Perceptions of Medical School Deans and State Medical Society Executives About Physician Supply

Richard A. Cooper, MD
Sandra J. Stoflet, BS
Steven A. Wartman, MD, PhD

Analyses of trends in health care indicate that, at current rates of production, there will be too few physicians to meet future needs.1,2 This conclusion is supported by warnings of physician shortages by some medical specialty organizations3-6 and state medical societies7-9 as well as by signals from the marketplace, which indicate that young physicians are in greater demand10-12 and that patients are having greater difficulty in accessing physicians.13,14 Two years ago we published an analysis1 that projected substantial physician shortages over the next 2 decades. Shortly thereafter, the Association of American Medical Colleges changed its longstanding position from one that called for a reduction in residency output to avert inevitable surpluses15 to one that acknowledged neither surpluses nor shortages.16 In September 2003 the Council on Graduate Medical Education (COGME) fully reversed its earlier position, calling instead for an expansion of medical training at the undergraduate and graduate levels.17 Nonetheless, strong sentiments favoring restrictions on physician supply persist.18-20 Amid these crosscurrents, we solicited the perceptions of medical school deans and state medical society executives about the status of physician supply in their regions.

Methods

The first survey, conducted by telephone and Internet, assessed the perceptions of deans of allopathic medical schools about the status of physician supply in their regions, the effects of any supply imbalances on the ability of their medical schools to accomplish their missions, and the potential for their schools to change class size. Shorty thereafter, the Association of American Medical Colleges changed its longstanding position from one that called for a reduction in residency output to avert inevitable surpluses15 to one that acknowledged neither surpluses nor shortages.16 In September 2003 the Council on Graduate Medical Education (COGME) fully reversed its earlier position, calling instead for an expansion of medical training at the undergraduate and graduate levels.17 Nonetheless, strong sentiments favoring restrictions on physician supply persist.18-20 Amid these crosscurrents, we solicited the perceptions of medical school deans and state medical society executives about the status of physician supply in their regions. We also inquired of deans whether, if more physicians were needed, their medical schools could expand.

Context

Physician shortages are appearing, yet controversy about their significance and uncertainty about their remedy exist.

Objectives

To sample the perceptions of medical school deans and state medical society executives about the adequacy of physician supply, to determine the perceived impact of any shortages on medical schools, and to assess the capacity of medical schools to expand.

Design, Setting, and Participants

Medical school deans in the United States and Puerto Rico were surveyed by means of a structured questionnaire, and officials of US state medical societies were queried by means of open-ended telephone interviews. Information was obtained from 58% of medical school deans and 86% of state medical society executives.

Main Outcome Measure

Reported perceptions of shortages or surpluses of physicians by specialty and plans to increase medical school class size.

Results

Approximately 85% of both deans and medical society respondents perceived shortages of physicians, usually in multiple specialties, while 10% perceived surpluses, usually coexisting with shortages. Among deans reporting shortages, 83% described a negative impact on their schools. Recent or planned increases in class size were reported by 27% of deans and expansion capacity by another 34%, but 7% noted recent decreases in class size. Applied generally, these changes in class size could yield 7.6% additional matriculants annually.

Conclusions

Physician shortages are prevalent and they are negatively affecting medical schools. Little capacity exists to alleviate these shortages through class size expansion.
The second survey, directed to state medical societies, consisted of a telephone interview of a member of the society’s executive staff. A single, open-ended question was asked: “Are there any problems with physician supply in your state?” Responses were supplemented by information from published reports. In this manner, information was obtained from 44 (86%) medical societies (43 states plus the District of Columbia). Those states from which no responses were available were Alaska, Florida, Hawaii, Louisiana, Montana, North Dakota, and South Carolina.

RESULTS
Medical School Deans: Perceptions of Shortages and Surpluses
Of the 70 responding deans from mainland schools, 62 (89%) cited shortages of physicians in at least 1 specialty (TABLE). Six deans (9%) also reported surpluses, and 8 others (11%) were either uncertain or believed that there were no shortages or surpluses. Respondents who cited shortages usually identified 3 to 4 specialties. The severity of shortages was characterized as minimal or anecdotal in 12% of cases but critical in 35%. In 7 instances, deans from 3 or more medical schools in a single state responded, and good agreement existed both in terms of the particular shortages of specialties cited and the severity of the shortages. Deans from the 3 Puerto Rico schools reported fewer shortages and more surpluses.

