

Women in Medicine: A Review of Changing Physician Demographics, Female Physicians by Specialty, State and Related Data



A resource provided by Staff Care, the nation's leading locum tenens staffing firm and a company of AMN Healthcare (NYSE: AHS), the largest healthcare workforce solutions company in the United States.

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WOMEN IN MEDICINE:

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WOMEN IN MEDICINE

"Medicine is so broad a field, so closely interwoven with general interests...that it must be regarded as one of those great departments of work in which the cooperation of men and women is needed to fulfill all its requirements."

-Dr. Elizabeth Blackwell

Overview

One of the greatest hallmarks of the latter half of the 20th century and into the 21st century has been the significant progress that has been made in the area of gender equality, particularly in regards to employment opportunity. This progress is prominently noticeable in the field of medicine. Gaps that once existed in medical school education, training and residency opportunities, hiring practices and compensation have closed considerably, giving women an improved footing in medical practice and in medical education.

In this white paper, we examine the history of females in medicine, distribution of female physicians among specialties and states, practice, salary and work considerations, and projects how the growth of female physicians will change the composition of the physician workforce.

Staff Care is the leading provider of locum tenens staffing services in the United States and is a company of AMN Healthcare (NYSE: AHS), the largest healthcare workforce solutions organization in the nation. As part of our role as industry leaders, Staff Care generates original survey data regarding trends in locum tenens staffing, presents educational seminars on physician staffing and related topics, and develops a series of white papers examining physician and advanced practitioner issues. Staff Care executives authored the book on locum tenens staffing. Entitled, "Have Stethoscope, Will Travel: Staff Care's Guide to Locum Tenens," the book outlines locum tenens staffing principles, uses and procedures for both healthcare facilities and physicians. Staff Care is proud to sponsor the Country Doctor of the Year Award, a national honor that recognizes the spirit, skill and dedication of America's rural medical practitioners.

History of Women in Medicine

Up until the latter half of the 20th century, women played a restricted, albeit important, role in medicine and the delivery of health services. For the majority of American history, medicine was a male-dominated profession, with females serving other roles including nursing and midwifery. Medical schools, like the majority of higher level institutions, restricted admission to males only, and thus opportunities for integration and advancement for women in medicine were limited. It was not until 1847, when Elizabeth Blackwell was the first female admitted to an American medical school at Geneva Medical College in New York, that any evidence of change was apparent.

Dr. Blackwell received her medical degree two years later in 1849, and spent her life championing equality in the medical profession (See “How Elizabeth Blackwell became the first female doctor in the U.S.”, www.pbs.org). By the end of the 19th century, 19 women’s medical colleges and 9 women’s hospitals had been established, with a number of institutions, including the University of Michigan and the University of Iowa, offering co-educational programs. At this time, women comprised 5% of the physician workforce, at nearly 7,000 physicians.

Despite these gains, any progress made would be halted at the beginning of the 20th century with the significant reforms made to the United States medical education system. Concerned about the caliber of medical schools and training/education received by medical school graduates, in 1910 the American Medical Association (AMA) hired Abraham Flexner, a professional educator, to evaluate the medical school landscape.

After visiting all medical schools in the United States and Canada, the subsequent Flexner report painted a dubious state of affairs. Flexner recommended sweeping reforms of the large majority of schools, focusing on standardized entrance requirements, an extended period of study and curriculums built on basic sciences and clinical experience prior to professional practice. Following the release of the report, a large number of medical schools closed or merged with other schools, particularly those educating minorities and women. In 1915, the percentage of women medical school graduates dropped to 2.9%, and by 1930 only a single women’s medical school existed (See “Looking back over the history of women in medicine”, Eliza Lo Chin, M.D.; “Unintended Consequences of the Flexner Report: Women in Pediatrics”, Pediatrics Perspective).

This reality remained somewhat static through the 1940s and 1950s, and by 1949 only 5.5% of entering medical school students were women, with 6% of the physician workforce comprised of women. Overt challenges for women, including gender-based quotas at medical schools, discrimination, sexual harassment, and a male-dominated environment persisted, making progress slow. However, this began to change in 1972 with the passage of Title IX of the Education Amendments, which prohibited discrimination on the basis of sex for educational programs that received federal funding, including post-secondary programs.

