Educational Programs in US Medical Schools, 2001-2002

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Sylvia I. Etzel

There has been a long-standing recognition that the medical school environment has a significant effect on the professional characteristics that its students acquire. One important contributing factor to the medical school environment is the individuals, both students and faculty members, at the institution.

During the last 30 years, medical schools have become more diverse. In 1971-1972, women comprised 13.7% of the entering class, which increased to 30.8% in 1981-1982 and to 39.8% in 1991-1992. In 1971-1972, only 9% of medical students were black, Native American, Hispanic, or Asian/Pacific Islander. By 1981-1982, these groups represented 15.4% of total enrollment and 29.8% by 1991-1992. In 1981-1982, 92% of first-year students in public schools and 51% in private schools were in-state residents.

A major determinant of the composition of the student body of a given medical school is its applicant pool. After reaching an all-time high of almost 47,000 for the 1996 entering class, the number of applicants to US medical schools has been declining. Application activity is cyclical. In the mid-1970s, there were more than 42,000 applicants. The number of applicants decreased to below 27,000 in the late 1980s before increasing again through the mid-1990s. One factor in this increase was the number of applicants who were women and Asian/Pacific Islanders. These changes in the applicant pool have been in the context of a relatively stable number of admissions. The number of accepted applicants to US medical schools has been stable at around 17,000 since 1980.

The composition of the medical school faculty also is important, since faculty members serve as role models as well as experts in their respective disciplines. The diversity of the medical school faculty also is changing, but not to the same extent as the student body. In 1978, women comprised 15% of the full-time medical school faculty. By 1989, the percentage of faculty who were women had increased to 20%. In the mid-1970s, 88% of medical school faculty members were white, 2% were black, 2% were Hispanic, 6% were Asian/Pacific Islander, and 2% were of other/unknown background. Twenty years later, in the mid-1990s, 78% of faculty were white, 2% were black, 3% were Hispanic, 8% were Asian/Pacific Islander, and 8% were of other/unknown background.

This report reviews the status of medical education in 2001-2002, with an emphasis on the current characteristics of medical students and faculty members. The data in this report were mainly derived from the 2001-2002 Liaison Committee on Medical Education (LCME) Annual Medical School Questionnaire, which was sent to the deans of the 125 LCME-accredited US medical schools. There was a 100% response rate. Items for which there was a response from less than the 125 schools are noted. Each completed questionnaire was reviewed and attempts were made to obtain missing data. Comparison data were taken from

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Table 1. Number of Full-time Faculty and Medical Students in US Medical Schools

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<thead>
<tr>
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<tbody>
<tr>
<td>Full-time faculty</td>
<td>96,733</td>
<td>98,202</td>
<td>102,446</td>
<td>103,553</td>
<td>104,949</td>
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<td>Medical students</td>
<td>66,748</td>
<td>66,489</td>
<td>66,500</td>
<td>66,295</td>
<td>66,219</td>
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Table 2. Full-time Faculty Positions by Discipline and Academic Rank in US Medical Schools and Percentage of Budgeted Positions Vacant, 2001-2002

