforce reports as evidence of actions taken, we did not review reports produced by contractors that HRSA had not

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<sup>8</sup>GAO, *Health Professions Education Programs: Action Still Needed to Measure Impact*, [GAO-06-55](#) (Washington, D.C.: Feb. 28, 2006).

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approved, finalized, and published for public use because it was beyond the scope of our review to assess the quality or completeness of such interim products. We also reviewed a document summarizing workforce data collection and analysis activities conducted by BHP. We interviewed officials from BHP to clarify and confirm information about the status of HRSA's workforce projections and to obtain information about key updates and changes to its models since its 2008 physician workforce report, as well as challenges they face in updating projections. We also asked officials about policies and procedures for reviewing and publishing projection reports to assess the extent to which HRSA monitors its progress toward meeting timeline goals. We assessed these policies and procedures using criteria from Standards for Internal Control in the Federal Government.<sup>9</sup> We also compared dates contained in the timeline HRSA created in 2012 for publishing updated national health care workforce projections with contractual dates for product deliveries, as well as with status updates provided by BHP officials to evaluate HRSA's progress. We also interviewed health care workforce researchers and representatives from health care professional associations to gain additional perspectives on the challenges of creating workforce projections.

We conducted this performance audit from May 2013 through September 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

An adequate supply of health care professionals is necessary to ensure access to needed health care services. HRSA estimated that there were approximately 780,000 physicians and 261,000 physician assistants and

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<sup>9</sup>Federal internal control standards state that managers should have access to timely information needed to effectively monitor agency progress on meeting its goals and that managers should track achievements and performance and compare them to expected performance. These standards also state that establishing appropriate control activities, such as documenting administrative policies, can help ensure that management's directives are carried out. See GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: Nov. 1, 1999).



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advanced practice registered nurses engaged in patient care in 2010.<sup>10</sup> Part of maintaining an adequate health care workforce involves projecting the future supply of health care professionals and comparing that supply to the expected demand for health care services to determine whether there will be enough providers to meet the demand. Such projections can provide advance warning of shortages or surpluses so that health care workforce policies, such as funding for health care training programs, can be adjusted accordingly. In its 2008 physician workforce report, HRSA noted that due to the long time needed to train physicians and to make changes to the medical education infrastructure, policymakers and others need to have information on the adequacy of the physician workforce at least 10 years in advance.<sup>11</sup> We have also previously reported that producing supply and demand projections on a regular basis is important so that estimates can be updated as circumstances change.<sup>12</sup>

Health care workforce projections typically measure the supply of health care professionals and the demand for services in a base year and predict how each will change in the future given expected changes in the factors that affect supply and demand. On the supply side, “stock and flow” models are commonly used; these models start with the current number of health care professionals, add new entrants to the workforce, such as students who complete their medical training, and subtract providers who are expected to leave the workforce, such as those who retire. Factors influencing supply include the capacity of educational programs to train new health care professionals, the number of patients that health care professionals are able to care for, and attrition rates. On the demand side, a utilization-based approach is often used, which measures the current utilization of health care services and projects that pattern of utilization forward, making adjustments as the population receiving services changes over time. Factors affecting demand include

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<sup>10</sup>This estimate includes nurse practitioners, certified registered nurse anesthetists, and certified nurse midwives, but not clinical nurse specialists.

<sup>11</sup>Health Resources and Services Administration, *The Physician Workforce*, 101.

<sup>12</sup>See [GAO-06-55](#).

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economic conditions,<sup>13</sup> population growth, and changing population demographics such as aging or an increase in insurance coverage.<sup>14</sup>

At the federal level, HRSA is responsible for monitoring the supply of and demand for health care professionals and disseminating workforce data and analysis to inform policymakers and the public about workforce needs and priorities.<sup>15</sup> To meet this responsibility, HRSA conducts and contracts for health care workforce research to document and project shortages and to examine trends that influence the supply and distribution of health care professionals, as well as the demand for their services. In 2008, HRSA issued a physician workforce report containing national supply and demand projections for physicians through 2020, which was based on the agency's physician workforce models: the Physician Supply Model (PSM) and Physician Requirements Model (PRM). Using these models, HRSA projected a shortfall of approximately 49,000 FTE physicians by 2020.

The PSM is a "stock and flow" model, which projected the future supply of physicians by taking the number of physicians from a base year (2000), adding new entrants, and subtracting physicians lost through retirement, disability, or death. The PSM projected both active supply (the number of individual physicians) and the effective supply (the number of FTE physicians accounting for the number of hours worked). The number of FTEs was determined by the average number of hours worked for physicians in each specialty by gender and age group.