Although barriers persisted, institutions began to respond accordingly, prioritizing the admission and integration of a greater number of women into their medical education programs. By 1974, 22.4% of medical school entrants were women, and by 1990 17% of the physician workforce was comprised of women.

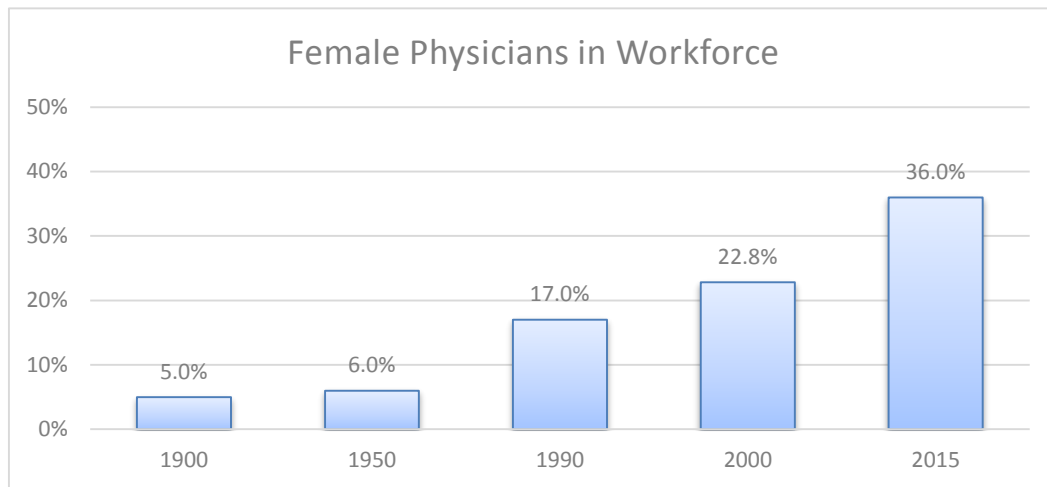
Notable female medical pioneers include:

- ❖ Dr. Alexa Irene Canaday, M.D.: First female and African-American Neurosurgeon; certified by the American Board of Neurological Surgery in 1984
- ❖ Dr. Margaret Allen, M.D.: First female surgeon to perform heart transplant surgery, 1985
- ❖ Dr. Nancy Dickey, M.D.: First female president of the AMA, 1997-98
- ❖ Dr. Antonia Novello, M.D.: First female U.S. Surgeon General, 1990

Progress had been made by the end of the 20th century, and based on historical precedent, the increasing composition of females and notable female leaders in the medical field is demonstrable. Following is data concerning the current gender composition of the physician workforce.

Physician Workforce Gender Composition

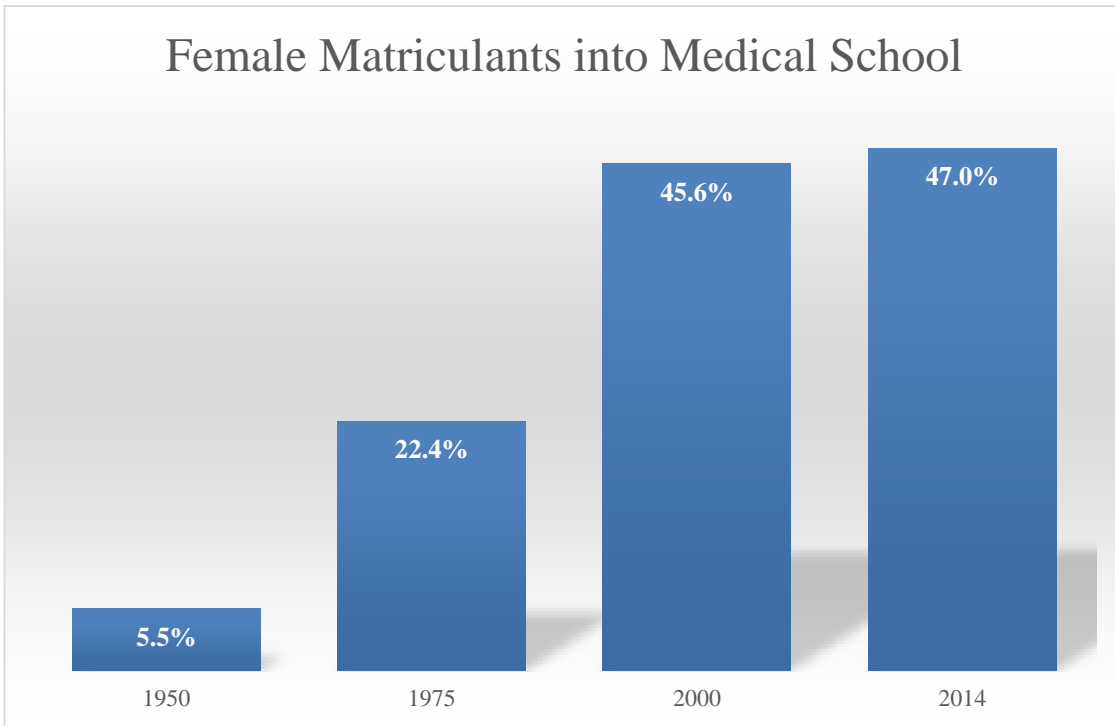
Today, over a third of the physician workforce (36%) is comprised of women, while 47% of medical school matriculants, 48% of graduates, and 46% of residents were female for the 2013-14 year. Below is a breakdown of workforce composition trends:



