

# **Projections of Supply and Demand for Women's Health Service Providers: 2018-2030**

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National Center for Health Workforce Analysis**



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## OVERVIEW

Although women and men share many health care needs, women also experience unique, sex- and gender-specific health care challenges and can face an array of gender-based health disparities. Health care professionals, traditionally referred to as “women’s health providers,” tend to deliver obstetrics, gynecology, and other preventive and reproductive health care services predominantly or solely to women and/or specialize in women’s health. These professionals are the focus of this report, which is an update of a prior report on these women’s health service providers from the National Center for Health Workforce Analysis released in 2016.

This report presents projections of supply of and demand for obstetricians/gynecologists (OB-GYNs), certified nurse midwives (CNMs), nurse practitioners (NPs), and physician assistants (PAs). The projections are at the national level by metropolitan/nonmetropolitan for all four professions and at the state level for OB-GYNs. The contribution of family medicine physicians in the delivery of women’s health services is described. The projection horizon is 2018 through 2030, and this study updates previous HRSA projections covering 2013 through 2025.<sup>1</sup>

Technical documentation on HRSA’s Health Workforce Simulation Model (HWSM) is published to detail the approach, data, and assumptions used to develop these workforce projections.<sup>2</sup> HWSM uses a microsimulation approach where individual providers and patients are the unit for modeling. Supply modeling starts with creation of a representative sample of providers in each state. Each year, new provider graduates are added and retirees are subtracted from supply. Weekly hours worked and geographic mobility are modeled. A brief description of the approach used for women’s health, including physicians as providers of women’s health services is included in the Appendix.

Demand modeling starts with creation of a representative sample of the current and projected future population of adolescent girls and women in each state. As with prior HRSA workforce studies and workforce analysis precedent in general,<sup>3-5</sup> the demand for women’s health providers at the national level in the starting year (2018) of this study is set to be equal to the national supply. When projecting the studied workforce, the demand in 2030 represents an extrapolation of current care use and delivery patterns to the future population – under what HRSA typically describes as a “status quo” scenario, reflecting a stability over time in how health services are delivered.

Supply and demand projections are reported as full-time equivalents (FTEs) with FTE defined as

40 hours worked per week in professional activities. Because average weekly hours worked for each occupation modeled can be higher or lower than 40 hours, starting year FTEs can be higher or lower than the actual number of active providers. All workforce estimates are reported as FTEs unless otherwise indicated.

## **Key Findings**

*Demand for OB-GYNs is projected to exceed supply by 5,170 FTEs in 2030, based on current utilization patterns.*

- The number of OB-GYNs is expected to *decrease* from 50,850 to 47,490 (7%), while demand is projected to *increase* from 50,850 to 52,660 (4%) by 2030.

*Supplies of CNMs, women’s health NPs, and women’s health PAs are expected to exceed demand through 2030 at baseline usage patterns and levels of annual new entrants.*

- CNM supply is expected to grow by 32 percent (from 9,830 to 12,950 FTEs) while demand is expected to grow by 4 percent under the “status quo” scenario (from 9,830 to 10,260 FTEs), resulting in 2,690 more FTEs than required in 2030 if current usage patterns and annual new entrants levels remain unchanged.
- Women’s health NP supply is projected to grow by 89 percent (from 10,610 to 20,020 FTEs) while demand is projected to grow by 4 percent (from 10,610 to 11,050 FTEs), resulting in 8,970 more FTEs supplied than demanded in 2030 if current usage patterns and annual new entrants levels remain unchanged.
- Women’s health PA supply is projected to grow by 56 percent (from 1,480 to 2,310 FTEs) while demand is projected to grow by 3 percent (from 1,480 to 1,530 FTEs), resulting in 780 more FTEs supplied than demanded in 2030 if current usage patterns and annual new entrants levels remain unchanged.

*Physicians in family medicine contribute to providing women’s health services—especially in nonmetropolitan areas.*

- Analysis of health care use and delivery patterns finds that 3.9 percent of family physician time spent in direct patient care for office visits is to provide women’s health services.

*The supply mix and adequacy of supply of women’s health care providers varies across states and regions.*

- Estimates of provider supply adequacy in 2018 vary by state and region. At the regional level the Northeast is projected to have an adequate number of OB-GYNs to provide a national average level of care, while the remaining regions have deficits—510 FTEs (West), 450 FTEs (Midwest), and 110 FTEs (South). The state level supply adequacy ranges from 72.0% to 178.6%.
- By 2030, the Northeast is still projected to have an adequate number of OB-GYNs to provide the current national average level of care, while the remaining regions have deficits—2,700 FTEs (West), 2,270 FTEs (South), and 500 FTEs (Midwest). The state level supply adequacy ranges from 56.8% to 157.1%.