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<sup>13</sup>Research has shown a relationship between economic growth and the demand for health care services. See Richard A. Cooper et al., "Economic and Demographic Trends Signal an Impending Physician Shortage," *Health Affairs*, vol. 21, no. 1 (2002).

<sup>14</sup>Higher utilization of health care services among individuals with health insurance coverage is well documented. For example, see T. C. Buchmueller et al., "The Effect of Health Insurance on Medical Care Utilization and Implications for Insurance Expansion: A Review of the Literature," *Medical Care Research and Review*, vol. 62, no. 1 (2005).

<sup>15</sup>Every 2 years, the Bureau of Labor Statistics within the Department of Labor also produces national 10-year projections of the number of new jobs expected to be created for particular occupations. However, these projections are different from HRSA's because they count the number of jobs rather than the number of people and do not assess whether there will be a shortage or surplus.

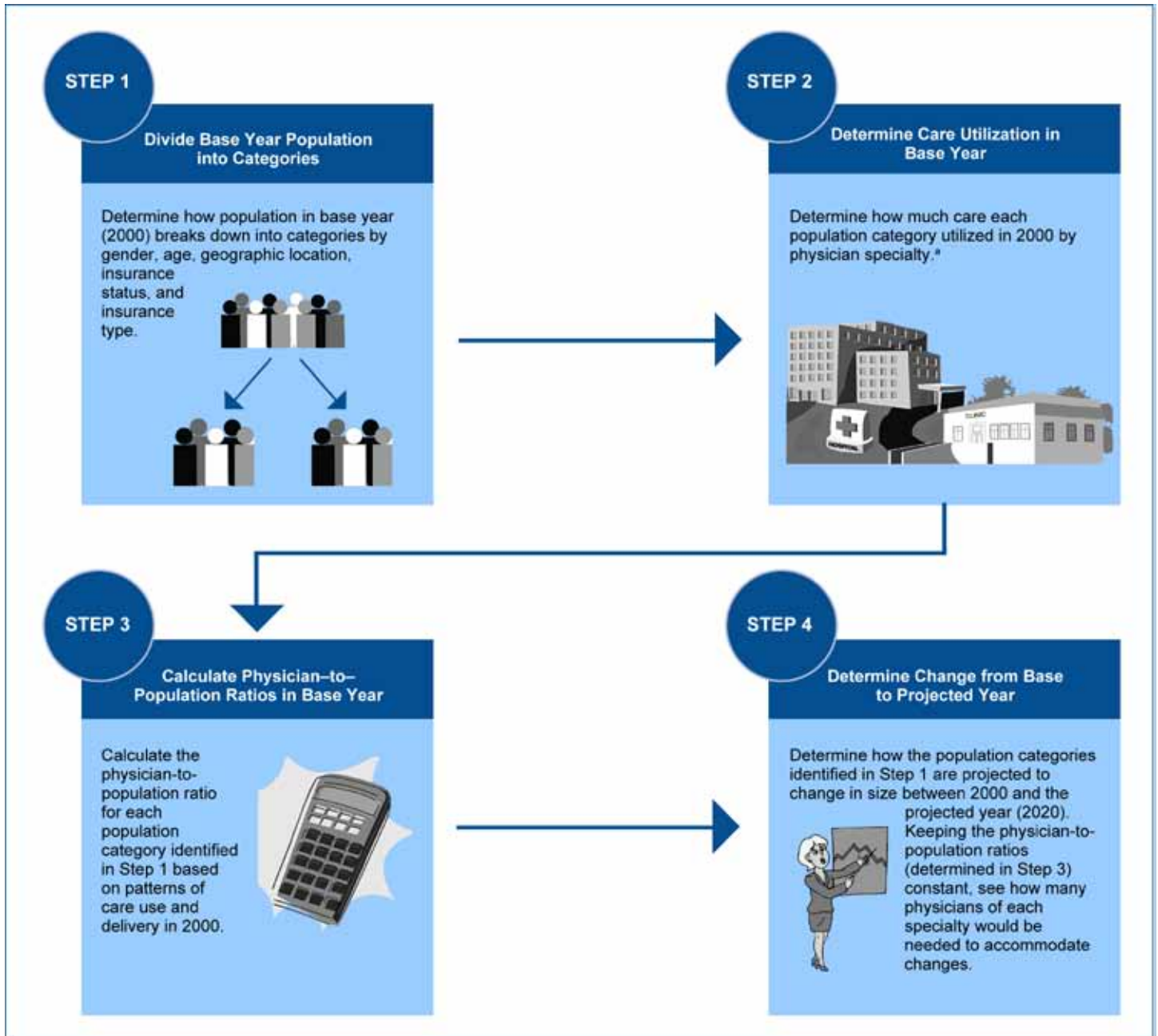
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The PRM is a utilization-based model, which projected the demand for physicians starting with the utilization of health care services in 2000 by age, sex, geographic location, and insurance coverage type (see fig. 1). The PRM assumed that supply and demand were in equilibrium in 2000, that is, that there were enough physicians to meet the demand for health care services. The PRM's baseline projection also assumed that patterns of utilization would not change, although HRSA created some alternative scenarios showing how utilization might change (and therefore affect demand) because of factors such as economic growth. HRSA also included a scenario that accounted for the effect of nonphysician providers, such as nurse practitioners and physician assistants, who may offset the demand for physicians by providing services that otherwise would have been provided by physicians.<sup>16</sup> HRSA and others have noted that a drawback of the utilization-based approach, which carries forward current utilization patterns, is that when calculating the number of physicians needed, any current imbalances in the system, such as populations that may be underserved, or any overutilization of health care services are also carried forward.