Source: Association of American Medical Colleges (AAMC)

As these numbers illustrate, the composition of females in the physician workforce is trending upwards, particularly over the past 25 years. However, when you consider that the latest U.S. Census Bureau population estimates place women at 50.8% of the United States' population for 2013, a discrepancy between the physician workforce composition and national population composition remains clear.

The gap that persists among the composition of male and female physicians in the workforce will likely continue to decrease when taking into account the composition of matriculating medical school classes. The chart below illustrates the trend of female matriculants into medical school over the last century, with positive gains made over the past 40 years (includes both allopathic and osteopathic medical schools):



Source: 2013 AAPA Annual Survey Report

The latest data provided by the Association of American Medical Colleges (AAMC) for the 2013-14 year indicate that 47% of medical school matriculants are female, while 46% of medical residents are female. While these numbers still fall short of the national composition of females (50.8%), they fall much more in line with overall population gender composition.

Female Physicians by State

The most recent data from the AMA indicate that 771,732 physicians currently practice active patient care, with 275,596 being female (36%). A breakdown of female physicians by state can be seen below:

<u>State</u>	<u>Active Female Physicians</u>	<u>Percentage of All Female Physicians, U.S.</u>	<u>Percentage of Physicians Within State</u>
California	33,972	12.3%	37.8%
New York	24,784	9.0%	39.4%
Texas	18,598	6.7%	35.0%
Florida	13,476	4.9%	30.2%
Illinois	12,734	4.6%	39.3%
Pennsylvania	12,652	4.6%	35.6%
Massachusetts	11,380	4.1%	43.2%
Ohio	10,185	3.7%	35.0%

New Jersey	9,426	3.4%	37.9%
Maryland	8,614	3.1%	41.8%
Michigan	8,104	2.9%	35.1%
North Carolina	7,914	2.9%	34.8%
Virginia	7,631	2.8%	37.7%
Georgia	7,159	2.6%	34.6%
Washington	6,159	2.2%	37.6%
Minnesota	5,247	1.9%	37.0%
Colorado	5,055	1.8%	38.7%
Missouri	4,732	1.7%	34.1%
Tennessee	4,595	1.7%	30.0%
Wisconsin	4,536	1.6%	33.9%
Arizona	4,529	1.6%	32.5%
Connecticut	4,425	1.6%	38.7%
Indiana	4,160	1.5%	31.8%
Oregon	3,915	1.4%	38.4%
Louisiana	3,311	1.2%	31.6%
South Carolina	3,133	1.1%	31.2%
Kentucky	2,785	1.0%	31.0%
Alabama	2,617	0.9%	28.2%
Kansas	2,056	0.7%	33.5%
Oklahoma	1,934	0.7%	30.3%
Washington DC	1,905	0.7%	48.9%
Iowa	1,833	0.7%	31.7%
New Mexico	1,713	0.6%	39.3%
Arkansas	1,524	0.6%	28.1%
Rhode Island	1,434	0.5%	41.1%
Utah	1,408	0.5%	24.8%
Nevada	1,381	0.5%	27.8%
Nebraska	1,320	0.5%	32.7%
Mississippi	1,303	0.5%	26.6%
Maine	1,295	0.5%	35.9%
Hawaii	1,274	0.5%	34.7%
New Hampshire	1,253	0.5%	35.1%
West Virginia	1,179	0.4%	29.9%
Delaware	778	0.3%	37.7%
Vermont	774	0.3%	40.2%
Idaho	685	0.2%	25.1%
Montana	622	0.2%	30.7%
Alaska	594	0.2%	37.3%
South Dakota	559	0.2%	29.9%
North Dakota	475	0.2%	29.1%
Wyoming	262	0.1%	26.0%