## **INTRODUCTION**

The Health Resources and Services Administration (HRSA) and other agencies of the U.S. Department of Health and Human Services (HHS) are committed to supporting comprehensive, culturally sensitive, and high quality health care for the nation’s 140 million women and adolescent girls.<sup>6-9</sup> As such, this report assesses the current and future demand for, as well as the supply and supply adequacy of the women’s health workforce. This report updates previous HRSA workforce projections for women’s health service providers.<sup>1</sup>

Women and girls experience both shared and also unique, sex- and gender-specific health care challenges and health disparities.<sup>10</sup> A group of health care professionals, traditionally referred to as “women’s health providers,” typically delivers obstetrics, gynecology, and other preventive and reproductive care services predominantly or solely to women, and/or acquire specialized

credentials in the field of women's health. Women's health providers may also offer these same health services to individuals who do not self-identify as female. When studied as a group, this cadre of providers often includes obstetrics/gynecology physicians (OB-GYN), certified nurse midwives (CNMs), and nurse practitioners (NPs), and physician assistants (PAs) specialized in women's health – and hence these provider types are the focus of this report.<sup>11</sup> Other health care providers may offer many of the same services as women's health providers but also serve the general population at large or do not provide obstetrical care, such as general internal medicine physicians. These professionals are analyzed in more detail in other HRSA workforce reports; however, estimates of the portion of family medicine physicians' time spent on women's health care provision are presented in this report.

Projections in this report include a “status quo” demand scenario that extrapolates current national care use and delivery patterns to the future population, accounting for variables including geographic and temporal variation in demographics, lifestyle risk factors, and disease prevalence, which all could affect the future demand for women's health services. This scenario facilitates evaluation of whether the future supply of women's health services providers will be sufficient to maintain current levels of care.

However, the inadequacy of the current care levels is evidenced by significant access-to-care issues and substandard health outcomes.<sup>12–14</sup> These health outcomes are not distributed equally across racial and ethnic groups.<sup>12,14,15</sup>

This study was finalized in the midst of the COVID-19 pandemic, and the full implications of the pandemic on both short-term and long-term supply and demand for women's health services providers remains uncertain. In the Discussion section, some potential long-term effects are discussed.

The provider types included in this study have distinct training paths, yet share certain components of their scopes of practice. A brief description of each occupation is provided.

- **Obstetricians/Gynecologists:** An OB-GYN is a physician that focuses on the health of women before, during, and after childbearing years, diagnosing and treating conditions of the reproductive system and associated disorders.<sup>16</sup> OB-GYNs are licensed to practice both medical and surgical care. Typically, OB-GYNs complete a 4-year residency in obstetrics and gynecology following their graduation from an accredited medical school. Some OB-GYNs specialize in areas such as gynecologic oncology, female pelvic medicine and reconstructive surgery, reproductive endocrinology and



infertility, maternal-fetal medicine, critical care medicine, complex family planning, and hospice and palliative medicine.<sup>17</sup> Not all OB-GYNs provide obstetrical care. This study models the OB-GYNs as a whole and not by area of subspecialty.

- **Certified Nurse Midwives:** CNMs are individuals who, after being trained as registered nurses, have graduated from a nurse-midwifery education program accredited by the Accreditation Commission for Midwifery Education (ACME) and have passed a national certification examination administered by the American Midwifery Certification Board (AMCB). Also included in this occupation group and examined in this report is a small number of Certified Midwives (CMs) who completed the same training and passed the same certification exam as CNMs, but who do not have a nursing background.<sup>18,19</sup>
- **Women’s Health Nurse Practitioners<sup>a</sup>:** Women’s Health NPs are registered nurses who have completed a master’s or doctoral program in nursing and specialize in women’s health. Working mainly in a primary care environment, these NPs provide diagnostic care and treatment related to reproductive, obstetric, and gynecological health.<sup>20</sup>
- **Women’s Health Physician Assistants<sup>b</sup>:** Women’s health PAs are health professionals licensed to practice medicine under the supervision of an OB-GYN. An estimated 88 percent of these PAs work in ambulatory settings where they perform gynecological and obstetrics examinations, and evaluate and provide counseling for common gynecological conditions.<sup>21</sup> About a third of these PAs provide inpatient care—either as a hospital employee working in an OB-GYN unit or have hospital privileges.

## WORKFORCE MODELING APPROACH

Projections of supply and demand for women’s health service providers come from HRSA’s Health Workforce Simulation Model (HWSM), and previously published technical documentation details the approach, data, and assumptions used to develop these workforce projections.<sup>2</sup> A brief overview of HWSM and its application to this study is provided in the Appendix.

<sup>a</sup> Only NPs specializing in women’s health are modeled.

<sup>b</sup> Only PAs specializing in women’s health are modeled.

## PROJECTED SUPPLY AND DEMAND

The supply of women's health care providers was modeled through 2030 based on current (2018) levels of annual new entrants and patterns of provider usage. Projected supply was compared to projected demand in both the base year and future years in order to assess the adequacy of the women's health workforce under current care delivery patterns at both time points. Setting the baseline (observed) demands for OB-GYNs, CNMs, NPs, and PAs equal to baseline (observed) supplies of these providers at the national level establishes the national average level of care for the "status quo" scenario. This in turn provides a national benchmark by which to assess states' supply adequacy compared to the national average – and also a means to assess whether future supply will be adequate to provide a level of care at least comparable with current levels. All supply and demand projections are reported as full-time equivalents, with one FTE defined as 40 hours per week in professional activities.