<table>
<thead>
<tr>
<th>Department</th>
<th>Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
<th>Instructor and Other</th>
<th>Total</th>
<th>Vacant Percentage</th>
</tr>
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<tbody>
<tr>
<td>Basic Science</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Anatomy/cell biology</td>
<td>853</td>
<td>592</td>
<td>587</td>
<td>170</td>
<td>2202</td>
<td>66 (2.9)</td>
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<tr>
<td>Biochemistry</td>
<td>962</td>
<td>446</td>
<td>549</td>
<td>173</td>
<td>2130</td>
<td>70 (3.2)</td>
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<tr>
<td>Biomedical engineering</td>
<td>43</td>
<td>20</td>
<td>31</td>
<td>15</td>
<td>109</td>
<td>9 (7.6)</td>
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<tr>
<td>Genetics</td>
<td>278</td>
<td>178</td>
<td>301</td>
<td>196</td>
<td>923</td>
<td>39 (4.1)</td>
</tr>
<tr>
<td>Microbiology, immunology, and virology</td>
<td>755</td>
<td>432</td>
<td>581</td>
<td>153</td>
<td>1921</td>
<td>73 (3.7)</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>235</td>
<td>148</td>
<td>214</td>
<td>79</td>
<td>676</td>
<td>26 (3.7)</td>
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<td>Pathology</td>
<td>1565</td>
<td>1308</td>
<td>1630</td>
<td>398</td>
<td>4901</td>
<td>235 (4.6)</td>
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<tr>
<td>Pharmacology</td>
<td>800</td>
<td>452</td>
<td>530</td>
<td>209</td>
<td>1991</td>
<td>94 (4.5)</td>
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<td>Physiology/biophysics</td>
<td>810</td>
<td>414</td>
<td>460</td>
<td>159</td>
<td>1843</td>
<td>55 (2.9)</td>
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<tr>
<td>Other</td>
<td>422</td>
<td>371</td>
<td>522</td>
<td>287</td>
<td>1602</td>
<td>87 (5.2)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>6723</td>
<td>4361</td>
<td>5405</td>
<td>1809</td>
<td>18298</td>
<td>754 (4.0)</td>
</tr>
</tbody>
</table>

| Clinical                                |            |                      |                      |                      |       |                   |
| Anesthesiology                          | 685        | 1061                 | 2406                 | 831                  | 4983  | 298 (5.6)         |
| Dermatology                             | 223        | 183                  | 372                  | 133                  | 911   | 38 (4.0)          |
| Emergency medicine                      | 122        | 230                  | 912                  | 275                  | 1639  | 87 (5.3)          |
| Family medicine                         | 459        | 785                  | 2102                 | 553                  | 3699  | 227 (5.5)         |
| Internal medicine                       | 5581       | 5263                 | 10334                | 3932                 | 24640 | 1115 (4.3)        |
| Neurology                               | 833        | 731                  | 1210                 | 496                  | 3270  | 219 (6.3)         |
| Neurosurgery                            | 246        | 202                  | 340                  | 80                   | 868   | 59 (6.4)          |
| Obstetrics and gynecology               | 778        | 784                  | 1675                 | 774                  | 4011  | 207 (4.9)         |
| Ophthalmology                           | 509        | 404                  | 673                  | 296                  | 1882  | 95 (4.8)          |
| Orthopedics                             | 442        | 426                  | 740                  | 173                  | 1783  | 144 (7.5)         |
| Otolaryngology                          | 298        | 300                  | 461                  | 135                  | 1194  | 52 (4.2)          |
| Pediatrics                              | 2418       | 2669                 | 4837                 | 1653                 | 11577 | 605 (5.0)         |
| Physical medicine                       | 107        | 229                  | 548                  | 205                  | 1089  | 52 (4.9)          |
| Plastic surgery                         | 24         | 25                   | 39                   | 2                   | 90    | 0 (0)             |
| Preventive medicine/public health       | 360        | 254                  | 519                  | 135                  | 1268  | 88 (6.5)          |
| Psychiatry                              | 1534       | 1692                 | 3523                 | 1424                 | 8143  | 323 (3.8)         |
| Radiation oncology                      | 274        | 262                  | 484                  | 181                  | 1201  | 40 (3.2)          |
| Radiation, diagnostic                   | 1186       | 1178                 | 1990                 | 687                  | 5041  | 289 (5.4)         |
| Surgery                                 | 1857       | 1709                 | 3141                 | 707                  | 7414  | 372 (4.8)         |
| Urology                                 | 223        | 148                  | 253                  | 58                   | 682   | 56 (7.5)          |
| Other                                   | 170        | 225                  | 355                  | 216                  | 966   | 24 (2.4)          |
| Subtotal                                | 18329      | 18762                | 36614                | 12946                | 86651 | 4398 (4.8)        |
| Total                                   | 25052      | 23123                | 42019                | 14755                | 104949| 5152 (4.7)        |

The 125 US medical schools with LCME-accredited programs as of September 1, 2002 (124 with 4-year and 1 with a 2-year program), are listed in Appendix IA, Table 1. The 16 Canadian medical programs accredited jointly by the LCME and the Committee on Accreditation of Canadian Medical Schools are listed in Appendix IB, Table 1.

