

# Change in Specialty Choice During Medical School

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Fifteen studies conducted at US medical schools since 1967 that dealt with stability and change of specialty choice were reviewed. The review focused on overall stability of choice, stability within the six major clerkship specialties, increased or decreased preference for the six major clerkship specialties, and specific changes in preference among the six major clerkship specialties.

Among the findings of the review were a 39 percent overall agreement (stability) rate; considerable variability in agreement (stability) rate by specialty, ranging from 50 percent for surgery to 26 percent for obstetrics-gynecology and pediatrics; a notable increase in preference for internal medicine, and a dramatic decrease in preference for family practice during the undergraduate years; and different patterns of change among individual specialties.

This review examines research related to stability and change of specialty choice in undergraduate medical education. Three criteria were used in selecting studies for the review. First, only studies that took place in US medical schools were included, since medical education, societal pressures, and governmental influences differ widely from country to country. Second, only studies conducted during the last 16 years (1967 to 1982) were included, as even within a single country, medical education, societal pressures, and governmental influences change considerably over short periods of time. Third, a study had to be consistent with the reporting format found in at

least one of the four tables in the review. These criteria limited the review to 15 studies.

Four questions provided the focus for the review:

1. Overall, how stable is the medical student's early preference for a medical specialty?
2. For the six major clerkship specialties, how stable is the medical student's early preference?
3. Do the six major clerkship specialties increase or decrease in preference during undergraduate medical education?
4. During undergraduate medical education what specific changes in preference take place among the six major clerkship specialties?

## Stability of Medical Specialty Choice

Table 1 lists the 12 studies<sup>1-12</sup> that reported an agreement rate between a medical student's early preference and his later choice. The mean agree-

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Table 1. Studies of Stability of Medical Specialty Choice (All Specialties)

Study	Number of Subjects	Number of Specialty Categories	Points of Comparison	Agreement Rate (%)
Kritzer and Zimet <sup>1</sup>	120	5	Year 1 and residency	33
Wasserman et al <sup>2</sup>	106	14	Year 1 and year 4	55
			Year 1 and 3 years after graduation	43
Donovan et al <sup>3</sup>	176	7	End of year 2 and end of year 4	39
Geertsma and Grinols <sup>4</sup>	136	6	Year 1 and year 4	33
Held and Zimet <sup>5</sup>	134	5	Beginning of year 1 and last half of year 4	34
Sachs <sup>6</sup>	900	14	Medical school orientation and near end of internship	25
Parmeter et al <sup>7</sup>	226	9	End of year 1 and graduation	39
Mallea and Harris <sup>8</sup>	190	8	Entry to medical school and residency	38
Gruppen and Brown <sup>9</sup>	482	9	Entry to medical school and residency	34
Vu et al <sup>10</sup>	144	9	Just prior to clerkship period and residency	52
Sarnowski and Glasser <sup>11</sup>	44	7	Year 2 and residency	57
			Year 2 and first medical practice	46
Markert <sup>12</sup>	115	9	Entry to medical school and graduation	46
Mean agreement*				39

\*For Wasserman et al and Sarnowski and Glasser, only the latest agreement rate is included (ie, 43 percent and 46 percent, respectively)

ment rate was 39 percent. Inspection of data in Table 1 raises concern about the reliability of the mean agreement rate in that the 12 studies differ widely in number of subjects, number of specialty categories, and points of comparison. Nevertheless, the moderate variability among the agreement rates supports the credibility of the data.

Table 2 lists the nine studies<sup>1,3-5,7-9,11,12</sup> that dealt with stability among individual specialties. Medical students expressing an early preference for surgery (50 percent agreement rate) and psychiatry (49 percent agreement rate) were most likely to remain stable in their choices. A preference for internal medicine (43 percent) also was above the mean agreement rate of 39 percent reported in Table 1. There was a noteworthy drop to 34

percent for family practice, and an even more substantial drop to 26 percent for obstetrics-gynecology and pediatrics. It should be noted that the reliability of these agreement rates may vary according to sample size, which ranges from 445 for family practice to 58 for obstetrics-gynecology.