United States

275,596

Source: American Medical Association (AMA) Master File/MMS

A Wave of Retirements

When evaluating the composition of female physicians in the workforce and projecting the outlook long-term, it is important to take into consideration the current composition of the older physician population, and how this older population will be replaced as they reach retirement age. Of those physicians in active patient care (both male and female), the older physician population breaks down as follows:

Age	Number of Physicians	Percentage of Physicians
55 and Older	256,998	39.3%
60 and Older	160,356	24.5%
65 and Older	73,352	11.2%

Source: AMA Master File/MMS

Based on this data, 39.3% of physicians in direct patient care are 55 years or older, with 11.2% of physicians nearing retirement age at 65 years or older. According to The Physicians Foundation 2014 Survey of American Physicians, conducted by Merritt Hawkins, 22.2% of physicians aged 56 and older expect to retire in the next 1-3 years. When examining how this retiring physician population will be replaced, and how the composition of male and female physicians could be impacted, we make several assumptions:

- ❖ Of the 22.2% of physicians aged 56 and older who state that they will retire in the next 1-3 years (62,263), we provide data in which all of these physicians follow through on their retirement plans in the years 2015-18.
- ❖ For the remainder of growth scenarios, we use this retirement rate- 2.7% of the physician population retiring per year.
- ❖ Of the retiring physician population for the next 1-3 years, we project that 25% of these physicians will be female. This is a conservative estimate based on the fact that in 1975 only 22.4% of medical school classes were comprised of females.
- ❖ For the remainder of growth scenarios, we increase the composition of females in the retiring physician population by 5% for each 5 year period. This is based on the fact that the younger physician population is comprised of a greater percentage of females than the older physician population, and the gap in composition decreases each year. We fix this composition at 55% male and 45% female in the 2030-35 time period.
- ❖ We assume that supply of physicians completing graduate medical education (GME) programs continues at the status quo growth rate- 29,000 physicians per year, as provided by the AAMC (For further information about GME and physician supply

considerations, see The Complexities of Physician Supply and Demand: Projections from 2013 to 2025, AAMC). Of these physicians, we assume that 46% of graduates are female (per The State of Women in Academic Medicine, AAMC, 2013-14) for the 2015-18 time period. Following, we fix the ratio of male to female residents at 50% each.

Projected Physician Retirements, Growth in Female Composition of the Physician Workforce

Physician Supply Growth if Physicians 55+ Follow Retirement Plans

Total Active Patient Care (APC) Physicians 2015	771,732
Female APC Physicians 2015	275,596
Percentage of Female Physicians	36%
APC Physicians 55+	280,463
Retiring Physicians, 2015-18 (75% male, 25% female)	61,702
Female Retiring Physicians, 2015-18	15,425
GME Graduates per year (53% male, 47% female)	29,000
Female GME Graduates per year	13,630
Physician Supply Growth, 2015-18	25,298
Female Physician Supply Growth, 2015-18	25,465
Total Active Patient Care (APC) Physicians 2018	797,030
Female APC Physicians 2018	301,061
Percentage of Female Physicians	38%
Retiring Physicians (2.7% per year), 2018-21 (70% male, 30% female)	63,762
Female Retiring Physicians, 2018-2021	19,129
GME Graduates per year (50% male, 50% female)	29,000
Female GME Graduates per year	14,500
Physician Supply Growth, 2018-21	23,238
Female Physician Supply Growth, 2018-21	24,371
Total Active Patient Care (APC) Physicians 2021	820,268
Female APC Physicians 2021	325,432
Percentage of Female Physicians	40%

