Assessment of Subspecialty Choices of Men and Women in Internal Medicine From 1991 to 2016

Women have been enrolling in medical schools in increasing numbers in the last few decades, reaching 50.7% of matriculants in 2017. Of 25,749 internal medicine residents in 2017, 42.4% were women. We examined changes in the internal medicine subspecialty choices of women and men from 1991 to 2016.

Methods | We obtained enrollment data from 1991 to 2016 on the sex of physicians in internal medicine residency and subspecialty fellowships from the annual publication Resident Physicians on Duty in Accreditation Council for Graduate Medical Education (ACGME). The publication reports the American Medical Association (AMA) and Association of American Medical Colleges (AAMC) jointly administered annual National Graduate Medical Education (GME) Census to residency program directors and the AMA Annual Survey of GME programs. We examined data through manual data extraction for 9 internal medicine subspecialties: cardiovascular disease, endocrinology, gastroenterology, geriatric medicine, hematology and oncology, infectious disease, nephrology, pulmonary disease and critical care, and rheumatology. Data analyses were completed as of July 11, 2019. The study met the St Vincent institutional review board policy for exemption.

Results | In 1991, 5602 (30.2%) of the residents in internal medicine were women and 12,942 (69.8%) of the residents were men. Of the 7,986 residents in subspecialty fellowships, 33.3% were women and 66.7% were men. In 2016, 10,223 (43.2%) of the 23,664 residents in internal medicine were women and 13,441 (56.8%) were men. Of the 19,868 residents in subspecialty fellowships, 23.6% were women and 76.4% were men.

The Table presents the numbers and percentages of women in the 9 subspecialties in 1991 and 2016. The Figure depicts the changes in the percentage of women internal medicine residents and subspecialty fellows between these years. For the 9 subspecialties, the percentage of women entering each of the fields increased over time, with variations between specialty and some year-to-year variations within a specialty. With cardiovascular disease as a comparator, the percentage of women in endocrinology increased at 0.96% per year faster. The percentages of women in gastroenterology, geriatric medicine, rheumatology, and hematology and oncology increased at a rate close to 0.5% per year faster and infectious disease and nephrology increased at a rate close to 0.3% per year faster.

The fields of endocrinology, rheumatology, and geriatrics have experienced the highest rates of increase in the percentages of women fellows at 95%, 56%, and 44% greater increase over time compared with cardiology. Cardiology and pulmonary disease and critical care had the lowest rates of increase. In 2016, 3,874 (37.7%) women were enrolled in the 9 specialties; women represented 21.3% of cardiovascular disease fellows, 71.3% of endocrinology, 34.0% of gastroenterology, 76.9% of geriatric medicine, 42.9% of hematology and oncology, 54.6% of infectious disease, 34.4% of nephrology, 32.6% of pulmonary and critical care, and 60.2% of rheumatology fellows.

Discussion | Between 1991 and 2016, although the percentage of women in internal medicine residencies increased, the percentage of women in subspecialty fellowships decreased. Many factors are associated with the decisions of medical students in choosing an internal medicine residency, including their sex, educational experience, views of patient care, and lifestyle perceptions. Similar considerations apply to subspecialty training. Time with family has been the most highly rated factor in career choice for both men and women. As compared with men, women have assigned a greater importance to long-term patient relationships and family time and less to financial considerations.

<table>
<thead>
<tr>
<th>Internal Medicine Subspecialty</th>
<th>1991 Total Residents or Fellows</th>
<th>Women, No. (%)</th>
<th>2016 Total Residents or Fellows</th>
<th>Women, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular disease</td>
<td>1925</td>
<td>195 (10.1)</td>
<td>2616</td>
<td>557 (21.3)</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>342</td>
<td>139 (40.6)</td>
<td>637</td>
<td>454 (71.3)</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>803</td>
<td>86 (10.7)</td>
<td>1505</td>
<td>512 (34.0)</td>
</tr>
<tr>
<td>Geriatric medicine</td>
<td>181</td>
<td>84 (46.4)</td>
<td>221</td>
<td>150 (67.9)</td>
</tr>
<tr>
<td>Hematology and oncology</td>
<td>1080b</td>
<td>281 (26.0)b</td>
<td>1657</td>
<td>711 (42.9)</td>
</tr>
<tr>
<td>Infectious disease</td>
<td>595</td>
<td>234 (39.3)</td>
<td>727</td>
<td>395 (54.6)</td>
</tr>
<tr>
<td>Nephrology</td>
<td>482</td>
<td>130 (23.9)</td>
<td>848</td>
<td>292 (34.4)</td>
</tr>
<tr>
<td>Pulmonary disease and critical care</td>
<td>1133b</td>
<td>183 (16.2)b</td>
<td>1621</td>
<td>528 (32.6)</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>337</td>
<td>135 (40.1)</td>
<td>457</td>
<td>275 (60.2)</td>
</tr>
</tbody>
</table>

* Table does not reflect subspecialties existing in 2016 but not 1991.
** Hematology and oncology and pulmonary disease and critical care did not exist as combined specialties in 1991. Data from 1991 reflect the combined programs.
A survey of internal medicine residents about their professional preferences, their perceptions of cardiology, and how these attitudes combine to inform career choices showed substantial sex differences. More women than men reported never considering cardiology, and women had different perceptions of cardiology than men. Women cardiologists are more likely than men to experience sex and parenting discrimination, be single, not have children, and report less satisfaction in family life, though overall career satisfaction remains high for both men and women.

A limitation of our study is the use of publicly available data that were aggregated with no individual identifiers. From 1991 to 2016, there have been increases in the percentage of women in 9 medical subspecialties but substantial differences between specialties remain. As compared with the other 8 subspecialties, cardiology had the lowest percentage of women, which is an important issue that the cardiology profession should continue to address.

Anna T. Stone, MD
Kelly M. Carlson, MD
Pamela S. Douglas, MD, MACC
Kathleen L. Morris, DO
Mary Norine Walsh, MD, MACC

Author Affiliations: Department of Cardiology, St Vincent Hospital and Heart Center, Indianapolis, Indiana (Stone, Carlson, Morris, Walsh); Department of Cardiology, Duke University Medical Center, Durham, North Carolina (Douglas).

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Corresponding Author: Mary Norine Walsh, MD, MACC, St Vincent Hospital and Heart Center, 8333 Naab Rd, Ste 400, Indianapolis, IN 46260 (macwalsh@quest.com).

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Concept and design: Stone, Carlson, Walsh.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Stone, Carlson, Morris, Walsh.

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Trends in Aggregate Use and Associated Expenditures of Antihyperglycemic Therapies Among US Medicare Beneficiaries Between 2012 and 2017

There are now 12 classes of antihyperglycemic medications available for patients with type 2 diabetes mellitus (DM). With an estimated 30 million patients in the United States living with DM and increasing complexity and financial burden of DM care, the relative distribution of expenditures across DM therapeutic classes needs to be reexamined. We evaluated trends in aggregate use and expenditures for all DM therapies among US Medicare Part D beneficiaries from 2012 to 2017.