### Change of Medical Specialty Choice

Table 3 lists the 12 studies<sup>1-3,5,7-9,11-15</sup> that reported increased or decreased preference among the six major clerkship specialties. Interest in internal medicine increased notably during the years of undergraduate medical education (19 percent to 26 percent). Interest in family practice decreased dramatically during the medical school

Table 2. Studies of Stability of Medical Specialty Choice (Individual Specialties)*									
Study	Number of Subjects	Points of Comparison	Family Practice No (%)	Internal Medicine No. (%)	Obstetrics-Gynecology No. (%)	Pediatrics No (%)	Psychiatry No. (%)	Surgery No. (%)	
Kritzer and Zimet <sup>1</sup>	120	Year 1 and residency	—	8/17 (47)	3/8 (38)	5/10 (50)	19/23 (83)	5/14 (36)	
Donovan et al <sup>3</sup>	176	End of year 2 and end of year 4	—	39/67 (58)	2/16 (13)	4/14 (29)	9/22 (41)	13/43 (30)	
Geertsma and Grinols <sup>4</sup>	136	Year 1 and year 4	—	13/43 (30)	0/6 (0)	2/17 (11)	8/17 (47)	18/27 (66)	
Held and Zimet <sup>5</sup>	134	Beginning of year 1 and last half of year 4	11/33 (33)	14/31 (45)	—	5/27 (19)	3/12 (25)	12/31 (38)	
Parmeter et al <sup>7</sup>	226	End of year 1 and graduation	38/102 (37)	4/21 (19)	3/4 (75)	2/11 (18)	1/5 (20)	8/16 (50)	
Mallea and Harris <sup>8</sup>	190	Entry to medical school and residency	25/61 (41)	—	—	—	—	—	
Gruppen and Brown <sup>9</sup>	482	Entry to medical school and residency	40/153 (26)	51/131 (39)	4/20 (20)	12/42 (29)	3/12 (25)	40/68 (59)	
Sarnowski and Glasser <sup>**11</sup>	44	Year 2 and residency	14/26 (54)	8/11 (73)	2/2 (100)	0/2 (0)	0/0 (0)	0/1 (0)	
Markert <sup>12</sup>	115	Year 2 and first medical practice	12/26 (46)	6/11 (55)	2/2 (100)	0/2 (0)	0/0 (0)	0/1 (0)	
Total		Entry to medical school and graduation	26/70 (37)	7/9 (78)	1/2 (50)	3/6 (50)	3/3 (100)	10/13 (77)	
			152/445 (34)	142/330 (43)	15/58 (26)	33/129 (26)	46/94 (49)	106/213 (50)	

\*Each cell in the table should be read as follows: For Kritzer and Zimet 8 of 17 who chose internal medicine in year 1 started a residency in that specialty. The agreement was 47 percent