### National Projections

- **Obstetricians/Gynecologists:** OB-GYN supply consisted of approximately 50,850 FTEs in 2018. Trending forward to 2030, assuming new physicians continue to be trained and practicing physicians continue to retire (or otherwise leave the workforce) at the same rates as is currently being observed, approximately 3,360 fewer FTE OB-GYNs will be in the workforce. While an estimated 18,880 OB-GYNs will enter the workforce over the study period, 22,240 FTEs will be lost due to attrition (retirement or changes in work hours related to shifting demographics within the OB-GYN workforce), ultimately dropping the projected supply of OB-GYNs to 47,490 FTEs by 2030 (Exhibit 1). On the other hand, demand for OB-GYNs is expected to increase by 1,810 FTEs between 2018 and 2030. The total increase in demand (4% over 2018 demand), together with the reduced supply (7% under 2018 supply), will result in a projected overall deficit of 5,170 FTEs nationwide by 2030.
- **Certified Nurse Midwives:** Approximately 9,830 FTEs CNMs were in practice in the U.S. workforce in 2018. Trending forward to 2030, approximately 7,670 CNMs will enter the workforce and 4,550 FTE CNMs will leave the workforce due to retirement and changes in average hours worked, as a result of demographic changes in the CNM workforce over time. A net growth of 3,120 FTE CNMs will result in a projected national workforce of 12,950 FTE CNMs in 2030 (Exhibit 1). The demand for CNMs is

projected to increase by 430 FTEs to reach a total of 10,260 FTEs by 2030. The projected increase in CNM supply (by 32%) exceeds the growth in demand (of 4%) between 2018 and 2030, with supply ultimately exceeding demand by 2,690 FTEs in 2030.

- Nurse practitioners:** The supply of women’s health NPs was approximately 10,610 FTEs in 2018. A net growth of 9,410 FTE NPs will result in a projected national workforce of 20,020 FTEs by 2030 (Exhibit 1). The demand for women’s health NPs is projected to be 11,050 FTEs by 2030, an increase of 440 FTEs over 2018 levels. The increase in women’s health NP supply (by 89%) is expected to exceed the increase in demand (by 4%), with supply exceeding demand by 8,970 FTEs by 2030.
- Physician assistants:** In 2018, there were approximately 1,480 FTE PAs specializing in women’s health. Between 2018 and 2030, supply is projected to grow by 830 FTEs – reaching 2,310 FTEs by 2030 (Exhibit 1). The projected demand for women’s health PAs in 2030 of 1,530 FTEs represents an increase of 50 FTEs from the 2018 demand. The expected increase in PA supply (by 56%) exceeds the expected increase in demand (of 3%), with supply in the end exceeding demand by 780 FTE women’s health PAs by 2030.

*Exhibit 1. Workforce Projections for Women’s Health Providers, 2018 and 2030*

	<b>Obstetricians/ Gynecologists</b>	<b>Certified Nurse Midwives</b>	<b>Nurse Practitioners</b>	<b>Physician Assistants</b>
<b>Supply</b>				
Estimated supply, 2018	50,850	9,830	10,610	1,480
New entrants, 2018-2030	18,880	7,670	14,280	1,290
Changing work hours	-3,860	-200	-570	-100
Attrition, 2018-2030	-18,380	-4,350	-4,300	-360
Projected supply, 2030	47,490	12,950	20,020	2,310
Net growth, 2018-2030	-3,360	3,120	9,410	830
% growth, 2018-2030	-7%	32%	89%	56%
<b>Demand</b>				
<i>Status Quo scenario</i>				
Estimated demand, 2018	50,850	9,830	10,610	1,480
Projected demand, 2030	52,660	10,260	11,050	1,530

	<b>Obstetricians/ Gynecologists</b>	<b>Certified Nurse Midwives</b>	<b>Nurse Practitioners</b>	<b>Physician Assistants</b>
Total growth, 2018-2030	1,810	430	440	50
% growth, 2018-2030	4%	4%	4%	3%
<b>Adequacy of supply, 2018</b>				
<i>Status Quo scenario</i>				
Supply-demand	0	0	0	0
Percent adequacy <sup>a</sup>	100%	100%	100%	100%
<b>Adequacy of supply, 2030</b>				
<i>Status Quo scenario</i>				
Supply-demand	-5,170	2,690	8,970	780
Percent adequacy <sup>a</sup>	90%	126%	181%	151%

Notes: The model assumes that national supply and demand are in approximate equilibrium in 2018.

<sup>a</sup> Percent adequacy equals supply divided by demand.

## **Metropolitan versus Nonmetropolitan Projections**

Chronic shortfalls of women’s health service providers have been a challenge for many nonmetropolitan communities, with these areas often experiencing insufficient access to OB-GYNs and both closure of rural hospitals and obstetric units within rural hospitals.<sup>22-24</sup> As such, annual visits to women’s health service providers were examined and show that – after controlling for geographic differences in demographics, medical insurance coverage and health risk factors – women living in nonmetropolitan areas have fewer office visits to OB-GYNs than their peers living in metropolitan areas, but tend to have greater use of hospital-based services (both outpatient and inpatient).

While women in nonmetropolitan areas may need more health services because they, on average, tend to deliver higher numbers of babies,<sup>25</sup> other systematic differences in seeking care between metropolitan and nonmetropolitan areas are also captured in the demand projections. For example, findings suggest that some women’s health care is delivered to women residing in nonmetropolitan areas by providers that are themselves located in metropolitan areas.

