

The National Residency Matching Program Results for 2001: Another Increase This Year

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Introduction: This is the ninth in the series of annual spring updates about the results of the National Residency Matching program (NRMP) for anesthesiology. In 1993, the first article was provoked by an initial slight decline in recruitment. Surprisingly, in view of what followed, I expressed concern about the decline and concluded that it would be desirable to "...generate strategies to enhance our ability to continue attracting both excellent medical students and excellent graduates into our specialty."

Twelve months later we were worrying about oversupply – so were the medical students who, in about four years, demonstrated the awesome power of the marketplace. As a result there is now a shortage of anesthesiologists and, for at least two years now, we have resumed worrying about recruitment.

NRMP Results (Table 1): Overall this year there has been a 21 percent increase in recruitment, a similar increase to last year. Once again it is almost entirely attributable to a rise in the number of graduating seniors entering anesthesiology from U.S. allopathic medical schools (from 549 to 713). This is the fifth year in a row that recruitment of US medical students increased (Figure 1). From the low of 169 in 1996, there have been annual increases of 50 percent, 53 percent, 10 percent, 29 percent and now 30 percent. The increase in recruitment this year is slightly greater for the PG1 group (39 percent) than for the CA1 group (26 percent).

Positions Unfilled: The number of positions offered through the NRMP increased from 1005 last year to 1104 this year (10 percent increase), still well below the all time high of 1,386 in 1993. Because there was a greater increase in the number recruited, the number of positions remaining unfilled fell from 204 to 131, about 21 percent of the maximum number of positions unfilled which reached an all-time high of 622 in 1996.

Distribution of Recruits (Table 2): The most striking trend of the last six years has been the ongoing increase in the number of U.S. graduates recruited (from 169 to 713). This was initially accompanied by a rise in the number of other medical graduates (Figure 2). Since 1997, however, the number of other medical graduates has stabilized at about 250. That number now represents about 27 percent of the total because of the rise in the number of U.S. allopathic student recruits.

Among the nonallopathic medical graduates, only four categories contribute significant numbers. This year, osteopathic physicians were the largest category; their number has roughly doubled each year since 1997 (from 7 to 107). By contrast, the number of non-U.S. citizen international medical graduates (IMGs) fell from a high of 213 in 1997 to 79 this year. The number of U.S. citizen IMGs has changed little, providing 50 recruits this year. The sponsored physician group grew this year to 15 recruits. The remaining three groups, (fifth pathway, Canadian, U.S. physician) provided nine recruits between them.

Of the available pool of applicants in each category, anesthesiology once again attracts the highest percentage of applicants from graduates of U.S. osteopathic medical schools (8.62 percent) and US medical allopathic schools (4.93 percent). In these two categories recruitment is above our average of 4.12 percent of the total available via the NRMP.

Regional Distribution (Table 3): The NRMP data for the last five years has also been compiled by state and ranked by the number recruited into each state's residencies via the NRMP. For the second year in a row, the two largest totals were California (106) and New York (93), which, between them, recruited 20 percent. The next three states recruited: Texas 70; Massachusetts 68; and Pennsylvania 65. Between them, the top five states recruited 402 (41 percent), and the top ten recruited 582 (60 percent). During each of the last five years California has recruited the largest number. For four years in a row New York, Texas, and Massachusetts have occupied the next three positions, but not in the same sequence. Most states recruited more this year than last. Nearly half of the states matched all of positions that had been made available via the NRMP. The following states recruited fewer this year than last: Arizona, Colorado, Louisiana, Michigan, Nebraska, Oklahoma, Washington, and West Virginia.

Distribution amongst schools and programs (Table 4): The uneven distribution observed between states is just as evident between individual schools and programs. This year 713 graduating U.S. allopathic seniors matched into anesthesiology. The closest match to this number occurred in 1994 when 705 US seniors matched (Table 4). 1994 was also the last year of significant recruitment of U.S. seniors before the major decline. This year has been selected for comparison between the top twenty schools and the top twenty programs based on numbers recruited.

The percentage attracted into the specialty was similar in both years (about 4.95 percent) but the proportion of those recruits entering anesthesiology from the top twenty schools rose slightly from 36.6 percent to 39.4 percent this year. The number absorbed into the top twenty residencies showed a slight trend in the opposite direction: from 38.6 percent of all recruits in 1994 to 34.3 percent in 2001.

Membership in these top twenty lists, as well as the rank order, changed considerably in the seven years with the residency programs demonstrating more consistency. Only six of the medical schools still appear seven years later whereas eleven of the residency programs appear seven years later.

More striking, perhaps, is the difference in membership between the two lists in the same year. In 1994 only five institutions appear in both top twenty lists while six appear in 2001. Only a single institution, the Medical College of Wisconsin, Milwaukee, appears in all four lists. This exception only serves to emphasize that, in general, the presence of a strong residency program is not necessarily associated with successful recruitment of medical students from that institution.

Comments: One year ago there was an increased number of seniors graduating from U.S. allopathic and osteopathic medical schools, as well as an increased number of U.S. citizen IMGs. The increase in the number of recruits from U.S. allopathic and osteopathic medical schools has continued. This year the number of U.S. citizen IMGs has decreased and the number of sponsored graduates has increased. The total recruited this year via the Match is 95 percent of the peak number (1025) recruited in 1992. The major difference appears to be that there were 347 unfilled positions in 1992 and only 131 unfilled this year.