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<sup>16</sup>HRSA estimated that the number of nonphysician providers would increase by 60 percent between 2005 and 2020, thereby reducing the demand for physicians in 2020 by approximately 90,000.

**Figure 1: Process for Determining Physician Requirements in the Health Resources and Services Administration’s (HRSA) 2008 Report Based on Its Physician Requirements Model**



Sources: GAO analysis of HRSA information; Art Explosion (images).

<sup>a</sup>HRSA examined health care utilization patterns by population category using national survey data from 1999 to 2001.

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HRSA's 2008 physician workforce report predates PPACA, which was enacted in 2010. PPACA contains provisions that have the potential to affect both health care workforce supply and demand, which increases the uncertainty of health care workforce projections (see table 1). Several health care workforce researchers have published estimates of the effects of PPACA insurance coverage expansions on workforce supply and demand. These studies found varying estimates for the number of additional primary care providers required to meet the needs of the newly insured population, ranging from 4,300 to 8,000 providers.<sup>17</sup> The variations in these projections are the result of differences in methodologies and assumptions used in modeling. AAMC also increased its overall projection of physician shortages for 2025 by 6,200 FTE physicians, on the basis of expected increases in health care demand as a result of greater rates of insurance coverage under PPACA, among other factors.<sup>18</sup> PPACA provides for the establishment of new delivery models such as accountable care organizations (ACO) and patient-centered medical homes (PCMH).<sup>19</sup> ACO models consist of integrated groups of providers who coordinate care for a defined patient population in an effort to improve quality, reduce costs, and share in any savings. The PCMH model is a way of organizing and delivering primary care that emphasizes comprehensive, coordinated, accessible, and quality care built on strong patient-provider relationships. Such models also encourage shifting care provision to nonphysician providers, potentially decreasing the need for additional physicians. Some researchers have stated that they expect new delivery models, such as ACOs, will have a

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<sup>17</sup>A. N. Hofer, J. M. Abraham, and I. Moscovice, "Expansion of Coverage under the Patient Protection and Affordable Care Act and Primary Care Utilization," *The Milbank Quarterly*, vol. 89, no. 1 (2011); Stephen M. Petterson et al., "Projecting U.S. Primary Care Physician Workforce Needs: 2010-2025," *Annals of Family Medicine*, vol. 10, no. 6 (2012); and E. S. Huang and K. Finegold, "Seven Million Americans Live in Areas Where Demand for Primary Care May Exceed Supply by More Than 10 Percent," *Health Affairs*, vol. 32, no. 3 (2013).

<sup>18</sup>Dill and Salsberg, *The Complexities of Physician Supply and Demand*, 503; and Center for Workforce Studies, Association of American Medical Colleges, *The Impact of Health Care Reform on the Future Supply and Demand for Physicians Updated Projections through 2025* (Washington, D.C., 2010). Other factors affecting physician demand cited in AAMC's updated projections include an adjustment made for the increasing incidence of obesity in the United States.

<sup>19</sup>The Centers for Medicare & Medicaid Services defines ACOs as groups of doctors, hospitals, and other health care providers who come together voluntarily to give coordinated, high-quality care to their Medicare patients, enabling them to share in savings they achieve for the Medicare program.

significant and lasting effect on the broader health care marketplace, though research shows conflicting results as to how these new delivery models will affect the supply of and demand for health care professionals.<sup>20</sup>

**Table 1: Selected Program Areas Addressed by the Patient Protection and Affordable Care Act (PPACA) and Their Potential Health Care Workforce Effects**