MEDICAL SCHOOL FACULTY

In 2001-2002, there were 104,949 full-time faculty members in LCME-accredited US medical schools (Table 1), which is a 2.4% increase from 1999-2000. In 2001-2002, the total number of full-time faculty in basic science departments was 18,298 (Table 2). While the total number of basic science faculty had increased 3.8% from 1999-2000, there was variation across departments. The largest increases were in the departments of genetics (35%) and neurosciences (59%). In contrast, the number of faculty decreased by 9% in anatomy and 4% in biochemistry. Percentage changes in most other departments ranged from –3% to 3% (for example, microbiology/immunology decreased 2%, pathology increased 3%, pharmacology decreased 2%, and physiology/biophysics increased 3%).

The total number of full-time faculty members in clinical departments in 2001-2002 was 86,651 (Table 2), a 2.1% increase from 1999-2000. Compared with 1999-2000, changes in departments ranged from a 15% increase in radiation oncology to an 11% decrease in physical medicine. In 2001-2002, there were 1,261 part-time and 6,086 volunteer faculty members in basic science and 13,953 part-time and 13,602 volunteer faculty members in clinical departments. In total, 262,981 individuals held faculty appointments in US medical schools, a 3% decrease from 1999-2000.

The 1999-2000 LCME Annual Medical School Questionnaire. Data on medical school applicants and entrants were obtained from the Association of American Medical Colleges Section on Student Services.

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Ninety-three medical schools supplied data on the sex and racial/ethnic composition of their full-time faculty members. In these schools, there were a total of 75,410 faculty members: women comprised 29% of the faculty in basic science departments and 30% in clinical departments. The basic science and clinical faculty members’ racial/ethnic backgrounds were: white, 77.4% and 76.4%; Asian/Pacific Islander, 14.8% and 12.0%; Hispanic, 2.9% and 3.4%; black, 1.9% and 3.8%; Native American, 0.2% and 0.2%; and other/unknown, 2.9% and 4.2%.

APPICLANTS AND STUDENTS

Applicants

Based on their specific missions and goals, medical schools may give admission preference to applicants with particular qualities. In 2001-2002, schools gave some weight in the admission process to the following applicants: those from socioeconomically disadvantaged backgrounds (47 schools), those from rural areas (34), those expressing an interest in primary care (27), and those expressing an interest in providing care to the underserved (18).

A total of 34,859 individuals applied to the entering class of 2001, a 6.0% decrease from 2000 and a 9.5% decrease from 1999 (Table 3). The number of accepted applicants has remained constant at about 17,000. For 2001-2002, the ratio of accepted applicants was 2:1. In 2001, a total of 16,717 women applied to medical school, a 3% decrease from 2000 and a 4% decrease from 1999. Women comprised 48% of total applicants in 2001 compared with 46.6% in 2000 and 45.2% in 1999 (Table 4). Although the total number of applicants to medical school declined from 1999 to 2001, there were different trends among racial/ethnic groups. Comparing the number of applicants in 2001 with 1999, blacks decreased by 2.4% (2887 vs 2959), Native Americans increased by 4.1% (253 vs 243), Hispanics (Puerto Rican, Mexican American, and other Hispanic) decreased by 7.8% (2180 vs 2364), Asian/Pacific Islanders decreased by 12.5% (6768 vs 7732), whites decreased by 9.8% (21412 vs 23750), and other/unknown decreased by 2.6% (1359 vs 1395).