In 2018, an estimated 46,860 FTE OB-GYNs worked in metropolitan areas, and under the “status quo” scenario, the population living in metropolitan areas would require 44,300 providers to deliver amount of care used by this population (Exhibit 2). In nonmetropolitan areas, supply consisted of an estimated 3,990 FTE OB-GYNs, with 6,550 FTE required to provide the level of care used by this population. These numbers suggest that in 2018 OB-GYN supply in

metropolitan and nonmetropolitan areas was sufficient to meet, respectively, 106 percent and 61 percent of the demand for physician-provided women’s health services. By 2030, these proportions are projected to decline to 95 percent and 51 percent for metropolitan and nonmetropolitan areas, respectively.

In 2018, when including estimates of FTE family physicians providing women’s health services (Exhibit 3), OB-GYNs comprised 68 percent of the FTE workforce providing women’s health services in metropolitan areas and 50 percent of the workforce in nonmetropolitan areas. Relative representation of non-physician women’s health providers within the workforce was higher in non-metropolitan areas overall. For example, for every 1 FTE OB-GYN in non-metropolitan areas in 2018, there was 0.38 FTE CNM, 0.41 FTE NP, and 0.13 FTE PA, respectively. However, for every 1 FTE OB-GYN in metropolitan areas, there was only 0.18 FTE CNM, 0.19 FTE NP, and 0.03 FTE PA, respectively. That is to say, nonmetropolitan areas had just over twice as many CNMs and NPs per OB-GYN compared to metropolitan areas and over four times as many PAs. With low projected growth anticipated in the supply of OB-GYNs between 2018 and 2030, the relative representation of non-physician women’s health providers is projected to increase markedly between 2018 and 2030.

*Exhibit 2. Women’s Health FTE Supply and Demand by Metropolitan Status*

	Metropolitan			Nonmetropolitan		
	2018	2030	Change 2018-2030	2018	2030	Change 2018-2030
<b>Supply</b>						
Obstetrician-gynecologists	46,860	44,370	-2,490	3,990	3,120	-870
Certified nurse midwives	8,320	10,720	2,400	1,510	2,230	720
Nurse practitioners	8,980	16,770	7,790	1,630	3,250	1,620
Physician assistants	1,350	1,900	550	130	410	280
<b>Demand</b>						
<b>Status Quo scenario*</b>						
Obstetrician-gynecologists	44,300	46,530	2,230	6,550	6,130	-420
Certified nurse midwives	8,510	8,930	420	1,320	1,330	10
Nurse practitioners	9,220	9,720	500	1,390	1,330	-60
Physician assistants	1,300	1,390	90	180	140	-40
<b>Difference (supply - demand)</b>						
<b>Status Quo scenario*</b>						
Obstetrician-gynecologists	2,560	-2,160		-2,560	-3,010	

	Metropolitan			Nonmetropolitan		
	2018	2030	Change 2018-2030	2018	2030	Change 2018-2030
Certified nurse midwives	-190	1,790		190	900	
Nurse practitioners	-240	7,050		240	1,920	
Physician assistants	50	510		-50	270	

Note: \* The model estimates demand for women’s health services providers based on national care use and delivery patterns. National demand projections presented in this report assume that in 2018 the national supply of providers was adequate to meet demand under current care use and delivery patterns.

## Contribution of Family Medicine in Delivering Women’s Health Services

Primary care physicians including those in the specialties of family medicine, internal medicine, and pediatric medicine, have been studied by NCHWA and reported on previously.<sup>3,26,27</sup>

Women’s unique health needs extend well beyond just gender-specific, reproductive health services, and primary care physicians play a critical role in closing the many health disparities that women face. However, primary care physicians also deliver many reproductive health services as well. This can include, among other services, the provision of birth control, cervical cancer screening, prenatal care, and the management of chronic conditions during pregnancy. However, within the group of primary care providers, those specializing in family medicine are also uniquely trained to deliver obstetrical care. In line with this competency area, and its overlap with the skills of the obstetricians/gynecologists and certified nurse midwives discussed in this report, the role of family medicine physicians in delivering women’s health services was explored further within the context of this report.

The amount of time family medicine physicians spend on delivering women’s health care within their overall practice was explored.<sup>28–30</sup> While this is not a detailed analysis, the estimates calculated do provide some important context. Analysis of 2015 and 2016 data from the National Ambulatory Medical Care Survey (NAMCS) finds that, on average, 3.9 percent of family medicine physician time spent in direct patient care during office visits was specifically dedicated to the provision of women’s health services. When limiting this analysis to visits where the patient was a female age 13 or older, then roughly 7 percent of overall family medicine physician time was dedicated to providing women’s health services. This proportion of time is higher for physicians practicing in nonmetropolitan areas (9.4%) than for their peers

practicing in metropolitan areas (6.6%). A review of the literature, while scant overall, suggests that a similar proportion of family medicine physicians' time (5-10%) is spent providing labor and delivery services and other inpatient maternity care, with rural practices more likely to offer these than urban practices.<sup>31-33</sup>

If one assumes that family medicine physician time in indirect patient care is allocated between women's health services and total health services in similar proportions, then multiplying this by the estimated 2018 national supply of 105,400 FTE family medicine physicians equates to 4,060 FTEs of family medicine physician time providing women's health services—further broken down into 3,280 FTEs in metropolitan areas and 780 FTEs in nonmetropolitan areas (Exhibit 3).