Program area description	Potential workforce effect
Insurance coverage: Expands public and private health insurance coverage	May increase the number of nonelderly Americans with health insurance by approximately 25 million <sup>a</sup> thereby increasing the projected utilization of health services and the demand for providers.
Workforce training: Provides for targeted funding for health professional training <sup>b</sup>	May change the supply, composition, and geographic distribution of the health care workforce and address projected shortages in primary care and certain specialty providers.
Provider payment: Temporarily increases Medicare and Medicaid provider payment rates for primary care services	Higher payments may increase the supply of primary care providers willing to accept and treat Medicare and Medicaid patients.
Delivery system innovation: Supports and tests new models for improving health care delivery	Fosters new and potentially more efficient models for care organization, delivery, and payment, which may affect utilization of health care services and therefore the demand for certain provider types. <sup>c</sup>

Source: GAO

<sup>a</sup>Congressional Budget Office, Updated Budget Projections: Fiscal Years 2013 to 2023, Pub. No. 4722 (Washington, D.C.: May 2013). The Congressional Budget Office estimates that 25 million nonelderly uninsured individuals will obtain insurance by 2023.

<sup>b</sup>For example, PPACA authorized approximately \$4 billion in funding for fiscal years 2010 through 2015 for the National Health Service Corps program, which provides scholarships and student loan repayments to health professionals who agree to work in designated underserved areas. Pub. L. No. 111-148, § 5207, 124 Stat. 119, 612 (codified at 42 U.S.C. § 254q). In fiscal year 2012, the National Health Service Corps program made almost 4,600 loan repayment and scholarship awards.

<sup>c</sup>For example, PPACA authorizes the testing of patient-centered medical homes that aim to better coordinate care and therefore reduce health care utilization. Pub. L. No 111-148, §§ 3021, 10306, 124 Stat. 119, 389, 939 (codified at 42 U.S.C. § 1315a). Such models have the potential to shift

<sup>20</sup>For example, studies show conflicting results as to whether adoption of new health care delivery models will allow physicians to care for larger numbers of patients because the models allow for delegation to nonphysician providers, or whether these models will require additional physicians and other nonphysician providers because additional services such as care coordination and patient education will be offered. For research showing that new delivery models may allow providers to care for larger numbers of patients, see L. V. Green, S. Savin, and Y. Lu, "Primary Care Physician Shortages Could Be Eliminated." For research showing that providers implementing new delivery models have reduced the average number of patients they care for to improve care coordination and quality, see R. J. Reid et al., "The Group Health Medical Home at Year Two: Cost Savings, Higher Patient Satisfaction, and Less Burnout for Providers," *Health Affairs*, vol. 29, no. 5 (2010).

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primary care provision to nonphysician providers, which may decrease the need for additional primary care physicians.

PPACA also mandated the establishment of the National Health Care Workforce Commission<sup>21</sup> and required HHS to establish the National Center for Health Workforce Analysis (NCHWA)<sup>22</sup> to collect and analyze data on the health care workforce and evaluate workforce adequacy.<sup>23</sup> The National Health Care Workforce Commission was charged with conducting analyses of health care supply and demand and submitting annual reports to Congress that included recommendations. However, this commission has not received appropriations and therefore has not met since it was appointed. In 2010, HRSA established NCHWA within its Bureau of Health Professions. NCHWA is responsible for developing and disseminating accurate and timely data and research on the health care workforce, among other things. In 2012, NCHWA produced a timeline for updating HRSA's workforce projections, as we recommended.<sup>24</sup>

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<sup>21</sup>Pub. L. No. 111-148, §§ 5101, 10501, 124 Stat. 119, 592, 993 (codified at 42 U.S.C. § 294q).

<sup>22</sup>Pub. L. No. 111-148, § 5103(a), 124 Stat. 119, 603 (codified at 42 U.S.C. § 294n(b)).

<sup>23</sup>NCHWA was charged with developing information describing and analyzing the health care workforce and workforce-related issues and collecting, compiling, and analyzing data on health care professionals, among other things. PPACA authorized NCHWA to enter into contracts with relevant professional and educational organizations or societies to carry out these activities.

<sup>24</sup>In 2006, we recommended that HRSA develop a strategy and establish time frames to more regularly update and publish national workforce projections for the health professions. See [GAO-06-55](#).

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## HRSA Has Taken Some Actions to Update National Projections, but Has Failed to Publish New Reports Since 2008