The average number of medical school applications submitted per person in 2001 was 11.6 (Table 3). Private medical schools received an average of 4777

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**Table 3. Application Activity During 20-Year Period**

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</thead>
<tbody>
<tr>
<td>No. of applicants*</td>
<td>36,727</td>
<td>29,243</td>
<td>33,301</td>
<td>37,410</td>
<td>42,808</td>
<td>45,365</td>
<td>46,591</td>
<td>46,968</td>
<td>43,020</td>
<td>41,004</td>
<td>36,529</td>
<td>37,092</td>
<td>34,859</td>
</tr>
<tr>
<td>Total No. of applications*</td>
<td>339,975</td>
<td>290,489</td>
<td>354,017</td>
<td>405,720</td>
<td>482,788</td>
<td>561,593</td>
<td>596,975</td>
<td>566,122</td>
<td>512,878</td>
<td>481,336</td>
<td>454,380</td>
<td>433,978</td>
<td>403,809</td>
</tr>
<tr>
<td>Average No. of applications per person*</td>
<td>9.3</td>
<td>9.9</td>
<td>10.6</td>
<td>10.8</td>
<td>11.0</td>
<td>12.4</td>
<td>12.8</td>
<td>12.0</td>
<td>11.9</td>
<td>11.7</td>
<td>11.8</td>
<td>11.7</td>
<td>11.6</td>
</tr>
<tr>
<td>No. of accepted applicants*</td>
<td>17,286</td>
<td>17,206</td>
<td>17,436</td>
<td>17,464</td>
<td>17,362</td>
<td>17,317</td>
<td>17,357</td>
<td>17,385</td>
<td>17,313</td>
<td>17,379</td>
<td>17,445</td>
<td>17,536</td>
<td>17,456</td>
</tr>
<tr>
<td>Applicant acceptance ratio*</td>
<td>2.1</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>2.5</td>
<td>2.6</td>
<td>2.7</td>
<td>2.7</td>
<td>2.5</td>
<td>2.4</td>
<td>2.2</td>
<td>2.1</td>
<td>2.0</td>
</tr>
<tr>
<td>First-year enrollment</td>
<td>17,320</td>
<td>16,803</td>
<td>17,027</td>
<td>17,001</td>
<td>17,090</td>
<td>17,048</td>
<td>17,024</td>
<td>16,904</td>
<td>16,844</td>
<td>16,790</td>
<td>16,856</td>
<td>16,813</td>
<td>16,933</td>
</tr>
</tbody>
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*Data are from the Association of American Medical Colleges Data Warehouse: Applicant Mattriculant File.

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**Table 4. Women in US Medical Schools During 20-Year Period**

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</tr>
</thead>
<tbody>
<tr>
<td>Women applicants*</td>
<td>11,673 (31.8)</td>
<td>11,785 (40.3)</td>
<td>13,700 (41.4)</td>
<td>15,819 (41.8)</td>
<td>17,957 (42.0)</td>
<td>16,968 (41.5)</td>
<td>19,779 (42.5)</td>
</tr>
<tr>
<td>Women in entering class</td>
<td>5343 (30.8)</td>
<td>6499 (38.7)</td>
<td>6777 (39.8)</td>
<td>7100 (41.8)</td>
<td>7213 (42.2)</td>
<td>7191 (42.2)</td>
<td>7351 (43.2)</td>
</tr>
<tr>
<td>Total women enrolled</td>
<td>18,555 (27.9)</td>
<td>24,164 (37.2)</td>
<td>24,911 (38.0)</td>
<td>25,933 (39.3)</td>
<td>26,737 (40.2)</td>
<td>27,497 (41.0)</td>
<td>27,976 (41.8)</td>
</tr>
<tr>
<td>Graduates</td>
<td>3991 (25.0)</td>
<td>5563 (36.1)</td>
<td>5483 (35.7)</td>
<td>5924 (38.1)</td>
<td>5951 (38.2)</td>
<td>6216 (39.1)</td>
<td>6498 (40.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Women applicants*</td>
<td>20,031 (42.6)</td>
<td>18,272 (42.5)</td>
<td>17,797 (43.4)</td>
<td>17,433 (45.2)</td>
<td>17,274 (46.6)</td>
<td>16,717 (48.0)</td>
</tr>
<tr>
<td>Women in entering class</td>
<td>7268 (43.0)</td>
<td>7325 (43.5)</td>
<td>7450 (44.4)</td>
<td>7725 (45.8)</td>
<td>7739 (46.0)</td>
<td>8088 (47.8)</td>
</tr>
<tr>
<td>Total women enrolled</td>
<td>28,217 (42.3)</td>
<td>28,447 (42.6)</td>
<td>28,705 (43.2)</td>
<td>29,164 (43.9)</td>
<td>29,576 (44.6)</td>
<td>30,260 (45.7)</td>
</tr>
<tr>
<td>Graduates</td>
<td>6609 (41.6)</td>
<td>6622 (41.5)</td>
<td>6791 (42.5)</td>
<td>6682 (42.6)</td>
<td>6877 (43.6)</td>
<td>6970 (44.1)</td>
</tr>
</tbody>
</table>

*Data are from the Association of American Medical Colleges Data Warehouse: Applicant Mattriculant File.