Applying the projected growth rates in the demand for OB-GYNs in both metropolitan and nonmetropolitan areas between 2018 and 2030, this equates to 4,180 FTEs of family medicine physician time spent providing women's health services in 2030. This includes 730 FTE family medicine physicians providing women's health services in nonmetropolitan areas and 3,450 FTEs in metropolitan areas. Given the level of demand for obstetrical care in nonmetropolitan areas and the larger role for family medicine physicians in delivering it, training on obstetrics and for the management of other complex women's health issues will remain an important component for family medicine residency training programs in the future.<sup>34</sup>

***Exhibit 3. Family Medicine Physician FTEs Providing Women's Health Services***

<b>Location</b>	<b>2018</b>	<b>2030</b>
Metropolitan areas	3,280	3,450
Nonmetropolitan areas	780	730
Total	4,060	4,180

### **State and Region Projections**

Supply and demand projections for OB-GYNs by state and by Census Region are provided in Exhibit 4. Supply Adequacy was calculated as the ratio of supply over demand and using levels of care and staffing ratios that were estimated at the national level.

In 2018, at the regional level, the Northeast is projected to have an adequate number of OB-GYNs, whereas the other regions have deficits of 510 FTEs (West), 450 FTEs (Midwest), and

110 FTEs (South).<sup>c</sup> At the state level, the OB-GYN workforce supply adequacy is highly variable, ranging from less than 80.0% (Iowa, Oklahoma, Arkansas, and North Dakota) to over 130% (Connecticut, Hawaii, and District of Columbia). The District of Columbia has an outlying level of supply adequacy (178.6%), although analyses suggest that women from the surrounding states seek health care services in the District.

By 2030, the Northeast is still projected to have an adequate number of OB-GYNs, while the other regions have deficits – 2,700 FTEs (West), 2,270 FTEs (South), and 500 FTEs (Midwest). The supply adequacy at the state level will continue to show a large variation, ranging from less than 70.0% (New Mexico, Nevada, Utah, Oklahoma, Arkansas, and Iowa) to greater than 110% (Maryland, Connecticut, New York, Vermont, and Rhode Island), while the District of Columbia will again likely have an outlying level of supply adequacy (157.1%).

Sample size insufficiency did not allow for estimation of supply and demand at the state level for CNMs, women’s health NPs, and women’s health PAs.

<sup>c</sup> State-level supply numbers reflect the best available data but will differ from states’ licensure estimates for several reasons. First, supply estimates and projections are reported in FTEs standardized at 40 hours per week. Second, supply estimates for 2018 are based on the workforce actively employed—whereas state licensure files might contain providers who are not active in the workforce. Finally, supply estimates assign each provider to only one state though some providers might be licensed in multiple states.



*Exhibit 4. State and Region OB-GYNs Supply, Demand in Status Quo Scenario: 2018-2030*

Region & State	2018				2030			
	Supply	Demand	Difference	Supply Adequacy	Supply	Demand	Difference	Supply Adequacy
<b>Region 1: Northeast</b>	<b>10,250</b>	<b>9,180</b>	<b>1,070</b>	<b>111.7%</b>	<b>9,190</b>	<b>8,890</b>	<b>300</b>	<b>103.4%</b>
Connecticut	740	560	180	132.1%	610	550	60	110.9%
Maine	200	220	-20	90.9%	160	200	-40	80.0%
Massachusetts	1,240	1,250	-10	99.2%	1,090	1,200	-110	90.8%
New Hampshire	230	210	20	109.5%	170	190	-20	89.5%
New Jersey	1,650	1,390	260	118.7%	1,440	1,370	70	105.1%
New York	3,810	3,250	560	117.2%	3,520	3,170	350	111.0%
Pennsylvania	2,020	2,000	20	101.0%	1,910	1,950	-40	97.9%
Rhode Island	230	190	40	121.1%	190	170	20	111.8%
Vermont	130	110	20	118.2%	100	90	10	111.1%
<b>Region 2: Midwest</b>	<b>10,170</b>	<b>10,620</b>	<b>-450</b>	<b>95.8%</b>	<b>9,520</b>	<b>10,020</b>	<b>-500</b>	<b>95.0%</b>
Illinois	2,070	1,990	80	104.0%	1,920	1,870	50	102.7%
Indiana	980	1,040	-60	94.2%	910	980	-70	92.9%
Iowa	360	500	-140	72.0%	320	470	-150	68.1%
Kansas	360	450	-90	80.0%	310	430	-120	72.1%
Michigan	1,530	1,560	-30	98.1%	1,360	1,410	-50	96.5%
Minnesota	850	900	-50	94.4%	890	910	-20	97.8%
Missouri	920	920	0	100.0%	870	870	0	100.0%
Nebraska	270	290	-20	93.1%	260	280	-20	92.9%
North Dakota	100	130	-30	76.9%	90	120	-30	75.0%
Ohio	1,770	1,820	-50	97.3%	1,690	1,680	10	100.6%
South Dakota	130	140	-10	92.9%	110	140	-30	78.6%