Since its last published report on physician supply and demand in 2008, HRSA has initiated work to produce new workforce models and reports, but has not published any new reports containing national workforce projections. Specifically, HRSA has missed one of its publication goals for new workforce projections and has created a revised timeline that postpones future publications. Given that HRSA's 2008 report was based on 2000 data, the most recent projections available from HRSA to Congress, researchers, and the general public to inform health care workforce policy decisions are based on data that are more than a decade old.<sup>25</sup> From 2008 to 2012, HRSA awarded five contracts to three research organizations to update or create new workforce projection models, generate new national workforce projections, and produce reports. (See table 2 for a summary of the contracts and their status.) As of July 2013, HRSA had received three reports resulting from these contracts, and two more reports were under development. Contractor A delivered the first report, which includes projections for the primary care workforce to 2020, in July 2010, but HRSA was still reviewing and revising the draft as of July 2013. HRSA officials said that this primary care report has required extensive consultation with other HHS components to ensure that the methods used were consistent with other ongoing workforce-related work within the department. In addition, officials said that significant revisions were required to incorporate the effects of PPACA. Contractor B delivered the second report, which updated HRSA's 2008 physician workforce projections using more recent data, in February 2011. However, according to HRSA officials, the agency decided not to publish this report because it did not incorporate nonphysician providers, which they have since determined should be accounted for when assessing the adequacy of the health care workforce.<sup>26</sup> However, officials also said that research conducted under this contract regarding the health care workforce effects of PPACA was incorporated into HRSA's later projection models. The third report, the clinician specialty report, which projects the supply of and demand for

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<sup>25</sup>For example, a Senate bill was introduced in March 2013 that would distribute physician training slots to medical specialties that were projected to experience shortages in HRSA's 2008 report. Resident Physician Shortage Reduction Act of 2013, S. 577, 113<sup>th</sup> Cong. (2013).

<sup>26</sup>HRSA did not include nonphysician providers in the scope of work for this contract because, according to officials, the purpose of the contract was to update its physician projection models.



health care professionals by specialty through 2025, was delivered in November 2012 and is still under HRSA's review.

**Table 2: Summary of the Health Resources and Services Administration's (HRSA) Contracts with Research Organizations Since 2008 to Create Health Care Workforce Projections**

Contractor	Funds obligated	Topic and key tasks	Performance period start date	Contractor report due to HRSA	Status (as of July 2013)
Contractor A <sup>a</sup>	\$299,997	Primary care: Produce a report on primary care workforce supply and demand projections to 2020 at the national, state, and substate levels.	September 2008	July 2010	Under review at HRSA
Contractor B	\$376,336	Physician workforce: Update the physician supply and requirements models to use a baseline year of 2008, extend projections to 2030, and produce a report; conduct research on effects of the Patient Protection and Affordable Care Act (PPACA).	August 2009	February 2011	Completed, but officials said HRSA does not intend to publish <sup>b</sup>
Contractor B	\$372,811	Clinician specialty: Develop new clinician specialty workforce models that integrate nonphysician providers <sup>c</sup> and can model individual specialties, and produce a report with national projections to 2025.	September 2011	November 2012	Under review at HRSA
Contractor C	\$399,783	Nursing workforce: Develop new nursing microsimulation <sup>d</sup> supply and demand models, <sup>e</sup> and produce a report with supply and demand projections to 2030 at the state and national levels.	September 2012	September 2013	Under development by contractor
Contractor C <sup>f</sup>	\$499,848	Cross-occupations: Develop new microsimulation cross-occupations model using publicly available data that can make supply and demand projections across occupations and produce a report.	September 2012	September 2013	Under development by contractor

Source: GAO analysis of HRSA information.

<sup>a</sup>This contract also included work to support the Council on Graduate Medical Education, one of HRSA's advisory committees that provides assessments of physician workforce trends, training issues, and financing policies.

<sup>b</sup>Officials said that research conducted under this contract regarding the effects of PPACA was incorporated into later models.

<sup>c</sup>HRSA includes three types of advanced practice registered nurses (APRN) in its clinician specialty models: nurse practitioners, certified registered nurse anesthetists, and certified nurse-midwives. The fourth type of APRN—clinical nurse specialists—was not included, partly due to the difficulty of getting consistent data on the numbers for this group given varying state licensure requirements.

<sup>d</sup>Microsimulation models are statistical models that use micro data—data at the micro level such as individuals or households—to capture behavioral responses of these micro units to changes in economic and social policies. According to HRSA, the use of microsimulation will allow the inclusion of a larger number of predictive variables and will provide the ability to make projections at the state and local levels.

<sup>e</sup>According to HRSA, this model will include APRNs.

<sup>f</sup>This contract also includes three option years that, if exercised, would add about \$1 million to the total obligated amount for additional health care modeling work.

HRSA has missed one of its timeline goals for finalizing its review and publishing new reports containing national projections and has created a new timeline that postpones publication dates for this and two other health care workforce reports. Although HRSA’s original timeline stated that the clinician specialty report would be published in December 2012, HRSA’s revised timeline states that this report is expected to be published in the summer of 2014.<sup>27</sup> The revised timeline also included new publication dates for HRSA’s report on the primary care workforce and for reports based on its new microsimulation models. (Table 3 shows HRSA’s original and revised timelines for publication.)