†Estimated in April 2002.
applications (range, 398-8770) and public schools received an average of 2024 applications (range, 263-5308).

Enrolled Students
In 2001-2002, there were 16933 students enrolled in the first year of medical school (Table 3), which includes students who repeated the year. The mean undergraduate grade point average of students who matriculated in 2001 was 3.60 (compared with 3.59 in 1999) and the science grade point average was 3.54 (compared with 3.53 in 1999). The mean Medical College Admission Test scores for 2001 entrants were 9.5 for Verbal Reasoning, 10.0 for Physical Sciences, and 10.1 for Biological Sciences. The scores are almost identical to the 1999 results. Of entering students in 2001, 88% had a bachelor's degree, 8% had a master's degree, 1% had a doctoral degree, 0.7% had an other/unknown degree, and 1% had no baccalaureate degree. These latter students were enrolled in joint baccalaureate/MD programs.

Medical schools continue to vary in size. First-year enrollment in 2001-2002 was less than 60 students in 6 schools, between 60 and 100 students in 22 schools, between 100 and 149 students in 46 schools, between 150 and 200 students in 38 schools, and more than 200 students in 13 schools.

Of the first-year students, 8088 (47.8%) were women (Table 4). Women comprised less than 45% of the first-year class in 34 schools, 45% to 55% in 71 schools, and more than 55% in 20 schools. The number of students from minority groups in the 2001-2002 first-year class was similar to 1999-2000 (Table 5).

In 2001-2002, there were a total of 66219 students enrolled in medical school (Table 1). Of these, 45.7% were women (Table 4) and 12.6% were members of underrepresented minority groups (black, Native American, Mexican American, and Puerto Rican; Table 5). Total enrollment in 1999-2000 was comparable at 66500, which included 43.9% women and 13.3% members of underrepresented minority groups.

Student Progress and Attrition
Final data for the 2000-2001 academic year showed that 13783 students graduated. Of these, 13476 (85.4%) completed the medical education program in 4 years or less and 2309 (14.6%) took 5 or more years to graduate. Reasons for a lengthened program included additional study for enrichment, research, or an additional degree (51%); academic difficulty, including repeating or decelerating (28%); personal, including financial or health reasons (15%); and other reasons (6%). Total attrition for all classes during the 2000-2001 academic year was 1.1%. This is comparable with attrition during 1999-2000.

Geographic Origins
For private medical schools (excluding the 3 medical schools in the District of Columbia), 20% of applications came from in-state residents. Excluding the federal Uniformed Services University of the Health Sciences, an average of 47% of applications to public medical schools were from in-state residents.

Of all entering first-year students in 2001, 67% were in-state residents. This is similar to 1999, when 69% of entrants were in-state residents. In 2001, an average of 87% of entrants in public medical schools and an average of 42% of new students in private medical schools were in-state residents.

Of students projected to graduate in 2002, an average of 41% from public and 36% from private medical schools planned to remain in the same state as their medical school for residency training. This calculation excludes graduates of the 3 private medical schools in the District of Columbia and the federal Uniformed Services University of the Health Sciences.

