future efforts to ensure access to physicians — and health care — for all rural Americans.

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Expansion Of Training In Family Medicine — How Much Is Enough?

Massachusetts has been, and in all likelihood will continue to be, a bastion of excellent specialty medicine. Lynn Eckert nicely articulates elsewhere in this issue, however, that family practice education appears to be coming of age in Massachusetts.[1] It is difficult to believe that in 1992 Massachusetts, with 312 accredited residency programs, had only two residency programs in family practice and only one department of family medicine among its four medical schools. Now three medical schools (Boston University, Tufts University, and the University of Massachusetts) will have departments of family medicine. Further, the increase to five residency programs will almost double family practice residency graduates to approximately 30 graduates annually.

In this environment of specialty medicine, it is noteworthy that from the beginning the University of Massachusetts has had a medical school committed to primary care and long has produced family physicians at a rate exceeding the national average. Just as a medical school that is committed to specialty medicine tends to produce specialists, so too medical schools committed to primary care prepare generalists. The University of Massachusetts is primary-care-oriented and preferentially seeks these students. Family practice has played a prominent role in its curriculum for years. Now it has a contract option in which students' tuition is forgiven when they commit themselves to generalist practice in Massachusetts. Most students today are signing this contract.

Dr. Eckert appropriately recognizes the commitment of the Massachusetts Academy of Family Physicians to family practice education. Over the years the Academy has maintained liaisons with each of the medical schools and has provided both student mentorship and preceptorship programs. Likewise, she recognizes the current support of the Robert Wood Johnson Foundation through its Generalist Physician Initiative, which has been an effective catalyst in assisting Boston University and the University of Massachusetts in their efforts to increase the proportion of generalists graduating from their educational programs. On the national scene the Generalist Physician Initiative is assisting in creating an educational milieu for change in the 16 medical schools receiving these awards.

Student interest in family practice is increasing nationwide as well as in Massachusetts. The fundamental force driving this growing interest is the recognition that the nation faces an increasing surplus of specialists and continues to have the capacity to absorb more generalists. It is likely that student interest in family medicine, as well as the

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other generalist disciplines, will grow in the years ahead as the specialist surplus becomes more and more acute. Indeed, this increasing interest in generalist specialties could trigger a large expansion in residency programs in the generalist specialties.

In light of the above, Dr. Eckert asks appropriate questions about the future. How far should Massachusetts go to expand family practice education? She points out that the work force of family physicians in Massachusetts has declined by more than one-third during the past decade. She notes the long-term perceived national shortage of generalist physicians and the recommendations of the Council on Graduate Medical Education (COGME) that the total number of residency positions be reduced to 110 percent of US graduates and that one-half of these graduates enter practice as generalists.[2,3] She also refers to the recommendation of the American Academy of Family Physicians (AAFP) that one-half of all generalists be family physicians. Using these assumptions, she calculates that residency positions in family practice in Massachusetts might be increased fourfold to eightfold for a total of between 470 and 808 positions and asks whether that range is appropriate for Massachusetts.

Clearly Massachusetts has one of the lower ratios of family physicians to population in the nation, even though it has one of the highest overall physician-to-population ratios in the nation. Should Massachusetts increase its residency positions fourfold to eightfold? How much should our nation expand family practice residency positions? In concert with the widespread recognition of a specialty surplus, there seems to be a perception by many of an almost unlimited need for additional generalist physicians.

This perception undoubtedly is fallacious. Only a few years ago, most denied an impending surplus of anesthesiologists. Anesthesia graduates had multiple practice opportunities, and residency positions were being filled with outstanding US graduates. In the past few years, however, graduates have had increasing difficulty finding practice opportunities, and student interest in anesthesiology has fallen. The number of US graduates matching in anesthesia dropped almost 50 percent between 1992 and 1995.[4]

The demand for generalists also is not inexhaustible. The COGME recognized this issue in its *Third Report* in 1992.[2] Recognizing an increasing overall surplus of physicians, it recommended that first-year residency positions be reduced to 110 percent of US graduates and that 50 percent of this reduced number enter practice as generalists.

If these recommendations are to be achieved, the number of first-year residents would be reduced by nearly one-fourth, from almost 25,000 to approximately 19,000 annually. One-half of these positions, or 9500, should then be available to those entering the three generalist specialties. This arrangement would result in an increase of approximately 2400 in generalist positions, from 7100 to 9500, annually — a modest increase of one-third.[5] If the number of generalist trainees increases to 9500 per year, projections by the Bureau of Health Professions indicate that the nation will have 80 patient care generalists (excluding residents) per 100,000 population by the year 2015.[6]

In its forthcoming *Eighth Report*[6] on physician supply and requirements, the COGME estimates that requirements for practicing generalists early in the next century will range from 60 to 80 generalist physicians per 100,000 population, excluding residents.[6] These projections assume a health care delivery system progressively dominated by systems of managed care.[7] The COGME believes that underemployment is increasingly likely as the ratio rises above 80 generalists per 100,000 population. In 1992 the patient care generalist physician-to-population ratio was 66.5. An increase to 9500 generalist trainees per year will increase that ratio to 80 per 100,000, as noted above.