Specialists. The most frequently cited shortages were in anesthesiology (50%) and radiology (44%) (Table). Shortages of medical subspecialists were noted by 39% of responding deans, usually in multiple subspecialties, with shortages in cardiology, gastroenterology, and geriatrics cited most frequently. Other nonsurgical specialties that often were cited included dermatology, psychiatry, emergency medicine, and the pediatric subspecialties. Among the surgical disciplines, shortages were noted in both general surgery (17%) and the surgical subspecialties (21%). The severity of various shortages generally corre-

<table>
<thead>
<tr>
<th>Specialties</th>
<th>Medical Schools</th>
<th>Medical Societies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 70)</td>
<td>(n = 44)</td>
</tr>
<tr>
<td></td>
<td>Shortages</td>
<td>Surpluses</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>35 (50)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Radiology</td>
<td>31 (44)</td>
<td>0</td>
</tr>
<tr>
<td>Pathology</td>
<td>0</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Family/general practice,</td>
<td>21 (30)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>General internal medicine,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>5 (7)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Pediatric subspecialties</td>
<td>8 (11)</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Obstetrics/gynecology</td>
<td>4 (6)</td>
<td>11 (25)</td>
</tr>
<tr>
<td>Medical subspecialties</td>
<td>27 (39)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Cardiology</td>
<td>7 (10)</td>
<td>6 (14)</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>9 (13)</td>
<td>0</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>8 (11)</td>
<td>0</td>
</tr>
<tr>
<td>Pulmonary/critical care</td>
<td>3 (4)</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Dermatology</td>
<td>14 (20)</td>
<td>7 (16)</td>
</tr>
<tr>
<td>Neurology</td>
<td>5 (7)</td>
<td>4 (9)</td>
</tr>
<tr>
<td>Surgery (general/trauma)</td>
<td>12 (17)</td>
<td>6 (14)</td>
</tr>
<tr>
<td>Surgery subspecialties</td>
<td>15 (21)</td>
<td>13 (30)</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>8 (11)</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Orthopedic surgery</td>
<td>3 (4)</td>
<td>8 (18)</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>3 (4)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Urology</td>
<td>4 (4)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>9 (13)</td>
<td>8 (18)</td>
</tr>
<tr>
<td>Child psychiatry</td>
<td>3 (4)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Emergency medicine</td>
<td>7 (10)</td>
<td>7 (16)</td>
</tr>
</tbody>
</table>

©2003 American Medical Association. All rights reserved.
among specialists more frequently than among primary care physicians, but only slightly (61% vs 54%). However, shortages of specialists were generally more severe. Physician shortages in medical subspecialties were cited most often (43%); surgical subspecialists were cited by 30% and shortages in general and/or trauma surgery by 14%. Six other specialties that frequently were cited were anesthesiology, psychiatry, emergency medicine, dermatology, radiology, and neurology, with the shortages in anesthesiology and radiology being characterized as most severe. However, 4 medical society respondents (9%) reported surpluses of specialists.

Primary Care Physicians. Half of the state medical society respondents cited existing or developing shortages in family practice and/or general internal medicine, although, as reported by the deans, these shortages tended to be marginal or anecdotal, and 4 respondents (9%) reported surpluses of primary care physicians. Shortages in obstetrics/gynecology were noted by 25% of the respondents, but only 4% cited shortages in pediatrics. Like the deans, many medical society respondents expressed concern about the distribution of primary care physicians.

Capacity for Expanding Medical School Class Size

Current Expansion Plans. Responding deans from 59 mainland medical schools commented on the potential for expanding class size. Expansions are already under way in 10 of these schools (17%), with an average of 8 additional matriculants (equal to 8% of class size). Five of these schools are planning additional expansions of 15% to 20%, and 6 others are planning similar growth. In contrast, 4 schools have reduced class size or are planning to do so by an average of 22%. The net of these changes is equal to 2.1% growth in the number of matriculants among the 59 respondent schools.