Wisconsin	830	880	-50	94.3%	790	860	-70	91.9%
<b>Region 3: South</b>	<b>18,720</b>	<b>18,830</b>	<b>-110</b>	<b>99.4%</b>	<b>17,790</b>	<b>20,060</b>	<b>-2,270</b>	<b>88.7%</b>
Alabama	680	720	-40	94.4%	550	680	-130	80.9%
Arkansas	360	470	-110	76.6%	300	450	-150	66.7%
Delaware	150	150	0	100.0%	130	150	-20	86.7%
District of Columbia	250	140	110	178.6%	220	140	80	157.1%
Florida	3,050	2,960	90	103.0%	2,980	3,320	-340	89.8%
Georgia	1,640	1,580	60	103.8%	1,550	1,680	-130	92.3%
Kentucky	640	740	-100	86.5%	570	700	-130	81.4%
Louisiana	780	750	30	104.0%	710	680	30	104.4%
Maryland	1,260	1,000	260	126.0%	1,130	1,020	110	110.8%
Mississippi	400	450	-50	88.9%	350	410	-60	85.4%
North Carolina	1,570	1,560	10	100.6%	1,550	1,670	-120	92.8%
Oklahoma	470	620	-150	75.8%	410	620	-210	66.1%
South Carolina	720	770	-50	93.5%	640	790	-150	81.0%
Tennessee	1,100	1,070	30	102.8%	950	1,050	-100	90.5%
Texas	4,030	4,200	-170	96.0%	4,250	5,010	-760	84.8%
Virginia	1,360	1,370	-10	99.3%	1,300	1,450	-150	89.7%
West Virginia	260	280	-20	92.9%	200	240	-40	83.3%
<b>Region 4: West</b>	<b>11,710</b>	<b>12,220</b>	<b>-510</b>	<b>95.8%</b>	<b>10,990</b>	<b>13,690</b>	<b>-2,700</b>	<b>80.3%</b>
Alaska	130	130	0	100.0%	100	130	-30	76.9%
Arizona	950	1,050	-100	90.5%	890	1,270	-380	70.1%
California	5,990	6,220	-230	96.3%	5,820	6,980	-1,160	83.4%
Colorado	950	950	0	100.0%	920	1,100	-180	83.6%
Hawaii	270	200	70	135.0%	190	230	-40	82.6%
Idaho	230	250	-20	92.0%	210	250	-40	84.0%
Montana	160	170	-10	94.1%	130	170	-40	76.5%

Nevada	370	420	-50	88.1%	310	480	-170	64.6%
New Mexico	280	330	-50	84.8%	210	370	-160	56.8%
Oregon	730	680	50	107.4%	680	730	-50	93.2%
Utah	440	510	-70	86.3%	380	580	-200	65.5%
Washington	1,120	1,230	-110	91.1%	1,070	1,320	-250	81.1%
Wyoming	90	80	10	112.5%	80	80	0	100.0%
<b>U.S. Total</b>	<b>50,850</b>	<b>50,850</b>	<b>0</b>	<b>100.0%</b>	<b>47,490</b>	<b>52,660</b>	<b>-5,170</b>	<b>90.2%</b>

## STUDY STRENGTHS AND LIMITATIONS

The HWSM, used to develop the supply and demand projections presented here, relies on a microsimulation approach that includes several linked, but separate components. Each component incorporates behavioral as well as structural changes impacting workforce supply and demand. The large number of separate but linked predictive equations in the HWSM enhances the accuracy of the results, and enables estimations at national, regional, and state levels. Another strength of this study is use of the most recent data available to researchers—including surveys and data collection efforts sponsored by the federal government and by trade and professional associations. Outreach to organizations representing the occupations modeled provided the opportunity for these organizations to review the data, methods and assumptions used for the workforce projections and to discuss other trends affecting the women’s health service workforce. Study findings and conclusions, though, do not necessarily reflect the views of participating stakeholder organizations.

Like all attempts to project health care use and delivery patterns into the future, this modeling effort has data and other limitations. Additionally, several assumptions underlie the HWSM and the findings in this report must be interpreted within the context of those assumptions.

- Following standard workforce projection methodology and prior precedent, observed demand was set to be equal to supply in the base year, thereby setting the baseline standard of care equal to current care use and delivery patterns.<sup>4</sup> If a national shortfall existed in the base year, demand projections would reflect the amount of care required only to meet the base year national average level of care use, and would not include the inherent shortfall.
- State and regional demand projections account for geographic variation in demographic, economic, and health risk factors, but because projections do not account for regional differences in staffing and service delivery they instead indicate the number of providers required by the regions to achieve a national level of care. Accounting for these additional factors might result in increases or decreases in the projected adequacy of women’s health providers at state and regional levels. For states that allow greater practice autonomy in care delivery by CNMs, NPs, and PAs (fewer regulatory limitations on scope of practice), the HWSM might underestimate demand for these occupations while overestimating demand for OB-GYNs—and vice versa for states that

offer less practice autonomy for these occupations.