\*\*Only the year 2 to first medical practice figures are included

Table 3. Studies of Change of Specialty Choice During Medical School\*

Study	Number of Subjects	Points of Comparison	Family Practice No. (%)	Internal medicine No. (%)	Obstetrics-Gynecology No. (%)	Pediatrics No. (%)	Psychiatry No. (%)	Surgery No. (%)
Kritzer and Zimet <sup>1</sup>	120	Year 1	—	17 (14)	8 (7)	10 (8)	23 (19)	14 (12)
		Residency	—	34 (28)	14 (12)	15 (13)	42 (35)	15 (13)
Wasserman et al <sup>2</sup>	106	Year 1	42 (40)	19 (18)	0 (0)	3 (3)	8 (8)	18 (17)
		Year 4	19 (18)	30 (28)	8 (8)	3 (3)	7 (7)	18 (17)
		Year 1 3 years after graduation	42 (40)	19 (18)	0 (0)	3 (3)	8 (8)	18 (17)
Donovan et al <sup>5</sup>	176	End of year 2	0 (0)	67 (38)	16 (9)	14 (8)	22 (13)	43 (24)
		End of year 4	10 (6)	71 (40)	6 (3)	22 (13)	17 (10)	23 (13)
Keetel <sup>13</sup>	122	Year 2	24 (20)	26 (21)	12 (10)	9 (7)	9 (7)	20 (16)
		Year 4	33 (27)	16 (13)	11 (9)	10 (8)	15 (12)	21 (17)
Held and Zimet <sup>5</sup>	134	Beginning year 1	33 (25)	31 (23)	—	27 (20)	12 (9)	31 (23)
		Last half year 4	30 (20)	52 (39)	—	11 (8)	9 (7)	32 (24)
McAllister and Brent <sup>14</sup>	97	Year 1	61 (63)	11 (11)	—	—	—	—
		Residency	23 (24)	32 (33)	—	—	—	—
Parmeter et al <sup>7</sup>	226	End year 1	102 (45)	21 (9)	4 (2)	11 (5)	5 (2)	16 (7)
		Graduation	51 (23)	25 (11)	22 (10)	7 (3)	6 (3)	22 (10)
Oates and Feldman <sup>15</sup>	87	Entry to medical school	22 (25)	5 (6)	2 (2)	4 (5)	1 (1)	0 (0)
		Residency	19 (22)	31 (36)	4 (4)	11 (13)	3 (3)	9 (10)
Mallea and Harris <sup>8</sup>	190	Entry to medical school	68 (36)	20 (11)	2 (1)	12 (6)	4 (2)	28 (15)
		Residency	35 (18)	30 (16)	17 (9)	10 (5)	8 (4)	29 (15)
Gruppen and Brown <sup>9</sup>	482	Entry to medical school	153 (32)	131 (27)	20 (4)	42 (9)	12 (2)	68 (14)
		Residency	58 (12)	131 (27)	21 (4)	36 (7)	16 (3)	99 (21)
Sarnowski and Glasser <sup>11</sup>	44	Year 2	26 (59)	11 (25)	2 (5)	2 (5)	0 (0)	1 (2)
		Residency	18 (41)	14 (32)	3 (7)	1 (2)	1 (2)	3 (7)
		Year 2	26 (59)	11 (25)	2 (5)	2 (5)	0 (0)	1 (2)
		First medical practice	17 (39)	14 (32)	3 (7)	1 (2)	2 (2)	5 (11)
Markert <sup>12</sup>	115	Entry to medical school	70 (61)	9 (8)	2 (2)	6 (5)	3 (3)	13 (11)
		Graduation	35 (30)	26 (23)	3 (3)	11 (10)	5 (4)	20 (17)
Total **	1,899		601 (32)	368 (19)	68 (4)	140 (7)	99 (5)	252 (13)
			332 (17)	487 (26)	105 (6)	139 (7)	130 (7)	293 (15)

\*Each cell in the table should be read as follows: In Kritzer and Zimet, of 120 subjects, 17 initially indicated a preference for internal medicine; 34 later chose an internal medicine residency. The corresponding percents were 14 and 28

\*\*For Wasserman et al and Sarnowski and Glasser, only the latest figures are included (ie, year 1 and 3 years after graduation, and year 2 and first medical practice, respectively)

Table 4. Studies of Change Within Specialties During Medical School\*

Preference During Year 1 or Year 2	Choice During Year 4 or Beyond						Total No.
	Family Practice No. (%)	Internal Medicine No. (%)	Obstetrics-Gynecology No. (%)	Pediatrics No. (%)	Psychiatry No. (%)	Surgery No. (%)	
Family Practice	—	99 (45)	26 (12)	27 (12)	16 (7)	53 (24)	221
Internal Medicine	28 (27)	—	8 (8)	18 (17)	20 (19)	30 (29)	104
Obstetrics-Gynecology	1 (4)	9 (32)	—	5 (18)	3 (11)	10 (36)	28
Pediatrics	13 (20)	25 (38)	5 (8)	—	12 (18)	11 (17)	66
Psychiatry	4 (11)	18 (51)	1 (3)	5 (14)	—	7 (20)	35
Surgery	13 (20)	31 (47)	6 (9)	9 (14)	7 (11)	—	66
Total	59 (11)	182 (35)	46 (9)	64 (12)	58 (11)	111 (21)	520

