Undergraduate osteopathic medical education

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The American Osteopathic Association serves as the accrediting body for osteopathic medical education in the United States. All accreditation activities are conducted through the AOA Department of Education by the Bureau of Professional Education and its component groups. (For membership of these committees, see Appendix I, page 1467).

The Bureau is recognized by the US Office of Education as the official accrediting agency for osteopathic medical education. It reports to the AOA Board of Trustees and to appropriate government and nongovernment agencies.

The Committee on Colleges (COC), a subunit of the Bureau, is responsible for inspecting all colleges of osteopathic medicine. The COC serves as the initial review level in the accreditation process. Based on the results of its reviews and on-site inspections, the COC makes recommendations to the Bureau for approval or disapproval of accreditation status. It also serves as a consulting body should a college request advice on accreditation matters or educational management and policy.

The Bureau, in turn, presents accreditation recommendations to the AOA Board of Trustees, to which it reports. In cases where a college may not agree with a recommendation, the Board serves as a final court of appeal.

The accreditation process involves the examination and evaluation of all aspects of a college of osteopathic medicine (COM), including organization, administration, and finance; faculty and instruction; student admissions, evaluation, and services; curriculum organization; and the nature of the COM's facilities.

Once accredited, a COM must undergo reevaluation approximately every 5 years to maintain its accredited status.

The Basic Standards for Accreditation are published annually in the *AOA Yearbook and*

Directory of Osteopathic Physicians and are available from the AOA Department of Education.

Currently, 15 fully accredited colleges of osteopathic medicine train future osteopathic physicians (Appendix II, page 1473).

At press time, the statistics discussed in the following sections were the most current as compiled by the American Association of Colleges of Osteopathic Medicine (AACOM).

Faculty

In 1988-1989, full-time professors, including associate and assistant professors, accounted for 16.8% of faculty positions, an approximate 2.5% decline from the previous year. Slightly more than 38% of the faculty volunteer their services, with the remainder being part-time, paid personnel.

As Table 1 illustrates, general practice/family medicine continues to be the discipline most frequently taught by full-time academicians. Among this group of instructors, 18.3% are board-certified specialists.

The number of full-time MD faculty members held steady at approximately 14% during 1988-1989 from the previous year. Likewise, slightly more than 75% of the faculty have earned at least a DO degree. Meanwhile, the number of PhD professors dropped from 8.2% to 7.1%.

Osteopathic medical students

Applicants

In 1988-1989, 3,160 candidates sought an osteopathic medical education, up from 3,030 applicants the year before. Table 2 indicates that increasing numbers of women and minorities compose this population. Hispanic applications have more than quadrupled while more than three times as many blacks applied in 1989 than in 1976. More than one third of all 1989

Table 1
Full-Time Faculty Assignments, by Discipline*

Discipline	% of faculty assigned
General practice/family medicine	18.3
Internal medicine	9.8
Surgery	2.8
Radiology	3.0
Pediatrics	4.5
Psychiatry	3.1
Obstetrics/gynecology	3.5
Pathology	2.8
Physiology	6.4
Anatomy	8.0
Biochemistry	5.5
Microbiology	4.7
Pharmacology	4.1
Osteopathic principles	3.9
Emergency medicine	2.5
Other	17.1

*Source: AACOM 1989 Annual Statistical Report.

applicants were women. In fact, women now make up the largest segment of minority applicants.

As Table 3 shows, the University of Osteopathic Medicine and Health Sciences College of Osteopathic Medicine and Surgery in Des Moines, Ia, received the most applications totaled for 1987-1988, but dropped off to fourth place in 1988-1989, behind Ohio University Col-

lege of Osteopathic Medicine, Kirksville College of Osteopathic Medicine, and New York College of Osteopathic Medicine, respectively.

Enrollment

Freshmen enrollment showed a 5.2% increase in 1988. Figure 1 illustrates the generally steady climb in the number of freshmen students. This student population peaked at 1,780 in 1988-1989.

Total enrollments for the past 2 years are listed by college in Table 3. Because a candidate might have applied to more than one college, the numbers may reflect duplicate applicants.