Tuition and Medical Student Debt
Median tuition and fees for private medical schools during the 2001-2002 academic year were $30897 for in-state residents and $31296 for nonresidents. Median tuition and fees for public medical schools were $12399 for

Table 5. Race and Ethnic Background of Medical Students, 2001-2002

<table>
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<tr>
<th></th>
<th>Black (Non-Hispanic)</th>
<th>Native American</th>
<th>Mexican American</th>
<th>Puerto Rican</th>
<th>Other</th>
<th>Mainland</th>
<th>Other Hispanic</th>
<th>Asian/Pacific Islander</th>
<th>All Other Students†</th>
<th>No. (%) of Total</th>
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</thead>
<tbody>
<tr>
<td>First-year enrollment‡</td>
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<td></td>
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<tr>
<td>Men</td>
<td>482</td>
<td>66</td>
<td>245</td>
<td>109</td>
<td>47</td>
<td>192</td>
<td>1746</td>
<td>5968</td>
<td>8845 (52.2)</td>
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<tr>
<td>Women</td>
<td>956</td>
<td>60</td>
<td>137</td>
<td>119</td>
<td>50</td>
<td>150</td>
<td>1544</td>
<td>5112</td>
<td>8088 (47.8)</td>
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<tr>
<td>No. (%) of Total</td>
<td>1338 (7.9)</td>
<td>126 (0.7)</td>
<td>442 (2.6)</td>
<td>229 (1.3)</td>
<td>97 (0.6)</td>
<td>342 (2.0)</td>
<td>3290 (19.4)</td>
<td>11070 (65.4)</td>
<td>16933 (100)</td>
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<td>Graduates</td>
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<tr>
<td>Men</td>
<td>413</td>
<td>71</td>
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<td>164</td>
<td>1751</td>
<td>6077</td>
<td>8840 (65.6)</td>
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<td>Women</td>
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<td>1363</td>
<td>4982</td>
<td>6970 (44.4)</td>
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<tr>
<td>No. (%) of Total</td>
<td>1143 (7.2)</td>
<td>129 (0.8)</td>
<td>386 (2.4)</td>
<td>185 (1.2)</td>
<td>91 (0.6)</td>
<td>303 (1.9)</td>
<td>3114 (19.7)</td>
<td>10459 (66.2)</td>
<td>15810 (100)</td>
<td></td>
</tr>
<tr>
<td>Total enrollment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1792</td>
<td>269</td>
<td>938</td>
<td>401</td>
<td>215</td>
<td>737</td>
<td>7127</td>
<td>24479</td>
<td>35959 (54.3)</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>3119</td>
<td>251</td>
<td>770</td>
<td>393</td>
<td>209</td>
<td>590</td>
<td>59455</td>
<td>18983</td>
<td>30250 (45.7)</td>
<td></td>
</tr>
<tr>
<td>No. (%) of Total</td>
<td>4912 (7.4)</td>
<td>520 (0.8)</td>
<td>1708 (2.6)</td>
<td>794 (1.2)</td>
<td>424 (0.6)</td>
<td>1327 (2.0)</td>
<td>13072 (19.7)</td>
<td>43462 (65.6)</td>
<td>66219 (100)</td>
<td></td>
</tr>
</tbody>
</table>

*Includes Native American, Native Alaskan, and Native Hawaiian.
†Includes white (not of Hispanic origin), international, and students of unknown race and ethnic backgrounds.
‡First-year enrollment data include students repeating the year.

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in-state residents and $27,297 for nonresidents.¹⁰ Compared with 1999-
2000, this represents a 9.5% increase for private schools for in-state resi-
dents, an 8.5% increase for private schools for nonresidents, a 13.3% in-
crease for public schools for in-state residents, and a 12.6% increase for pub-
lic schools for nonresidents.¹⁰ Currently, there are 7 medical schools in which
tuition for the 4 years is set at the time the medical student matriculates
into the first year.

According to data from the Association of American Medical Colleges,¹⁰ the
average educational debt of 2001 graduates was $99,089 compared with
$90,745 in 1999 and $94,901 in 2000. Seventeen percent of all graduates in 2001 had no educational debt. In-
debted graduates of public medical schools had an average debt of $86,630
while private medical school graduates had an average debt of $118,546.

Data from 118 medical schools found an average of 44% of students receiv-
ing scholarship support from medical school or university sources, but the
range across schools was large (3%-100%). Compared with 5 years ago, the
percentage of students receiving med-
ical school or university scholarships had increased in 80 schools, remained
the same in 30 schools, and decreased in 15 schools. Deans at 87 schools (70%)
indicated that there was a medical school or university fund-raising campaign to
increase the amount of scholarship sup-
port available to medical students.