How should a modest increase of 2400 generalist positions be allocated among the three generalist specialties? The AAFP has long advocated that one-half of generalist graduates be family physicians. When one considers the needs of rural America (areas where general internists and general pediatricians are far less likely to practice),[8] the 50 percent recommendation has inherent credibility. This plan would entail an increase in the number of first-year family practice residents by approximately 2220 to 4750 — nearly all of the recommended increase. At the same time, general internal medicine and pediatrics would have to hold trainees at current levels to stay within the 9500 generalist level. Each of the three generalist disciplines anticipates expansion, how-

ever, and the likelihood of exceeding 9500 generalist positions is high.

For example, family practice residency programs have increased from 394 in 1992 to 436 in 1995. First-year residents in 1992 totaled 2530. Preliminary information provided by Norman Kahn of the AAFP indicates 3253 first-year residents in 1995 — an increase of 723, or almost 30 percent in 3 years! These numbers will increase further as current programs expand and additional residencies are developed.

In internal medicine, a shift from subspecialties to general internal medicine can be anticipated. In recent years approximately one-half of those entering internal medicine residencies have subspecialized. As the surplus of subspecialists becomes increasingly visible, however, many who previously would have subspecialized will become generalists. If the number of internal medicine residents entering subspecialty training decreases by one-half, 1000 additional general internists will enter practice annually — a 33 percent increase.[5] In addition to the above, each of the generalist disciplines can anticipate a major influx of trainees who previously would have sought other specialties. Thus, the number entering generalist careers could exceed 9500 more rapidly than we anticipate.

As a generalist surplus occurs, many in family medicine might anticipate that the market will prefer family physicians. Training programs in each of the three generalist specialties, however, will progressively attempt better preparation of graduates for managed care. I expect that each of the generalist specialties will be considered to be effective in the managed care marketplace.

Thus, from my perspective, Massachusetts might justify further expansion of its family practice residency training programs but probably not to the degree estimated by Dr. Eckert. The ratio of family physicians in Massachusetts is low, and the nation at present does have a modest shortage of generalists. Nevertheless, as a nation, we must take steps to contain the growing physician surplus by reducing the number of first-year residency positions. We also should not expand generalist positions by more than one-third above 1992 levels.

These steps will be difficult to accomplish. Hospitals are dependent upon residents in the various subspecialties to provide service and are unlikely to reduce positions voluntarily. Indeed, they increasingly are depending upon international medical graduates to meet service needs. Residents are cheap labor — especially when considering current Medicare graduate medical education reimbursement. COGME, in its *Seventh Report*,[9] recognizes that Congress plans to reduce funding for graduate medical education. It has therefore recommended that funding for international medical graduates be reduced to one-quarter of current levels as a means of reducing numbers of first-year trainees. Thus far, Congress, with its market orientation, has shown no indication that a physician surplus is a problem it wishes to address.

In the generalist specialties, first-year positions in family practice already have increased by almost one-third and will expand further. Will general internal medicine and pediatrics contain their expansion? Probably not! Will the generalist disciplines repeat the example of the specialties by overexpanding? Almost certainly — unless first-year residency positions are reduced.

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Correction

Errors in dosing values appeared in "Myxedema Coma in the Elderly," by Cynthia G. Olsen, which was published in the September-October issue of the *Journal* (JABFP 1995; 8:376-83). We offer the following corrections:

Page 377: left-hand column, second full paragraph, line 4:

"She received intravenous hydrocortisone, 75 mg every 6 hours. An initial bolus of 400 μg of synthetic thyroxine was followed by 200 μg on day 2 and 100 μg daily thereafter. She received treatment of her heart failure with diuretics, supplemental oxygen and potassium, and digoxin. On day 5 she was switched to oral medications of prednisone 10 mg, levothyroxine 125 μg, digoxin 2.5 mg, and indapamide 2.5 mg."

Page 381: left-hand column, second full paragraph, line 12:

". . . dose of 250 to 500 μg for a 30- to 60-second period."

Page 381: left-hand column, third full paragraph, line 6:

". . . dosing in a range of 100 to 170 μg daily."