Minorities

As shown in Figure 2, the ethnic minority population has more than quadrupled since 1976, and accounts for 17% of freshmen. The 15 colleges of osteopathic medicine report 813 minority students as members of the total student body. Their distribution is outlined in Table 4.

Women

In 1968, only 2.8% of all osteopathic medical students were women. Twenty-one years later, that figure has climbed to 30% (Table 5). The

Table 2
Applicants to AACOMAS Osteopathic Medical Schools—Ethnic Groups and Women by Entering Year*

Group	1976	1978	1980	1982	1984†	1985	1986	1987	1988	1989
Black American	59	116	130	150	136	145	159	170	208	221
American Indian/Alaskan										
Native	14	18	15	16	27	21	31	19	20	20
Hispanic	33	38	76	128	140	170	164	165	153	177
Total underrepresented minority	106	172	221	294	303	336	354	354	381	418
Percent underrepresented minority	2.9	4.9	5.8	7.5	7.3	8.7	10.1	10.6	12.6	13.2
White, non-Hispanic	3,539	3,299	3,467	3,484	3,633	3,332	2,946	2,684	2,376	2,404
Asian American/Pacific Islander	62	59	98	139	190	201	215	288	273	338
Total all groups	3,707	3,530	3,786	3,917	4,126	3,869	3,515	3,326	3,030	3,160
No. of women among total applicants	‡	610	804	965	1,168	1,102	1,010	1,002	966	1,068
Percent Women	‡	17.3	21.2	24.6	28.3	28.5	28.7	30.2	31.9	33.8

*Source: AACOM Annual Statistical Report.

† Starting 1984, white non-Hispanic may include about 1% of applicants who did not provide ethnic identification.

‡ Not available.

Table 3
Number of Applications Received, First-Year Enrollment, and
Total Enrollment by School*

School	No. of applications		First-year enrollment		Total enrollment	
	1987-1988	1988-1989	1987-1988	1988-1989	1987-1988	1988-1989
CCOM	722	645	108	126	393	416
COM-OSU	764	543	65	73	282	271
COMP	947	866	103	111	411	419
KCOM	1,201	1,170	133	138	526	531
MSU-COM	823	738	125	123	505	507
NYCOM	1,177	1,122	132	154	515	541
OUCOM	1,061	1,237	107	100	390	377
PCOM	925	830	204	212	814	808
SUHSCOM	1,083	843	103	111	400	402
TCOM	810	739	103	94	385	391
UHS-COM	365	285	129	134	532	500
UMDNJ-SOM	772	746	59	63	220	220
UNECOM	1,057	943	80	79	287	300
UOMHS/COM	1,393	1,117	178	193	693	703
WVSOM	926	843	63	64	233	233
Total	14,026	12,660	1,692	1,780	6,586	6,614

*Source: AACOM 1989 Annual Statistical Report.

†The number of applicants indicated above is not unduplicated, as in Table 2. The same applicant reported here may be listed by several schools.

Table 4
Total Enrollment of Minority Ethnic Groups,
Percent by School*

School	Minority			
	1987-1988		1988-1989	
	No.	%	No.	%
CCOM	36	9.2	49	11.8
COM-OSU	38	13.5	38	14.0
COMP	69	16.8	85	20.5
KCOM	35	6.7	47	8.9
MSU-COM	80	15.8	89	17.6
NYCOM	59	11.5	84	15.5
OUCOM	43	11.0	42	11.1
PCOM	30	3.7	49	6.1
SUHCOM	56	14.0	72	17.9
TCOM	64	16.6	62	15.9
UHS/COM	31	5.8	42	8.4
UMDNJ-SOM	27	12.3	29	13.2
UNECOM	8	2.8	16	5.3
UOMHS/COM	58	8.4	91	12.9
WVSOM	19	8.2	18	7.7
All schools	653	9.9	813	12.3

*Source: AACOM 1988 and 1989 Annual Statistical Reports.