**Table 3: Health Resources and Services Administration’s (HRSA) National Center for Health Workforce Analysis Original and Revised Timelines for Publishing Updated Workforce Supply and Demand Projections**

Report	Original goal for publication	Revised goal for publication
Primary care	No goal date	Fall 2013
Clinician specialty	December 2012	Summer 2014
Nursing workforce	September 2013	Fall 2014
Cross-occupations	2013	2014

Source: GAO review of HRSA information.

HRSA attributed the delay in publishing the clinician specialty report to data challenges and modeling limitations. For example, HRSA officials cited limited research and data on the effects of new health care delivery models being funded and tested in response to PPACA.<sup>28</sup> HRSA officials told us that new models such as ACOs and PCMHs have not yet been

<sup>27</sup>HRSA revised its timeline in July 2013. See <http://bhpr.hrsa.gov/healthworkforce/workforceprojections.html>.

<sup>28</sup>HRSA officials also cited limited data on how other changes in health care delivery, such as the expanding use of health information technology, will affect workforce supply and demand.

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studied adequately to know whether they will increase or decrease the demand for health care professionals. It may be several years before relevant data are available. According to a health care workforce researcher we interviewed, there is going to be an inevitable lag in obtaining data given that some delivery system models, such as ACOs, are still being set up, and time will be needed to collect and analyze data and publish any findings. In addition, other researchers have pointed out that workforce-relevant data are not being systematically collected from new models being supported and tested in response to PPACA. HRSA officials also have cited challenges due to limited research on nonphysician providers. For example, more research is needed to determine how much nonphysician providers offset the demand for physicians across different specialties.<sup>29</sup> In our review of HRSA's clinician specialty models, we observed that for some specialties, the addition of nonphysician providers has the potential to turn projected shortages into surpluses.<sup>30</sup> Another challenge HRSA officials said they need to address stems from an inherent limitation of utilization-based models, namely, that they project forward the utilization patterns of the past and therefore do not adequately account for rapid changes in the health care system. HRSA officials said that this modeling limitation has caused surpluses and shortages that do not reflect anticipated workforce trends and require time to analyze. For example, officials explained that when a provider specialty is in shortage, utilization is by definition low. If investments are made to increase the supply of the specialty in shortage, then the model carries forward the past low utilization and incorporates increased provider supply, which consequently projects a surplus for the future because there will be more providers than were utilized in the past.

HRSA officials said that the agency does not have a standard written work plan or set of procedures for accomplishing the tasks necessary to prepare a report for publication after final reports are delivered from

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<sup>29</sup>HRSA uses a "productivity rate" of 0.75 in its clinician specialty models, which means that a nonphysician provider is assumed to provide three-quarters of the care to patients provided by a physician. However, it is not known whether a nonphysician provider who works in cardiology supplies the same percentage of patient care as a nonphysician provider working in primary care. HRSA has the capability to adjust this rate for each specialty, but in the absence of specific research on how the rate should be adjusted by specialty, HRSA is using 0.75 for all specialties.

<sup>30</sup>Using HRSA's clinician specialty models, we examined projected differences between the supply of and demand for physicians by specialty in 2025 with and without the addition of nonphysician providers.

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contractors.<sup>31</sup> Officials said that although there are general policies that guide review, the specific steps of the review process and which internal and external officials participate are determined on a case-by-case basis.<sup>32</sup> In addition, officials said that it is common for milestone dates to change depending on the complexity of the issues raised during review. According to HRSA officials, the dates included in their timeline were based solely on when they expected to receive models and reports from contractors and did not account for the continued analytical work involved in reviewing delivered products. For example, according to HRSA officials, the original 2013 goal dates for publishing reports based on the new microsimulation models had to be postponed until 2014 because they will require additional time to review after they are received. Without standard procedures, agency officials may not be able to accurately predict how long products will take to review or to monitor their progress through the review process to ensure they are completed in a timely manner.<sup>33</sup> However, HRSA officials have stated that once the microsimulation models are completed, these models will offer the ability to more easily update projections as new data become available and should result in more routine and frequent reporting.

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## Conclusions

The federal government has made significant investments in health care professional training programs to help ensure that there is a sufficient supply of health care professionals to meet the nation's health care needs. Health care workforce projections play a critical role in providing information on future shortages or surpluses of health care professionals so that policies can be adjusted, including targeting health care training funds to the areas of greatest need. We recommended in 2006 that HRSA, as the federal agency designated to monitor the supply of and demand for health care professionals, develop a strategy and establish

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<sup>31</sup>Federal internal control standards state that management is responsible for developing the detailed policies, procedures, and practices to fit the agency's operations and to ensure that they are built into and an integral part of operations. See [GAO/AIMD-00-21.3.1](#).