- HWSM assumes that the baseline number of health care providers choosing to practice in women's health will continue at the same rate. The growth in demand for women's health services, in an era of low birth rates, is growing at a slower rate than demand for other specialties that primarily serve older patient populations and that are projected to experience faster growth in demand. The level of demand for services can have an effect on specialty choice for new health care workers, along with numerous other factors.<sup>35</sup> Thus, the model may not fully capture evolving trends such as the growth in popularity of certain specialties.
- Future technological innovations, shifts in the uptake of team-based care, and other coming trends in delivery of women's health services will likely affect provider supply and demand in 2030, and thus may not be fully captured in the workforce projections, outside of their current effect in the baseline study year (2018). The increased use of telemedicine in pre-natal care necessitated by the COVID-19 pandemic may continue after the pandemic and may help improve care for those who have difficulties accessing in-person care.<sup>36</sup>
- For NPs, PAs, and CNMs, whose supply levels have risen rapidly in recent years, the HWSM projects that the growth in supply will exceed growth in demand based on current care delivery patterns. There might not be a "surplus" of these providers in the sense that newly trained providers may not be able to find employment. Rather, the rapid growth in supply of these providers may have the following implications: (a) Some care historically provided by OB-GYNs could shift to these providers helping alleviate the projected growing shortfall of OB-GYNs. (b) These providers can help increase the comprehensiveness of women's health services provided. (c) These providers can help increase access to services by populations that currently underutilize services.
- The gaps between projected supply and demand of CNMs, NPs, and PAs represent the expected outcomes if annual new entrants remain constant at baseline levels over the projection period. In 2018, the annual number of graduates of these specialties was relatively high, presumably in response to both a projected shortage of OB-GYNs, a perceived increase in future demand, and reimbursement incentives that encourage provision of team-based care and all team providers working at the top of their licenses.

As such, the cumulative supply projected by the HWSM methodology—which sets new entrants equal to baseline levels for each year of the projection period—is higher than would be expected in later years if a true surplus existed in earlier years. That is, while these static projections include a gap between supply and demand over time, dynamic market forces work to mitigate this gap.

- The supply estimations and projections for women’s health PAs are based on those PAs self-identifying as working in women’s health. Commonly, PAs are educated as generalists for their flexibility to change roles based on where they find interest or employment, with up to 8 percent of PAs changing practice specialties annually.<sup>37</sup> As such, new entrant numbers for any given year or number of PAs continuing to practice in women’s health in any year are somewhat fluid, and more easily adaptable to market conditions than, for example, physician specialties. This is a limitation of projecting forward baseline numbers in such situations.
- Finally, this report was prepared during the COVID-19 pandemic. While it is too early to find accurate data about the types, magnitudes, or duration of the pandemic’s effects on these projections, the dynamics created by the pandemic suggest there will be some considerable effects on the supply, demand, and delivery of women’s healthcare. Evidence from the literature suggests that preventive and routine care, needed treatments, and regular screenings were and are all being missed during the pandemic (1) because of social distancing and quarantining protocols, (2) out of fear of visiting medical facilities during the pandemic, and (3) due to the economic fallout from the pandemic, which is disproportionately impacting women.<sup>38</sup> As a result, the mix of care required until these trends resolve likely will shift toward more later stage treatments to address the issues unaddressed at earlier stages.<sup>38</sup> On the supply side, the drop in business from this delayed care could have long-term implications for the viability of some medical practices and facilities providing women’s healthcare services.<sup>39,40</sup>

The above limitations underscore the importance of periodically updating the supply and demand projections to incorporate the most recent data and trends.

## **DISCUSSION AND CONCLUSIONS**

Study findings from HRSA’s Health Workforce Simulation Model indicate that the nation is

training an insufficient number of new OB-GYNs to offset field attrition, while demand for OB-GYN services is growing. At the same time, rapid growth in supply of CNMs and women's health NPs and PAs is projected, which may partially alleviate the growing shortfall of OB-GYNs. CNMs, NPs and PAs can help provide services related to uncomplicated pregnancy and childbirth, and can treat many common gynecological conditions. The declining OB-GYN supply may mean that OB-GYN efforts could increasingly focus on high-risk pregnancies, the management of complex gynecological conditions, and surgical procedures.

Substantial barriers to care prevent many women from receiving the health care they need. For example, women from underrepresented racial-ethnic groups tend to use fewer indicated services than their non-Hispanic White counterparts.<sup>41</sup> Women without health insurance also use fewer women's health services than their insured peers. Addressing differences in health care access, strengthening health insurance access, and dismantling racial-ethnic disparity-related barriers may result in a total demand for women's health services around 11.6 percent higher than current levels.

The supply mix and adequacy of supply of women's healthcare providers varies by metropolitan/nonmetropolitan area. While there is a shortfall of OB-GYNs in nonmetropolitan areas, women in these areas are still receiving care from OB-GYNs—presumably by traveling to metropolitan areas and hospitals. In addition, nonmetropolitan areas tend to rely far more on CNMs and women's health NPs and PAs, with their representation levels within the women's health workforce being twice to three times higher than in metropolitan areas.

Substantial variation across states/regions is also observed in projected differences between supply and demand for OB-GYNs. In 2018 and through 2030, the Northeast region is projected to have an adequate number of OB-GYNs, while the remaining regions have deficits. In 2018, the supply adequacy at the state level ranges anywhere from 72.0% to 178.6%, and is projected to range from 56.8% to 157.1% in 2030.

As the health care system evolves in response to the growing need for women's health services, through demographic and geographic shifts, with the uptake of new technologies, and with delivery system and reimbursement reforms, each health provider's role and its implications on future supply and demand for women's health providers will be updated.