Figure 1. Freshmen enrollment, alternate years, 1968 to 1988. (From AACOM 1989 Statistical Report.)

Percentages

Figure 2. Percentages of ethnic enrollment. (From AACOM 1989 Statistical Report.)

Table 5
Women Enrollment*

Entering year	Total enrollment			Graduates		
	Total	No. of women	% women	Total	No. of women	% women
1968	1,879	53	2.8	427	8	1.9
1969	1,997	59	3.0	432	12	2.8
1970	2,151	61	2.8	472	11	2.3
1971	2,304	79	3.4	485	18	3.7
1972	2,579	116	4.5	649	18	2.8
1973	2,780	181	6.5	594	17	2.9
1974	3,139	267	8.5	702	44	6.3
1975	3,443	362	10.5	809	58	7.2
1976	3,671	472	12.9	908	84	9.3
1977	3,926	570	14.5	971	68	7.0
1978	4,221	688	16.3	1,004	163	16.2
1979	4,571	789	17.3	1,059	192	18.1
1980	4,940	971	19.7	1,151	202	17.6
1981	5,304	1,108	20.9	1,017	186	18.3
1982	5,822	1,317	22.6	1,317	261	19.8
1983	6,212	1,526	24.6	1,287	262	20.4
1984	6,547	1,707	26.1	1,474	344	23.3
1985	6,608	1,799	27.2	1,560	392	25.1
1986	6,640	1,853	27.9	1,587	412	26.0
1987	6,586	1,904	28.9	1,588	395	24.9
1988	6,614	1,986	30.0	1,617	485	30.0

*Source: AACOM 1989 Statistical Report.

Philadelphia College of Osteopathic Medicine has the largest female student population (274), whereas Michigan State University—College of Osteopathic Medicine and the University of Medicine and Dentistry of New Jersey—have the highest proportion of women enrolled (37.3% each).

Geographic source of entering students

Most students (61.5%) choose to attend the osteopathic medical school in their home state. Texas College of Osteopathic Medicine has the highest proportion of native students: Only about 5% are from out of state (Table 6).

Financial reasons, family ties, and plans for establishing a practice where continuing education is less costly influenced the students' choice to remain in their home state.

Students admitted with advanced standing

The baccalaureate degree was the highest degree earned by 85.3% of the 1988 incoming freshmen, a small dip from 1987 levels in

which nearly nine out of ten freshmen held this degree. Those with a master's degree numbered 8%, a slight increase from the previous year. Approximately 1.4% of students in the 1988 freshmen class had earned the doctorate.

Freshmen college record

The mean grade point average for first-year students dropped slightly, from 3.19 in 1987 to 3.13 in 1988. In 1988, MCAT average scores for each of the following disciplines were as follows: biology, 7.6; chemistry, 6.9; physics, 7.0; science, 7.0; reading, 7.1; and quantitative operations, 6.7. Scores for each discipline declined from the previous year.

Student evaluation

Composite class rank, numerical rank, and letter grade determine student evaluation. AACOM reports nine colleges gauge student progress using results from the National Board Examinations. Three institutions require students pass Part I of the National Board Examinations for advancement or graduation; at

Table 6
Number of State Residents and Nonresidents
Enrolled, by School*

College	Resident	Nonresident	Total
CCOM	249	167	416
COMOSU	245	26	271
COMP	264	150	414
KCOM	89	442	531
MSU/COM	430	77	507
NYCOM	462	79	541
OUCOM	346	31	377
PCOM	595	213	808
SUHSCOM	294	108	402
TCOM	370	21	391
UHS/COM	114	386	500
UMDNJ/SOM	200	20	220
UNECOM	140	160	300
UOMHS/COMS	124	579	703
WVSOM	147	86	233
Total	4,069†	2,545	6,614

*Source: AACOM 1989 Annual Statistical Report.
†61.5% of all students are enrolled in their own state.

least one requires a passing grade in Part II. Feedback from preceptors and hospital personnel provide further information concerning student performance.

Considering these criteria, AACOM reports that only about 2.2% of students withdrew or were dismissed from osteopathic medical colleges in 1988. Academic difficulty was the most-often cited reason for student attrition.