<sup>32</sup>According to HRSA, officials consider the content of the product and the expertise required to review it when deciding who participates in the review process.

<sup>33</sup>Federal internal control standards state that managers should have access to timely information needed to effectively monitor agency progress on meeting its goals and that managers should track achievements and performance and compare them to expected performance. See [GAO/AIMD-00-21.3.1](#).

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time frames to more regularly update and publish national workforce projections for the health professions. While HRSA created a timeline for publishing new projection reports in 2012, the agency has since revised its timeline to postpone publication of two other health care workforce reports after failing to meet its December 2012 publication goal for a clinician specialty report projecting the supply of and demand for health care professionals through 2025. Other reports that have been delivered by contractors since HRSA published its last report in 2008 have either been set aside or are still being reviewed. In the case of the primary care workforce report containing projections to 2020, review has been ongoing for 3 years. If this report were published in 2013, it would project only 7 years into the future. HRSA itself has stated that physician workforce projections should be completed at least 10 years in advance to provide enough time for policy interventions to influence the size and composition of the workforce. In the absence of published projections, policymakers are denied the opportunity to use timely information from HRSA to inform their decisions on where to direct billions of dollars in training funds. It is also important to update projections on a regular basis so that changing circumstances, such as the enactment of PPACA or the growth in nonphysician providers, can be incorporated. Currently, the most recent projections available from HRSA are based on patterns of utilization and care delivery in 2000, predating PPACA by a decade. HRSA is now making larger financial investments in new workforce projection models, but in the absence of standard written processes specifying how the reports resulting from these models will be reviewed, HRSA may be hindered in its ability to monitor the development of these reports and ensure that they are published in keeping with its revised timeline.

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## Recommendations

We recommend that the Administrator of HRSA take the following three actions:

- Expedite the review of the report containing national projections to 2020 for the primary care workforce to ensure it is published in the fall of 2013 in accordance with HRSA's revised timeline.
- Create standard written procedures for completing the tasks necessary to review and publish workforce projection reports delivered from contractors; such procedures may include a list of necessary review steps, estimates of how long each step should take to complete, and designated internal and external reviewers.

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- Develop tools for monitoring the progress of projection reports through the review process to ensure that HRSA's timeline goals for publication are met.

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## Agency Comments

We provided a draft of this report to HHS for review. HHS's comments are reprinted in appendix I. HHS also provided technical comments, which we incorporated as appropriate.


In its comments, HHS agreed with our recommendations and described actions that the department is taking to implement them. In response to our first recommendation to expedite the review and publication of a report containing primary care workforce projections, HHS said that it expects to release the report on schedule in the fall of 2013. Regarding our second recommendation to develop standard written procedures for report review, HHS said that HRSA has developed a framework for report development based on project management principles that is being made available electronically to all HRSA employees. According to HHS, this framework facilitates planning and provides guidance throughout the report development process. Concerning our third recommendation to develop tools for monitoring the progress of reports through the review process, HHS said that HRSA has created a computer-based tool capable of generating estimated time ranges for completing each step in the report development and review process, which it anticipates will allow for better oversight of report timelines. In addition to these agencywide efforts, HHS said that BHP is in the process of developing a review process specifically for proposed workforce studies and contracts that will emphasize more comprehensive review in the early stages of development with the aim of reducing the time needed for final report review.

In addition to addressing our recommendations, HHS commented that our draft report did not discuss a number of other workforce-related activities undertaken by NCHWA, such as data collection efforts and the production of reports that do not include national projections. For example, in 2012 NCHWA fielded a survey to collect nationally representative data on nurse practitioners. While we agree with HHS that such activities are important, they are not a substitute for regularly producing updated national projections. We did not include information in this report on other HRSA reports not containing national projections, or HRSA's data collection efforts, because the scope of our review was limited to national projections of the supply of and demand for physicians, physician assistants, and APRNs.

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As arranged with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after its issuance date. At that time, we will send copies of this report to the Administrator of HRSA and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions, please contact me at (202) 512-7114 or [kingk@gao.gov](mailto:kingk@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Major contributors to this report are listed in appendix II.



Kathleen M. King  
Director, Health Care

# Appendix I: Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

OFFICE OF THE SECRETARY

Assistant Secretary for Legislation  
Washington, DC 20201

SEP 13 2013

Kathleen M. King  
Director, Health Care  
U.S. Government Accountability Office  
441 G Street NW  
Washington, DC 20548

Dear Ms. King,

Attached are comments on the U.S. Government Accountability Office's (GAO) report entitled, "Health Care Workforce: HRSA Action Needed to Publish Timely National Supply and Demand Projections" (GAO-13-806).

The Department appreciates the opportunity to review this report prior to publication.

Sincerely,

A handwritten signature in black ink that reads "Jim R. Esquea".