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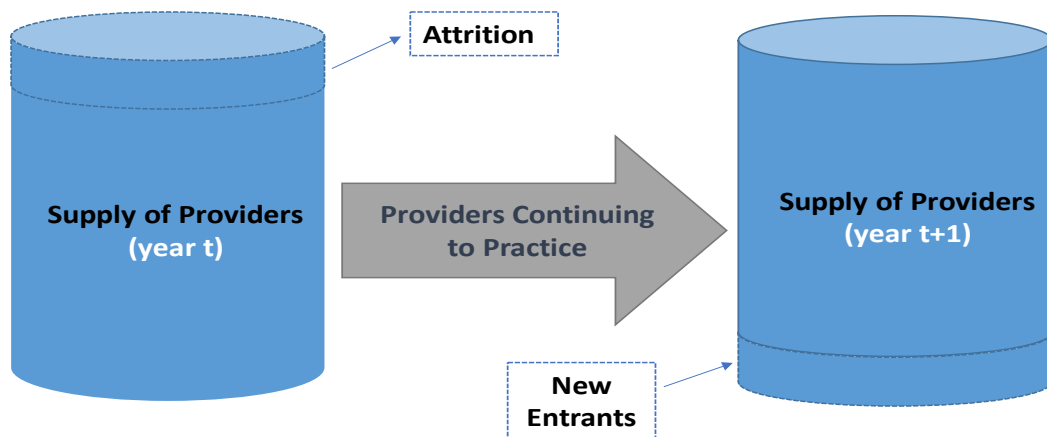
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## APPENDIX: WOMEN’S HEALTH PROVIDER SUPPLY AND DEMAND

HWSM uses a microsimulation approach for supply modeling, meaning the workforce decisions of a de-identified, representative population of individual providers are simulated over time. Supply modeling starts with creation of a synthetic population, representative of providers in each state in 2018 (Exhibit 5). Each year through 2030, new providers are added to supply reflecting the number and characteristics of new graduates from training programs and providers are removed from supply reflecting the number and characteristics of providers retiring. Workforce participation patterns such as weekly hours worked and geographic mobility are modeled. Many of these workforce decisions differ systematically by provider age and sex.

*Exhibit 5. Women’s Health Provider Supply Modeling Overview*



HWSM models the number of providers actively engaged in professional activities (active supply), but converts active supply to full-time equivalents (FTEs) where one FTE is defined as 40 hours per week of professional activities (patient care, administrative duties, teaching, research, etc.).<sup>4</sup>

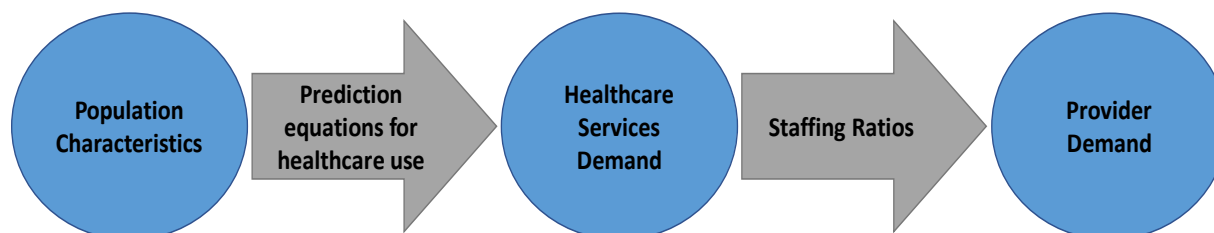
<sup>4</sup> In HRSA’s previous women’s health workforce projections for 2013-2025, one FTE was assumed to work the estimated average number of hours worked for that profession during base year (2013), while in this report, although some professions averaged more or less than 40 hours of work per week in the base year (2018), one FTE is standardized to work 40 hours/week.

## Women’s Health Provider Demand

HWSM uses a microsimulation approach for demand modeling, where demand for health care services is modeled for each person in a representative sample of the population.<sup>2</sup> Demand modeling starts with creation of state population files for 2018 through 2030, uses prediction equations that model demand for women’s health services based on the characteristics of each person in this representative population, and calculates demand for providers based on modeled staffing patterns (Exhibit 6).

The national demand for women’s health services can be defined as the quantity and mix of services that society is willing and able to pay for based on population needs and economic constraints such as income and prices. It reflects the realities of the current health care system with its reimbursement structure, incentives and disincentives for health care use, delivery patterns, and other personal and systematic economic considerations. Setting national demand equal to supply in the base year (2018) provides a baseline for projecting future demand under the current health care system. As discussed later, a hypothetical scenario models the demand implications of reducing barriers to accessing women’s health services.

*Exhibit 6. Women’s Health Provider Demand Modeling Overview*



## Family Physicians as Providers of Women’s Health Services

An analysis of 2015 and 2016 NAMCS data indicates that approximately 19 percent of visits by women to a family physician includes at least one women’s health-related diagnosis or procedures code, which is about 11 percent of total patient visits (including those for children and men) with family physicians. These include visits where the women’s health diagnosis or procedure code was the sole code, and visits where the women’s health code was one of multiple

codes. NAMCS contains information on the total number of minutes the physician spent with the patient during the visit (but not the time spent with each patient per diagnosis or procedure code). The component of the visit spent on women's health services was estimated to be the proportion of overall codes for women's health. For example, if there were two diagnosis/procedure codes and one was for women's health services, then 50 percent of visit time was assumed to be dedicated to providing women's health services.