Retiring Physicians (2.7% per year), 2021-25 (65% male, 35% female)	87,769
Female Retiring Physicians, 2021-25	30,719
GME Graduates per year (50% male, 50% female)	29,000
Female GME Graduates per year	14,500
Physician Supply Growth, 2021-25	28,231
Female Physician Supply Growth, 2021-25	27,281
Total Active Patient Care (APC) Physicians 2025	848,499
Female APC Physicians 2025	352,713
Percentage of Female Physicians	42%
Retiring Physicians (2.7% per year), 2025-30 (60% male, 40% female)	90,789
Female Retiring Physicians, 2025-30	36,316
GME Graduates per year (50% male, 50% female)	29,000
Female GME Graduates per year	14,500
Physician Supply Growth, 2025-30	25,211
Female Physician Supply Growth, 2025-30	21,684
Total Active Patient Care (APC) Physicians 2030	873,710
Female APC Physicians 2030	374,397
Percentage of Female Physicians	43%
Retiring Physicians (2.7% per year), 2030-35 (55% male, 45% female)	93,487
Female Retiring Physicians, 2030-35	42,069
GME Graduates per year (50% male, 50% female)	29,000
Female GME Graduates per year	14,500
Physician Supply Growth, 2030-35	22,513
Female Physician Supply Growth, 2030-35	15,931
Total Active Patient Care (APC) Physicians 2035	896,223
Female APC Physicians 2035	390,328
Percentage of Female Physicians	44%
Retiring Physicians (2.7% per year), 2035-40 (55% male, 45% female)	95,896
Female Retiring Physicians, 2030-40	43,153
GME Graduates per year (50% male, 50% female)	29,000

Female GME Graduates per year	14,500
Physician Supply Growth, 2035-40	20,104
Female Physician Supply Growth, 2035-40	14,847
Total Active Patient Care (APC) Physicians 2040	916,327
Female APC Physicians 2040	405,175
Percentage of Female Physicians	44%

Source: AMA Master File/MMS

Physician Workforce Composition Projections

	2015	2018	2021	2025	2030	2035	2040
Female Physicians	36%	38%	40%	42%	43%	44%	44%
Male Physicians	64%	62%	60%	58%	57%	56%	56%

Source: AMA Master File/MMS

Under this growth scenario, the total population of active patient care physicians increases from 771,732 physicians to 916,327 physicians over a 25 year period. By 2040, the female physician workforce composition increases from 36% in 2015 to 44%. However, this growth begins to slow between the years 2025-2040, likely the result of a retiring female physician population that increasingly matches the retiring male physician population in composition over time.

With this growth scenario, it is important to understand that many factors may change based on physician demand, including number of GME positions, rate of retiring physicians, and possible differences in the retirement rates of male and female physicians. Despite these variables, it is likely that the gap in supply of male and female physicians will continue to close over time.

Specialty Distribution of Female Physicians

Among the various physician specialties types, females tend to be concentrated in specialties such as Pediatrics (64.2%) and OB/GYN (56.7%). Below are listed various medical specialties and the number and percent of female physicians in each.

Specialty	Total Physicians	Female Physicians	Percentage of Females
Pediatrics	54,642	35,060	64.2%
Obstetrics & Gynecology	37,053	21,017	56.7%

Child Psychiatry	8,070	4,295	53.2%
Endocrinology	5,933	3,069	51.7%
Dermatology	10,645	5,284	49.6%
Rheumatology	5,046	2,308	45.7%
Infectious Diseases	7,713	3,233	41.9%
Psychiatry	31,307	13,005	41.5%
Allergy & Immunology	3,588	1,490	41.5%
Family Practice	90,978	37,688	41.4%
Pathology - Anatomic/Clinical	11,174	4,450	39.8%
Hematology/Oncology	7,503	2,922	38.9%
Internal Medicine	108,317	41,514	38.3%
Neurology	12,544	3,852	30.7%
Emergency Medicine	36,404	10,075	27.7%
Pulmonary Critical Care Medicine	6,949	1,862	26.8%
Diagnostic Radiology	23,571	6,259	26.6%
Ophthalmology	16,939	4,350	25.7%
Anesthesiology	39,211	10,048	25.6%
General Surgery	25,117	5,353	21.3%
Gastroenterology	12,936	2,299	17.8%
Otolaryngology	8,621	1,474	17.1%
Cardiovascular Disease	19,453	2,797	14.4%
Vascular Surgery	3,095	370	12.0%
Urological Surgery	8,953	776	8.7%
Orthopedic Surgery	17,517	984	5.6%

Source: AMA Master File/MMS

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Female Physicians in Various Residency Programs

Below are listed the medical residents programs with the highest number and percent of female physicians.