One hundred twelve medical schools
(90%) provide students with formal counseling on debt management. Coun-
seling is accomplished through indivi-
dual (100 schools) and/or group (99 schools) sessions, with financial aid per-
sonnel, the distribution of written in-
formation (93 schools), and computer/
Web-based modules (55 schools).

CURRICULUM
Curriculum Structure and Content
In 2001-2002, there were an average of
38 scheduled weeks in the first year, 36
weeks in the second year, 47 weeks in the
third year, and 35 weeks in the
fourth year. Of the 100 schools that re-
ported curricular hours, there were an
average of 830 scheduled hours in the
first year and 761 in the second year
compared with 826 in year 1 and 775

The average and modal lengths of
required clerkships in the third and
fourth year during 2001-2002 were:
ambulatory care, 4.9 (mode, 4) weeks;
family medicine, 5.6 (mode, 6) weeks;
internal medicine, 11.6 (mode, 12)
weeks; neurology, 3.7 (mode, 4)
weeks; obstetrics and gynecology, 6.7
(mode, 6) weeks; pediatrics, 7.3
(mode, 8) weeks; psychiatry, 6.0
(mode, 6) weeks; surgery, 8.3 (mode,
8) weeks; and surgical subspecialties,
4.4 (mode, 4) weeks. Of all schools, 113 had no required clerkship in family
medicine, 94 had a required neurology
clerkship, 64 had a required clerkship that included 1 or more surgical spe-
cialties, and 46 had a required ambula-
tory clerkship. The average amount of
total clerkship time spent in the ambu-
latory setting was 94% in family prac-
tice, 23% in internal medicine, 27% in
neurology, 32% in obstetrics and
gynecology, 41% in pediatrics, 27% in
psychiatry, 20% in surgery, and 32% in
the surgical subspecialties. Thirty-
eight schools had required clerkships in
both family medicine and ambula-
tory care, 75 had a required family
medicine clerkship only, 10 had a
required ambulatory care clerkship
only, and 1 had neither.

Medical schools offer students the
opportunity to obtain another degree
in addition to an MD. During 2001-
2002, 110 schools offered a combined
MD and PhD option; 52 offered an MD/
MPH; 36 offered an MD/MBBA, 29
offered a master’s degree combined with
an MD, and 10 offered an MD/JD. There
were also 28 schools with combined
baccalaureate and MD programs.

Information about the curricular
placement in medical school pro-
grams of special topics such as alter-
native/complementary medicine, fam-
ily violence/abuse, palliative care, and
prevention/health maintenance can be
obtained from the authors.

Teaching in the Clinical Setting
One hundred twenty-three medical
schools reported using a total of 873 hos-
pitals (down from 936 hospitals in 1999-
2000) for inpatient teaching in re-
quired clinical clerkships. Fifty-one
schools used 80 hospitals owned by the
university or medical school; 108 schools
used 443 private, not-for-profit hospi-
tals; 40 schools used 93 private, for-
profit hospitals; 91 schools used 138 fed-
eral hospitals; and 70 schools used 119
state, county, or city public hospitals.

In terms of external factors that affect
clinical teaching, 44 schools (com-
pared with 32 schools in 1999-2000)
reported that regulations set by payers (eg,
Medicare, insurance companies) lim-
ited the ability of medical students to
perform physical examinations or pro-
cedures on patients under supervision.

Medical Student Work Hours
During 2001-2002, the following num-
bers of schools had mandatory night call
in their required clerkships: family prac-
tice, 25 schools; internal medicine, 101
schools; obstetrics and gynecology, 116
schools; pediatrics, 103 schools; psy-
chiatry, 68 schools; and surgery, 111
schools. Excluding family practice
clerkships, 58 schools had required
night call in all 5 required clerkships and
4 schools had no required night call in
any of the 5 required clerkships. The
most common frequency of night call
across required clerkships was every
third night in 10 schools, every fourth
night in 81 schools, and some other fre-
cuency in 33 schools (for example, ev-
ery sixth night or once per week). Sev-
eventeen schools reported having formal
policies on medical student work hours.