\*This table includes data from the following: Kritzer and Zimet,<sup>1</sup> Donovan et al,<sup>3</sup> Held and Zimet,<sup>5</sup> Parmer,<sup>7</sup> Gruppen and Brown,<sup>9</sup> Sarnowski and Glasser,<sup>11</sup> Markert<sup>12</sup>  
 In parentheses is the percent who changed from the indicated preference during year 1 or year 2 to the indicated choice during year 4 or beyond. For Sarnowski and Glasser,<sup>11</sup> only the year 2 to first medical practice changes are included

period (32 percent to 17 percent). The other four specialties remain about the same. Again the relatively small sample sizes for some specialties (ie, obstetrics-gynecology, pediatrics, and psychiatry) call into question the reliability of the findings.

Table 4 summarizes the seven studies<sup>1,3,5,7,9,11,12</sup> that reported specific specialty changes made by individuals. For the seven studies, data were available for 520 subjects. Table 4 reveals that the most frequent change was to internal medicine (35 percent). Surgery was second with 21 percent. The other four specialties were grouped together in the 9 to 12 percent range. Those who changed from family practice most frequently chose internal medicine (45 percent) and surgery (24 percent). Internal medicine switchers were spread fairly evenly among surgery (29 percent), family practice (27 percent), psychiatry (19 percent), and pediatrics (17 percent). Those changing from obstetrics-gynecology tended to choose surgery (36 percent) and internal medicine (32 percent). Pediatrics switchers frequently chose internal medicine (38 percent) with moderate inclinations for family practice (20 percent), psychiatry (18 percent), and surgery (17 percent). More than one half of those changing from psychiatry chose internal medicine (51 percent); 20 percent chose surgery. Surgery

switchers often chose internal medicine (47 percent); 20 percent chose family practice.

## Discussion

Returning to the four questions posed at the outset of the paper, this review of the literature yields the following conclusions.

1. There is a 39 percent likelihood that a medical student's first-year or second-year preference for a specialty will be his choice near graduation or beyond.

2. Stability of early preference varies according to medical specialty: surgery (50 percent), psychiatry (49 percent), internal medicine (43 percent), family practice (34 percent), obstetrics-gynecology (26 percent), and pediatrics (26 percent).

3. During undergraduate medical education interest in internal medicine increases notably while interest in family practice decreases dramatically. Interest in obstetrics-gynecology, pediatrics, psychiatry, and surgery remains about the same.

4. Medical students who change their preference during medical school choose internal medicine most often (35 percent). Surgery is the second most popular choice (21 percent). Among individual spe-

cialties, different patterns of change occur.

The decrease in preference for family practice may be an artifact related to medical school admission and lack of medical specialty awareness. In recent years many medical schools have expressed the goal of producing more family physicians. Thus, some entering students may have been intent on emphasizing their potential interest in family practice as a means of ensuring peer and faculty acceptance during the admission process and the early stages of their medical education. In addition, through their experiences as patients, family practice often is the specialty with which entering medical students are most familiar. Thus, there is a tendency to choose family practice as an initial specialty preference. However, during the course of undergraduate medical education, as awareness of other specialties increases, it is not surprising that family practice preference decreases and preference for other specialties increases. Internal medicine appears to be the principal beneficiary of this heightened awareness of medical specialties. A survey of two graduating classes at Wright State University School of Medicine found that of those who switched specialty choice, an increased awareness of specialties was a factor in change of specialty choice in two thirds of the cases. Thus, the high percentage expressing interest in family practice at entry to medical school may not be an accurate measure of "true" interest.

More generally, it is interesting to examine what causes stability and change in specialty preference among medical students. Medical educators have emphasized the influence of role models, clinical experiences, special programs in the undergraduate curriculum, faculty research activity, and socialization.<sup>8-10,14-20</sup> It is likely that the pattern of stability and change of medical specialty choice found in any specific medical school is the result of complex interactions among many factors: admissions policies, traditions of the institution, curricular emphases, clinical experiences, professional role models, socialization, and individual student variability. Although no formula can be established by which a medical school can control the pattern of stability and change to meet its goals, careful study of past research and initiation of research and evaluation at the local level can guide admissions and curriculum decision makers in planning to meet goals related to the specialty choices of graduates.

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