Top 10 Residency Specialty Programs for Female Physicians

<u>Specialty</u>	<u>Number of Physician Residents</u>	<u>Percentage of Residents in Specialty</u>
Internal Medicine	9,925	43%
Pediatrics	8,573	71%
Family Medicine	5,614	55%
Internal Medicine Subspecialties	4,081	37%

OB/GYN	4,054	83%
Psychiatry	3,281	55%
Surgery	2,989	38%
Anesthesiology	2,278	37%
Emergency Medicine	2,195	38%
Pathology	1,576	54%

Source: AAMC "The State of Women in Academic Medicine", 2014

Salary and Full Time Equivalent Comparisons

When comparing the salary data among male and female physicians, historically a number of reports have noted the disparity amongst earnings between male and female physicians. These reports include:

- ❖ A disparity of \$16,819 for GME graduates among males in females based on a 2008 survey of New York State residents. (See *The \$16,819 Pay Gap For Newly Trained Physicians: The Unexplained Trend of Men Earning More Than Women*, Health Affairs, 2011)
- ❖ A JAMA Internal Medicine Study in 2010 which reported that the average male physician earned \$221,000 in 2006-2010, while the average female physician earned \$165,000 (See *Gender Income gaps persist among doctors: study*, Reuters, September 2013)
- ❖ A Medscape Physician Compensation Report from 2012 in which a 40% disparity amongst average male and female physician earnings were reported- \$242,000 compared to \$173,000. This includes a difference of \$33,000 between male and female physicians for primary care (See *Physician Compensation Report 2012*, Medscape).

Differences in practice patterns between male and female physicians also have been noted.

According to The Physicians Foundation 2014 Survey of America's Physicians conducted by Merritt Hawkins, there are differences amongst male and female physicians in hours worked, productivity, and part-time versus full-time status. Male physicians averaged 54.12 hours worked per week, while female physicians averaged 50.28 hours per week- 7.6% greater hours worked for males.

Average Hours Worked Per Week
By Physician Type

Male	Female
54.12	50.28

Source: The Physicians Foundation 2014 Survey, Merritt Hawkins

In addition to fewer hours worked per week, a greater number of females than males report working part-time as opposed to full-time (40 hours per week). According to The Physicians Foundation survey, 26.1% of females work less than 40 hours per week, compared to 16.9% of males.

On average, how many hours do you work per week (include all clinical and non-clinical duties)?

	Male	Female
0-20	3.1%	3.7%
21-30	3.6%	6.6%
31-40	10.2%	15.8%

Source: *The Physicians Foundation 2014 Survey, Merritt Hawkins*

Average patients seen also differs among the genders- 20.5 patients per day for male physicians compared to 18.1 patients per day for female physicians (13.3% more patients for males).

**Average Patients Seen Per Day
By Physician Type**

Male	Female
20.5	18.1

Source: *The Physicians Foundation 2014 Survey, Merritt Hawkins*

These factors all suggest differences in hours worked, part-time versus full-time status and patients seen in the 7%-13% range amongst the male and female physicians, considerations which could contribute to the salary disparities noted above.

The Role of Locum Tenens

The physician workforce, like the general population, is becoming more diverse. The growing number of female physicians is reshaping the physician workforce, creating a demand for more practice settings where flexibility is a key benefit and a key attraction. The growing use of locum tenens physicians coincides with this trend, as locum tenens offer both female and male physicians the option to tailor their schedules.

Locum tenens also provides employers with the ability to create flexible work environments for female physicians and others seeking a work/life balance. By using locum tenens physicians, hospitals, medical groups, community health centers and other facilities can offer more flexible schedules to full-time physicians and avoid staff burn-out.

Conclusion

When evaluating the state of women in medicine, it is important to appreciate progress while understanding the need for continued growth. Women have made significant inroads in medical education, training and residency opportunities, hiring practices and overall composition of the physician workforce, particularly over the last half century. All data indicate the presence and impact of female physicians on medicine will continue to expand.

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