

The State of Ophthalmology Medical Student Education in the United States and Canada, 2012 through 2013

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Objective: To characterize the state of ophthalmology medical student education in the United States and Canada.

Design: Survey of United States and Canadian medical schools.

Participants: One hundred thirty-five Association of University Professors of Ophthalmology (AUPO) member institutions were surveyed, along with 30 osteopathic medical schools in the United States and 40 non-AUPO-affiliated allopathic medical schools in the United States.

Methods: A survey characterizing preclinical, clinical, and extracurricular exposures to ophthalmology was used.

Main Outcome Measures: Response rate, presence of, and types of preclinical and clinical exposures.

Results: Response rates to the survey were lower from non-AUPO institutions. Preclinical exposures largely consisted of basic lectures and examination skills, and most responding institutions had some sort of required preclinical ophthalmology experience. Clinical exposures were more variable, with an overall rate of required clinical rotations diminishing.

Conclusions: There continues to be a gradual erosion of the role of ophthalmic medical education in the standard medical school curriculum. Clearly, there is room for improvement across all types of medical educational institutions. *Ophthalmology* 2014;■:1–5 © 2014 by the American Academy of Ophthalmology.

In the context of ever-expanding medical knowledge and the continual evolution of medical education, assessment of the role of ophthalmology in the medical school curriculum is more important than ever. The Association of University Professors of Ophthalmology (AUPO) has conducted several surveys of member institutions over the past 4 decades to characterize better the state of affairs in ophthalmic education provided to medical students.¹ Surveys conducted in 1974 and 1979 revealed a decline in mean curricular hours in ophthalmology from 25 to 20.² An unpublished survey conducted in 1994 by the American Academy of Ophthalmology found only 58% of responding United States medical schools had written curricula for ophthalmology. In response to a question regarding the number of curricular hours devoted to ophthalmology, nearly 25% either did not respond or noted that they offered 0 formal hours over the entire 4 years.¹ The last of these surveys, conducted in 2004, revealed a steady decline in the prevalence of required formal ophthalmology rotations in medical schools, down to 30% from 68% in 2000.³

The Liaison Committee on Medical Education primarily is responsible for creating guidelines for medical school curriculum and accrediting medical schools based on adherence to said guidelines. The committee is jointly sponsored by the Association of American Medical Colleges and the American Medical Association. However, no guidelines with respect to ophthalmology training are included within Liaison Committee on Medical Education

guidelines.¹ The presence of ophthalmology-related topics and examination skills on standardized medical licensing examinations and internal medicine boards suggests that ophthalmic diseases and ocular manifestations of systemic diseases are key fundamentals of a complete undergraduate medical education.

To determine further the status and trajectory of ophthalmic medical education in the United States, the authors engaged in a survey of the AUPO member institutions, along with United States osteopathic and non-AUPO allopathic medical schools.

Methods

Review of the AUPO directory identified 135 AUPO member institutions, of which 113 served as a department or division of ophthalmology associated with a medical school. Individuals identified as medical school course directors or student educators were contacted via e-mail with a brief survey characterizing preclinical and clinical exposure to ophthalmology in their associated school's curriculum (Table 1). In addition to questions aiming to characterize ophthalmology educational exposure, additional questions were asked to determine the presence of extracurricular avenues for exposure to ophthalmology as well as the role of ophthalmology medical educators on medical school committees. Most interactions with various institutions were conducted via e-mail, with occasional telephone calls to identify relevant contact persons. A comprehensive list of osteopathic medical schools also was reviewed, with e-mail versions of the same survey subsequently sent to the relevant ophthalmology student

Table 1. Survey Questions Spanning Preclinical, Clinical, and Extracurricular Ophthalmology Exposures

What lectures, problem-based learning modules, labs, skills classes (ophthalmoscopy training) do you have for:
First-year students?
Second-year students?
Third-year students?
Fourth-year student?
Do you have a required clinical ophthalmology rotation?
How long is it?
Is it part of another course?
Which one?
Do you have a clinical ophthalmology elective?
How long is it?
How many students take it each year?
Do you have a research ophthalmology elective?
How long is it?
How many students take it each year?
Are you doing anything outside the curriculum for medical students?
Do you have a free care/outreach/community service experience for students?
Is there an ophthalmology interest group?
Anything I've missed?
Career fairs?
Student advisers in the department?
Is anyone in the department a member of the school's curriculum, retention, or other committees?

educators or deans of curriculum. Additionally, a review of the Association of American Medical Colleges listing of allopathic medical schools in the United States and Canada revealed an additional set of non-AUPO institutions of medical education.