Osteopathic medical curriculum

Preparing the physicians of tomorrow for general practice of osteopathic medicine remains the colleges' primary goal. However, training in specialized medicine is not overlooked by any college of osteopathic medicine.

The DO degree is awarded after completion of a 4-year curriculum. During the first 2 years, emphasis is placed on the basic sciences—anatomy, biochemistry, embryology, his-

tology, immunology, microbiology, pathology, and physiology. Several colleges also offer introductory courses in clinical studies, such as general practice, neurology, obstetrics and gynecology, osteopathic manipulation, pediatrics, psychiatry, and surgery.

Geriatrics, nutrition, health promotion, drug therapy, bioethics, and biomechanics are now incorporated into the osteopathic medical curriculum, as is computer use in medicine.

Clinical practice, in the form of preceptorships, clerkships, and clinical rotations, occurs in the third and fourth years of the osteopathic medical school curriculum.

Each college has a different policy concerning electives. Most schools permit taking electives during the third year, although a few colleges allow first-year students to do so. Specialized or advanced training courses constitute acceptable electives.

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† In most hay fever patients (55%).

** In studies using the histamine-induced skin wheal test.

†† A summary of 26 studies relating compliance and dosage schedules of various types of medications showed no significant difference in compliance rates between q.d. and b.i.d. dosing. There was significantly greater compliance with q.d. or b.i.d. dosing compared to t.i.d. or q.i.d. dosing ($p < 0.05$).⁸

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Before prescribing Seldane, please see Brief Summary of Prescribing Information, which appears on the reverse side.

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Seldane® (terfenadine) 60 mg Tablets

BRIEF SUMMARY

CAUTION: Federal law prohibits dispensing without prescription.

DESCRIPTION

Seldane (terfenadine) is available as tablets for oral administration. Each tablet contains 60 mg terfenadine. Tablets also contain, as inactive ingredients: corn starch, gelatin, lactose, magnesium stearate, and sodium bicarbonate.

INDICATIONS AND USAGE

Seldane is indicated for the relief of symptoms associated with seasonal allergic rhinitis such as sneezing, rhinorrhea, pruritus, and lacrimation.

CONTRAINDICATIONS

Seldane is contraindicated in patients with a known hypersensitivity to terfenadine or any of its ingredients.

PRECAUTIONS

Information for patients

Patients taking Seldane should receive the following information and instructions. Antihistamines are prescribed to reduce allergic symptoms. Patients should be questioned about pregnancy or lactation before starting Seldane therapy, since the drug should be used in pregnancy or lactation only if the potential benefit justifies the potential risk to fetus or baby. Patients should be instructed to take Seldane only as needed and not to exceed the prescribed dose. Patients should also be instructed to store this medication in a tightly closed container in a cool, dry place, away from heat or direct sunlight, and away from children.

Carcinogenesis, mutagenesis, impairment of fertility

Oral doses of terfenadine, corresponding to 63 times the recommended human daily dose, in mice for 18 months or in rats for 24 months, revealed no evidence of tumorigenicity. Microbial and micronucleus test assays with terfenadine have revealed no evidence of mutagenesis.

Reproduction and fertility studies in rats showed no effects on male or female fertility at oral doses of up to 21 times the human daily dose. At 63 times the human daily dose there was a small but significant reduction in implants and at 125 times the human daily dose reduced implants and increased post-implantation losses were observed, which were judged to be secondary to maternal toxicity.

Pregnancy Category C

There was no evidence of animal teratogenicity. Reproduction studies have been performed in rats at doses 63 times and 125 times the human daily dose and have revealed decreased pup weight gain and survival when terfenadine was administered throughout pregnancy and lactation. There are no adequate and well-controlled studies in pregnant women. Seldane should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nonteratogenic effects

Seldane is not recommended for nursing women. The drug has caused decreased pup weight gain and survival in rats given doses 63 times and 125 times the human daily dose throughout pregnancy and lactation. Effects on pups exposed to Seldane only during lactation are not known, and there are no adequate and well-controlled studies in women during lactation.