Jim R. Esquea  
Assistant Secretary for Legislation

Attachment



**GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S (GAO) DRAFT REPORT ENTITLED, "HEALTH CARE WORKFORCE: HRSA ACTION NEEDED TO PUBLISH TIMELY NATIONAL SUPPLY AND DEMAND PROJECTIONS" (GAO 13-806)**

The Department appreciates the opportunity to review and comment on this draft report.

The Department of Health and Human Services (HHS), like GAO, recognizes the critical importance of publishing timely workforce projections to help inform actions taken to strengthen the health workforce. To be of greatest use, workforce projections need to account for information that is relevant to the current health workforce environment and future needs of patients. Modeling transformation of the health system is complex, particularly given significant changes currently underway—a point that GAO acknowledges. Given that, the careful process of revisiting core assumptions and vetting them within HHS was necessary to make the projections contemporary and useful for policy makers.

HHS believes that, in addition to projections, other initiatives and products of the National Center on Health Workforce Analysis (NCHWA) within the Health Resources and Services Administration (HRSA) are also "essential information for Congress as it considers policy options to address health care workforce issues." The work of NCHWA includes a diverse portfolio of research, data collection, and partnership building that are meant to inform the study of health workforce supply, education, demand and distribution. These efforts are essential for improving the accuracy and usefulness of projections. Examples include: analyzing federal and non-federal data sources to produce a report on the *U.S. Nursing Workforce*, fielding the *2012 National Sample Survey of Nurse Practitioners*, compiling a *Compendium of Federal Data Sources*, and expanding the Area Health Resources Files, a dataset detailing the health status and health resources available in every county in the nation. NCHWA also supported and collaborated with national associations and states to begin the important work of collecting standard and consistent workforce data on health professionals. NCHWA has also been working with other federal entities on federal workforce data collection efforts, such as the Centers for Disease Control and Prevention to expand data collected under the National Ambulatory Medical Care Survey and the Bureau of Labor Statistics Standard Occupational Classification Policy Committee.

HHS concurs with, and has work underway to implement GAO's three recommendations. First, HHS expects to release its primary care projections in the fall of 2013, consistent with the updated timeline. Second, HHS has entered into a contract for development and maintenance of projection models instead of awarding new contracts for individual projections. This continuity will build on prior experience, as well as apply a more advanced approach to projecting workforce supply and demand, in order to help better inform future reports. Third, HHS continues to enhance its procedures and monitoring tools for report review and publication. Within HHS, HRSA developed a *Framework for Reports Development* based on project management principles that will facilitate planning and provide guidance for every stage of the reports development process. The principles used to build this framework have already been distributed within HHS. The framework is also being made available electronically, which can be accessed by all HRSA employees. Finally, HRSA has developed an electronic *Reports Calculator* that automates the process for generating time ranges for completing each step in the report development and review process. Going forward, this tracking tool will allow HRSA's

**GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S (GAO) DRAFT REPORT ENTITLED, "HEALTH CARE WORKFORCE: HRSA ACTION NEEDED TO PUBLISH TIMELY NATIONAL SUPPLY AND DEMAND PROJECTIONS" (GAO 13-806)**

bureaus and offices to better plan for each phase of report development, review, clearance and publication, as well as help ensure enhanced agency oversight of products and timelines. The electronic *Reports Calculator* has already been tested and is in the process of being implemented in HRSA. The *Framework for Reports Development* and *Reports Calculator* are living resources that HRSA will be able to continuously update, even as the Agency works to add additional resources to HRSA's reports development toolbox.

HHS expects that all plans and procedures used by HRSA bureaus and offices to prepare a report for publication include certain common elements, including data analysis review, as well as review by others within the agency and Department with knowledge or expertise in the topic or report. In addition to these Agency wide procedures and expectations, HRSA's Bureau of Health Professions (BHP), in which the NCHWA is located, is in the process of developing a complimentary review process specifically for potential workforce analyses and projections contracts and reports that emphasizes a more comprehensive front end concept review. As a result of this process, BHP anticipates a more rapid review process for final reports.

Finally, NCHWA has been working on developing more sophisticated microsimulation models that will enable greater precision in making sub-national projections and creating enhanced capabilities for scenario development. During times of rapid system transformation, development of plausible alternative scenarios is critical to making projections more useful for policymakers.

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# Appendix II: GAO Contact and Staff Acknowledgments

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## GAO Contact

Kathleen King, (202) 512-7114 or [kingk@gao.gov](mailto:kingk@gao.gov)

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## Staff Acknowledgments

In addition to the contact named above, Martin T. Gahart, Assistant Director; Hannah Locke; Elise Pressma; and Jennifer Whitworth made key contributions to this report.

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