Evaluation of Student Performance
During 2001-2002, 116 schools re-
quired students to take Step 1 and 103
schools required students to take Step
2 of the United States Medical Licens-
ing Examination. A passing score on Step
1 was required for advancement or
graduation in 106 schools and a pass-
ning score on Step 2 was required in 74
schools. Seventy-four schools (60%) re-
quired a passing score on both exami-

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nations compared with 70 schools (56%) in 1999-2000. In 2001-2002, a study or review period was provided by 110 schools before students took Step 1 and by 34 schools before Step 2. Special remediation for students who fail Step 1 was available in 66 schools and in 40 schools for students who fail Step 2.

Students' clinical skills typically are directly observed during clinical clerkships by faculty members and resident physicians. In addition, the evaluation of clinical skills may include a standardized assessment using an objective structured clinical examination or standardized patient examination. During 2001-2002, 33 medical schools (27%) had such examinations in 1 or more clinical clerkships, 12 (10%) only as part of a final comprehensive examination that was not part of a clerkship, 55 (44%) in 1 or more clerkships and as a final comprehensive examination, and 24 (19%) did not in either clerkships or as a final comprehensive examination.

Medical schools reported a variety of measures to evaluate students' professional behavior: observation by clinical faculty members (125 schools); observation by resident physicians (119 schools); observation by basic science faculty member (102 schools); an objective structured clinical examination with 1 or more professionalism stations (87 schools); comments from other health personnel, for example, nursing staff (81 schools); and comments from patients (60 schools). Many medical schools expect medical students to evaluate the professional behavior of their teachers and supervisors, to ensure that role modeling is appropriate. As part of regular course or clerkship evaluations, medical students evaluated the professional behavior of clinical faculty members in 116 schools, of volunteer clinical faculty in 103 schools, of basic science faculty in 100 schools, and of resident physicians in 92 schools.

COMMENT

The overall number of medical school faculty members has continued to increase, while the number of medical students has remained stable. Despite the overall increase in the faculty, there is no certainty that the pool of faculty members available to participate as teachers has proportionately increased. For example, it was recently noted that education is not a primary or even a major responsibility for most clinical faculty.11

Staffing levels varied across departments during the past 2 years. The causes of variation are unknown, and it is unclear whether these patterns will persist. Some of the changes are a source of concern. For example, continuing loss of faculty members in anatomy could pose a threat to the educational program, since anatomy teaching occupies a large portion of the first-year curriculum. It will be important to determine if full-time or part-time faculty members from other basic science or clinical disciplines, or individuals specifically hired for the purpose from outside the medical school (eg, retired physicians) are filling any gaps created by the decrease in anatomy faculty.

The number of women faculty members has increased since the 1970s. However, the proportion of women on medical school faculties (currently about 30%) has not increased as rapidly as in the student body (now about 46% of total enrollment). Overall, the proportion of faculty members who are members of minority groups has increased, but the percentage of faculty members who are black or Hispanic has not changed significantly since the mid-1970s.

The number of applicants to medical school has been decreasing for 5 years. Overall, there are about 2 applicants for every position and student qualifications remain stable. While most medical schools receive many times the number of applications as they have positions, the characteristics of the applicant pool and of new entrants should be monitored. This is especially the case for public medical schools, in which the majority of entrants typically are from the state in which the school is located, indicating that the pool of potential applicants may be limited.

Medical students are given opportunities to supplement their medical education with study for an additional degree. Many students appear to be taking advantage of this opportunity, including extending the length of their medical training to complete these studies. Data are needed on the career paths of dual-degree students, as one element in attempting to predict the physician workforce in the future.

Medical student debt continues to increase. Many medical schools are engaged in fund-raising efforts to increase scholarship support. While some medical schools have been successful, the effects of most of these fund-raising efforts have not yet been reflected in decreased overall student debt levels. Medical schools also provide information on debt management to medical students, but it is unclear to what degree this has been useful in limiting their debt.

REFERENCES