Future Expansion Potential. Of the 43 deans of medical schools that have no current or near-term plans for expansion (or that are planning decreases), 23 indicated that their schools could not expand. The other 20 reported the ability to expand by an average of 22 students (19%), which, averaged over the 59 respondents, is equivalent to 5.5% of the current class size. Together with the actual and planned expansions and reductions that previously were cited, aggregate class size among the 59 respondent schools could potentially increase by 7.6% over the next few years. Assuming that this sample of schools is representative of the entire group of US allopathic schools, the potential exists to increase the total number of allopathic matriculants by 1200.

Limitations on Expansion. The median class size of the 16 schools that are expanding or have immediate plans to expand is 104 students, while the median class size of those that have no plans to expand is 150 students. Similarly, 8 of the 20 schools that have expansion potential have fewer than 100 students, while only 3 of the 20 that lacked such potential were of this smaller size. Thus smaller schools have more expansion capacity than larger ones.

In 70% of institutions, deans reported that a major factor preventing expansion or limiting its magnitude was the lack of sufficient facilities, most commonly for preclinical teaching. In addition, one third of deans cited limitations in clinical teaching facilities, preceptor sites, or in the volume of patients available for teaching; one fourth of deans reported limitations in the availability of faculty. Several cited a lack of sufficient positions for residents, who serve a teaching role. Limited financial resources also were cited, sometimes related to state funding and sometimes to clinical revenues. Only 8% of respondents cited no significant obstacles to expanding class size.

COMMENT

We found a widespread perception among medical school deans and medical society executives that shortages of physicians exist, particularly in the nonprimary care specialties. More than 80% of each group reported shortages, usually in multiple specialties. Only 6 of 70 responding US deans and only 4 of 44 medical society executives reported either a lack of shortages or the presence of physician surpluses in the absence of concomitant shortages. It should be noted, however, that respondents encompassed only 58% of medical schools and 86% of medical societies, and, despite similarities between respondents and nonrespondents, it is not clear whether these responses were fully representative.

A particularly disturbing result was the observation that more than 80% of the deans who commented on the impact of shortages on their schools noted negative effects on faculty recruitment and retention, clinical education, clinical revenues, and related matters. For some, a lack of faculty jeopardized clerkship opportunities and even threatened the integrity of fellowship training programs.

Another revelation was the limited potential for medical schools to expand. In a previous evaluation of this potential, we noted that most of today's medical schools had expanded during the 1960s and 1970s, making further expansion unlikely, and, while the new schools built during this earlier period are smaller and could potentially expand more, there are fewer of them. The deans' responses support this formulation. Approximately one third of the deans of medical schools (principally those with smaller class sizes) reported that their schools are in the midst of expanding or have plans to do so, although the magnitude of these expansions is only 16%. Another one third of schools have no immediate plans to expand, although they could do so by 15% to 20%. These schools also were skewed to those of smaller size. Conversely, a few larger schools are in the process of reducing class size. Taken together, the actual and potential expansion of capacity of all respondent schools, including both those that are able to expand and those that are not, was only 7.6%. This contrasts sharply with the substantial contribution that the expansion of exist-
ing schools made to increasing medical school output in the 1960s and 1970s.

The perceptions of deans and medical society executives concerning physician shortages, coupled with a growing consensus among forecasters about the future demand for physicians,1,22-24 cannot be ignored. Yet the difficulties inherent in expanding undergraduate medical education suggest that the process will be more challenging than in the past,21,25,26 and the task of enlarging graduate medical education poses still more challenges. These hurdles underscore the imperative to address physician shortages and begin to expand medical education now.

**Author Contributions:** Study concept and design: Cooper, Wartman. Acquisition of data: Cooper, Stoflet, Wartman.

**Analysis and interpretation of data:** Cooper, Stoflet, Wartman.

**Drafting of the manuscript:** Cooper, Wartman.

**Critical revision of the manuscript for important intellectual content:** Stoflet, Wartman.

**Obtained funding:** Cooper.

**Administrative, technical, or material support:** Stoflet, Wartman.

**Study supervision:** Cooper, Wartman.

**Funding/Support:** This work was supported by the Robert Wood Johnson Foundation.

**Acknowledgment:** We are grateful to Robert G. Badgett, MD, for assistance with the Internet survey of deans.

**REFERENCES**


21. Cooper RA. Medical schools and their applicants—an analysis: if more physicians are required, can medical schools fill the gap? *Health Affairs*. 2003;22(4):71-84.