Results

Association of University Professors of Ophthalmology Member Institutions

One hundred thirty-five AUPO member institutions were identified in the United States and Canada. One hundred thirteen of these had a functioning department or division of ophthalmology associated with a medical school, from which 109 responses were gathered (96%).

Preclinical exposure to ophthalmology was nearly universal, with 104 schools (95%) reporting some exposure to the ophthalmic examination or ophthalmic diseases during the first 2 years of medical school. Ninety-two schools (84%) offered specific ophthalmic examination teaching sessions, focusing on direct ophthalmoscopy. The presence of additional preclinical exposure was variable, with 23 schools (21%) offering no additional teaching, 26 schools (24%) offering an additional 1 to 2 hours, 38 schools (35%) offering an additional 3 to 7 hours, and 22 schools (20%) offering an additional 8 hours or more.

Clinical exposure to ophthalmology was somewhat more variable among institutions. Twenty of the schools (18%) had some sort of a required clinical rotation in ophthalmology, of which 14 schools (13%) required 1 week or more of clinical experience. Every responding institution offered an elective clinical rotation, most of which were 1 month in length. Sixty-six schools (60%) offered either a separate clinical experience for students not interested in pursuing ophthalmology as a career or a standard large elective that all students could participate in.

Most institutions offered extracurricular ophthalmology exposure. Seventy-nine schools (72%) had a functioning student interest group in ophthalmology, and 58 schools (53%) had some sort of

outreach and health screening activity in which the ophthalmic examination was used.

Medical student education directors from AUPO member institutions were drawn from the breadth of ophthalmic subspecialties, with the greatest number coming from comprehensive ophthalmology. Twenty-four of the 109 directors also served as the residency program directors, and 6 of the directors also served as department chairs. Fifty-one programs (47%) reported that either the medical education director or another member of the ophthalmology faculty served on medical school administrative committees, typically in curriculum development, admissions, or promotions.

Osteopathic Medical Schools

Of the 30 osteopathic medical schools identified, 15 offered responses to the survey (50%). None of the schools had an affiliated eye center. Preclinical exposure to ophthalmology was present at 13 schools (87%), with 6 (40%) offering instruction during the first year and 11 (73%) offering instruction in the second year. Preclinical instruction was focused on direct ophthalmoscopy and anatomy, with 10 of the 15 responding schools identifying specific examination skills instruction (67%). The number of curricular hours devoted to ophthalmology instruction in the preclinical years varied greatly, from 0 to 20 reported hours.

None of the responding schools offered a mandatory ophthalmology rotation, but all 15 schools (100%) offered a clinical elective. Ten schools (67%) offered 2-week rotations, and 10 schools (67%) offered 4-week rotations to their students. A research elective was available at 4 schools (27%). Ophthalmology-oriented outreach activities were present at 6 of the responding schools (40%), and 6 schools also noted the presence of an ophthalmology interest group (40%).

Ophthalmology faculty served as advisers to medical students at 3 institutions (20%) and served as members of various academic committees at 4 schools (27%). The data were not divided into the types of committees served on.

Allopathic Medical Schools Not Affiliated with the Association of University Professors of Ophthalmology

A total of 40 allopathic medical schools that are not members of the AUPO were identified in the United States and Canada. A total of 7 responses were collected (18%). Four of the 7 responding schools (57%) offered preclinical teaching in ophthalmology and examination skills. Six of the 7 institutions (86%) offered a clinical elective. A required clinical clerkship was in place at 1 school (14%). A research elective was offered at 2 schools (28%) for interested medical students.

An ophthalmology interest group was present at 2 institutions (28%), and a single institution offered an ophthalmology-oriented outreach activity (14%). None of the schools noted the presence of advisers for ophthalmology, and a single institution noted the presence of an ophthalmology faculty member on a medical school administrative committee (14%). A summary of preclinical and clinical results is presented in [Table 2](#).

Discussion

Surveys of medical educational institutions to evaluate the status of ophthalmology education have been conducted several times over the past 4 decades. Response rates from AUPO-affiliated institutions were similar to those observed in previous reports.¹⁻³ This survey is the first to assess

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