Subspecialty Distributions of Ophthalmologists in the Workforce

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Objective: To describe the distribution of the supply and requirements for subspecialty ophthalmologists.

Methods: Estimates from the Eye Care Workforce Study were used to provide subspecialty-based assessments of the supply and public health need, as well as market demand, for care provided by subspecialists. Reconciliation with the boundary models (optometry first, ophthalmology first) of the Eye Care Workforce Study and current market status also were performed.

Results: Whether subspecialists are in excess depends first on which boundary model most closely approximates the current market conditions. Under an optometry-first model, 70% of all ophthalmologists are in excess, although subspecialists (39%) are relatively less in excess than comprehensive ophthalmologists (91% excess). Under an ophthalmology-first model, no ophthalmologists would be in excess. Extrapolating from current market conditions, a slight excess of ophthalmologists exists, probably proportional across subspecialists and comprehensive ophthalmologists. Future growth in the ophthalmologist supply will be almost entirely among subspecialists.

Conclusion: Under current market conditions, substantial excesses in subspecialist ophthalmologists are likely to develop and grow worse over time, given current training levels.

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public health need) are organized according to the 15 categories.

The supply of ophthalmologists was accessed using the membership database of the AAO. Not only are most ophthalmologists members of AAO, but comparison of the numbers of ophthalmologists obtained from the membership data file with the estimates of the American Medical Association’s Physician Masterfile (in the Area Resources File of the US Census Bureau) revealed similar numbers of ophthalmologists.1,2

Subspecialty identification was drawn from the self-identified primary area of practice concentration listed by the membership. When no primary area of concentration was listed, the physician was deemed to be a general or comprehensive ophthalmologist. When an ophthalmologist indicated “cataract” as the primary area of concentration, we noted this, although no cataract subspecialty is acknowledged by the AAO or the American Board of Medical Specialties. In the areas of neuro-ophthalmology and uveitis, however, the supply includes ophthalmologists who identified a primary or secondary area of concentration in that field.

Clearly, the organization of the variety of eye care conditions and services provided and the supply of ophthalmologists could be constructed in alternative ways. However, the input of those involved in the study, including that of the AAO and the Advisory Board, led us to use the current structure. (For additional details about the organization of the requirements category, see the full report of the Eye Care Workforce Study in which the 97 groups are listed.)

The 2 boundary models used for the analyses, optometry first and ophthalmology first, refer to the structure of the health care system used to provide eye care services. Under an optometry-first model, all care that optometrists are legally entitled to provide, exclusive of laser or incisional surgery, are provided by optometrists preferentially. Thus, optometrists in all states are granted full therapeutic privileges, consonant with the widest extant privileges. Ophthalmologists are used to provide only care that optometrists could not perform, mainly laser and incisional surgery. In this boundary model, optometrists are given preference over comprehensive ophthalmologists not only in preventive care, but also in primary medical eye care. Conversely, under an ophthalmology-first model, ophthalmologists provide all the care that they can provide before any care is allocated to optometrists. Since neither an optometry-first nor ophthalmology-first model is a close analogy to the current situation, and neither model is likely to occur in the near future, we also used a third model combining both types of providers that is based on an analysis by Abt Associates Inc, Cambridge, Mass, for the AAO about the allocation of services between optometrists and ophthalmologists in states with therapeutic privileges for optometrists. Extrapolating the care allocation nationally provides one estimate of likely distributions of care among different types of providers. In all of the models, eye care provided by primary care physicians and other physicians also is included and projected forward (but not included in the present article). Additional information on these models is provided in the original Eye Care Workforce Study publications.1,2
specialists were to provide all care across the 15 categories. Table 5 gives the results that would occur under the optometry-first model (in which optometrists are first allocated all care that they are allowed to provide by law). The net results of an optometry-first model based on current utilization levels show that 3490 subspecialist ophthalmologists are demanded, leaving 2244 (39.1%) subspecialists in excess. For comprehensive ophthalmologists, 7604 (91%) are in excess under the demand estimate in the optometry-first model. This would result in an excess of 9828 ophthalmologists to meet the market demand for eye care, with fewer than 4300 ophthalmologists in demand. Under an optometry-first model, virtually no comprehensive ophthalmologists would be demanded.

In contrast, Table 6 gives the results under an ophthalmology-first model in which ophthalmologists provide all primary and specialty care. In such a situation, no ophthalmologists would be in excess. Indeed, there would be additional work for more than 5000 more ophthalmologists, if all optometrists were to be replaced.

Table 7 provides an estimate of the demand and need for care if the current market share or allocations in therapeutic states existed nationwide.