Pediatric use

Safety and effectiveness of Seldane in children below the age of 12 years have not been established.

General

Consideration should be given to potential anticholinergic (drying) effects in patients with lower airway disease, including asthma.

ADVERSE REACTIONS

Experience from clinical studies, including both controlled and uncontrolled studies involving more than 2,400 patients who received Seldane, provides information on adverse experience incidence for periods of a few days up to six months. The usual dose in these studies was 60 mg twice daily, but in a small number of patients, the dose was as low as 20 mg twice a day, or as high as 600 mg daily.

In controlled clinical studies using the recommended dose of 60 mg b.i.d., the incidence of reported

adverse effects in patients receiving Seldane was similar to that reported in patients receiving placebo. (See Table below.)

ADVERSE EVENTS REPORTED IN CLINICAL TRIALS

Adverse Event	Percent of Patients Reporting				
	Controlled Studies*			All Clinical Studies**	
	Seldane N = 781	Placebo N = 665	Control N = 626**	Seldane N = 2462	Placebo N = 1478
Central Nervous System					
Drowsiness	9.0	8.1	18.1	8.5	8.2
Headache	6.3	7.4	3.8	15.8	11.2
Fatigue	2.9	0.9	5.8	4.5	3.0
Dizziness	1.4	1.1	1.0	1.5	1.2
Nervousness	0.9	0.2	0.6	1.7	1.0
Weakness	0.9	0.6	0.2	0.6	0.5
Appetite increase	0.6	0.0	0.0	0.5	0.0
Gastrointestinal System					
Gastrointestinal Distress (Abdominal distress, Nausea, Vomiting, Change in Bowel habits)	4.6	3.0	2.7	7.6	5.4
Eye, Ear, Nose, and Throat					
Dry Mouth/ Nose/Throat	2.3	1.8	3.5	4.8	3.1
Cough	0.9	0.2	0.5	2.5	1.7
Sore Throat	0.5	0.3	0.5	3.2	1.6
Epistaxis	0.0	0.8	0.2	0.7	0.4
Skin					
Eruption (including rash and urticaria) or itching	1.0	1.7	1.4	1.6	2.0

*Duration of treatment in "CONTROLLED STUDIES" was usually 7-14 DAYS.

**Duration of treatment in "ALL CLINICAL STUDIES" was up to 6 months.

***CONTROL DRUGS: Chlorpheniramine (291 patients), d-Chlorpheniramine (189 patients), Clemastine (146 patients)

In addition to the more frequent side effects reported in clinical trials (See Table), adverse effects have been reported at a lower incidence in clinical trials and/or spontaneously during marketing of Seldane that warrant listing as possibly associated with drug administration. These include: alopecia, (hair loss or thinning), anaphylaxis, angioedema, arrhythmia (including ventricular tachyarrhythmia), bronchospasm, confusion, depression, galactorrhea, hypotension, insomnia, menstrual disorders (including dysmenorrhea), musculoskeletal symptoms, nightmares, palpitation, paresthesia, photosensitivity, prolonged QT interval, seizures, sweating, syncope, tachycardia, tremor, urinary frequency, and visual disturbances. In clinical trials, several instances of mild, or in one case, moderate transaminase elevations were seen in patients receiving Seldane. Mild elevations were also seen in placebo treated patients. Marketing experiences include isolated reports of jaundice, cholestatic hepatitis, and hepatitis; in most cases available information is incomplete. In neither the clinical trials nor marketing experience is a causal relationship of liver abnormalities to Seldane use clear.

OVERDOSAGE

Information concerning possible overdose and its treatment appears in Full Prescribing Information.

DOSAGE AND ADMINISTRATION

The usual dosage for adults and children 12 years and older is 60 mg (1 tablet) twice daily.

Product Information as of June, 1988

MERRELL DOW PHARMACEUTICALS INC.
Subsidiary of The Dow Chemical Company
Cincinnati, Ohio 45215, U.S.A.

Merrell Dow

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