The Abt Associates Inc study for the AAO of the market segments controlled by ophthalmology and optometry shows that ophthalmologists and optometrists provide the bulk of medical and surgical care, while optometrists provide more preventive and well-eye care.7 Projecting the results nationally, almost 12,000 ophthalmologist FTEs are demanded for all 4 areas of care. Under this scenario, the excess of ophthalmologists is split proportionally among subspecialists and comprehensive ophthalmologists.

Finally, Table 8 gives the projection of supply to public health need for the year 2000 and the year 2010 under an optometry-first model. Every subspecialty except strabismus would be in excess in 2010. When compared with the likely demand in 2010, every subspecialty would be in excess if current supply trends continued. However, under an ophthalmology-first model for public health need, there would be no excess.

Table 8 clearly shows that the growth in the supply of ophthalmologists will be almost entirely in the supply of subspecialists. The 8347 generalists FTEs of today will be essentially unchanged (8220 FTEs) in 2000 and 2010 (8371 FTEs). In contrast, the supply of subspecialists will grow from 5744 FTEs (including cataract as a subspecialty) to 6598 FTEs in 2000 and 7565 FTEs in 2010. The growth occurs despite a decrease of 422 FTEs among subspecialists who designate cataract as their subspecialty. Excluding cataracts as a subspecialty would mean that the supply of subspecialists would increase 64% (from 3478 FTEs to 5721 FTEs in 2010).

The results of this analysis further reinforce the central findings of the Eye Care Workforce Study. First, unless the practice efficiency and practice patterns of optometrists are substantially different from those of ophthalmologists (less efficient or less thorough provision of substantial amounts of care not included within the ophthalmic approach to patient care), an excess of eye care providers exists. When optometrists and ophthalmologists differentiate their practices and reduce the overlap of services provided, less of an excess may exist. Second, the allocation of the excess depends on the structure for provision of care that is used. In other words, ophthalmologists as a
mologists and optometrists were to example, if comprehensive ophthalmologists and optometrists must provide no more than the need requirements, but also comprehensive ophthalmologists or optometrists, then an excess would exist. Again, the excess would be even more marked if current utilization patterns rather than public health need were to form the basis for estimates. Indeed, with anecdotal evidence of decreased utilization in managed care systems, the likely excess will only grow with the growing use of managed care systems.

One important finding is that the supply of subspecialists for the recognized subspecialties, such as cornea, glaucoma, and retina, continues to grow in absolute terms and relative to the supply-to-need ratio. As such, if fellowship training programs are not curtailed, the supply of subspecialists will grow faster than the public health need for care within the care categories provided by the subspecialty-trained ophthalmologist. Whether this is desirable depends on one’s view of group may be in excess or not, depending on how close to either boundary model (optometry first or ophthalmology first) the current market lies and on what the future market will be like. Third, as indicated in this article, the relative balance between comprehensive and subspecialty ophthalmologists also depends on the existing structure for eye care provision.

In contrast, the subspecialty implications for fellowship training programs are clear-cut. Table 9 compares the subspecialist supply with the public health need in the 2000-2010 period without allocation to either boundary model. For all subspecialists to be fully employed, not only must our society provide health care to everyone who needs it (which is the underlying assumption of public health need requirements), but also comprehensive ophthalmologists and optometrists must provide no more than the specified proportions of care within each subspecialty category. Thus, for example, if comprehensive ophthalmologists and optometrists were to provide more than 50% of the retina-oriented care in the year 2000 or 43% in the year 2010, then retina subspecialists would be in excess. For glaucoma, if more than 7.5% of the care is provided by comprehensive ophthalmologists or optometrists, then an excess would exist. Again, the excess would be even more marked if current utilization patterns rather than public health need were to form the basis for estimates. Indeed, with anecdotal evidence of decreased utilization in managed care systems, the likely excess will only grow with the growing use of managed care systems.

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These findings thus indicate that the growing subspecialization of ophthalmology will continue in the absence of changes in fellowship training programs. There will be a 64% increase in the number of subspecialty ophthalmologists if current training patterns hold to 2010.

This degree of increase far outpaces the expected population growth during this time and the increase in the need or demand for eye care. Furthermore, the FTE supply of comprehensive ophthalmologists will not increase but will remain steady, thereby decreasing relative to population ratios.

Perhaps the most important finding of this analysis, however, is the dependency of the workforce balance and the nature of that balance within the subspecialties on the structure of the health care or eye care system that is in place. We thus provide this analysis for planning and for discussion of desirable characteristics of an eye care system.

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