Adequate employment opportunities continue to be abundantly available as was mentioned in the February 2001 "Ventilations" in the *ASA NEWSLETTER*. The shortage of anesthesiologists ensures employment for several years. For individual members of the profession this must be good news. For a profession committed to the widespread distribution of expert anesthesiology care, however, it is a handicap. When and if the threat of oversupply reappears, we should treat it with a moderation born of this recent cycle. A mere mention around our operating rooms of an adequate supply of anesthesiologists will probably suffice to modulate the supply of recruits.

Our "Abt reports" and discussions of "limits on residency numbers" would appear to be overkill, and almost certainly contributed to our current shortage.

Sheer size of a residency program is not the only yardstick of success. However, the association between size and eminence is far from random. By contrast, there appears to be no association between eminence and recruitment from one's own medical student population. Indeed, some of the most successful anesthesiology residency programs recruit astonishingly few of their own students into the specialty. This year the top three residency programs absorbed 64 recruits but were associated with schools which provided only 12 students between them.

This disparity invites speculation. In the spirit of provoking discussion and, perhaps, research, some of these speculations follow in a style encouraged by the relief we all feel in once again being popular:

The top ten reasons given by major anesthesiology chairs when asked to explain why they recruit so few of their own students:

- 10) I travel to too many meetings to meet students.
- 9) When they graduate they should get away from here and travel.
- 8) They all decided to do surgery before even applying to medical school.
- 7) I'm never in the operating room.
- 6) What students! You're telling me medical students come here too?
- 5) How can I meet students, I'm always in the laboratory.
- 4) Students are smarter than me and they scare me
- 3) Students are smarter than me and that really scares them.
- 2) Our anesthesiology residency actually makes a surgery residency look attractive.

And, the number one reason given by major anesthesiology chairs when asked to explain why they recruit so few of their own students:

- 1) Other medical schools have far better students!

Conclusion: Recruit! Recruit the best! Welcome any eventual oversupply and merely greet it with a carefully orchestrated whisper to selected students: "We may have enough for the present."

Website: Detailed information about the numbers of students recruited into anesthesiology from each school and the numbers recruited into, and graduating from, each residency program is available at <www.grogono.com/nrmp>.

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Dr. Grogono's past NRMP articles have appeared in August 1993, May 1994, June 1995, May 1996, May 1997, May 1998, May 1999, May 2000.

Alphabetical Order				By Number Matched				By Percent Matched			
State	Av	M	Percent	State	Av	M	Percent	State	Av	M	Percent
AL	14	14	100%	CA	109	106	97%	AL	14	14	100%
AR	8	8	100%	NY	126	93	74%	AR	8	8	100%
AZ	7	7	100%	TX	80	70	88%	AZ	7	7	100%
CA	109	106	97%	MA	74	68	92%	CO	10	10	100%
CO	10	10	100%	PA	74	65	88%	IA	12	12	100%
CT	24	17	71%	IL	63	48	76%	MD	32	32	100%
DC	13	12	92%	FL	38	36	95%	ME	4	4	100%
FL	38	36	95%	NC	35	35	100%	MI	29	29	100%
GA	22	20	91%	MD	32	32	100%	MN	20	20	100%
IA	12	12	100%	MI	29	29	100%	NC	35	35	100%
IL	63	48	76%	WI	29	29	100%	NE	8	8	100%
IN	20	18	90%	OH	40	28	70%	NH	5	5	100%
KS	12	11	92%	MO	33	26	79%	NM	6	6	100%
KY	17	15	88%	GA	22	20	91%	OK	4	4	100%
LA	18	17	94%	MN	20	20	100%	OR	6	6	100%
MA	74	68	92%	TN	22	20	91%	PR	4	4	100%
MD	32	32	100%	VA	19	19	100%	UT	10	10	100%
ME	4	4	100%	IN	20	18	90%	VA	19	19	100%
MI	29	29	100%	CT	24	17	71%	WI	29	29	100%
MN	20	20	100%	LA	18	17	94%	CA	109	106	97%
MO	33	26	79%	WA	19	17	89%	FL	38	36	95%
MS	7	6	86%	KY	17	15	88%	LA	18	17	94%
NC	35	35	100%	AL	14	14	100%	DC	13	12	92%
NE	8	8	100%	DC	13	12	92%	MA	74	68	92%
NH	5	5	100%	IA	12	12	100%	KS	12	11	92%
NJ	13	5	38%	KS	12	11	92%	GA	22	20	91%
NM	6	6	100%	CO	10	10	100%	TN	22	20	91%
NY	126	93	74%	UT	10	10	100%	IN	20	18	90%
OH	40	28	70%	AR	8	8	100%	WA	19	17	89%
OK	4	4	100%	NE	8	8	100%	SC	9	8	89%
OR	6	6	100%	SC	9	8	89%	KY	17	15	88%
PA	74	65	88%	AZ	7	7	100%	PA	74	65	88%
PR	4	4	100%	MS	7	6	86%	TX	80	70	88%
SC	9	8	89%	NM	6	6	100%	MS	7	6	86%
TN	22	20	91%	OR	6	6	100%	MO	33	26	79%
TX	80	70	88%	NH	5	5	100%	IL	63	48	76%
UT	10	10	100%	NJ	13	5	38%	VT	4	3	75%
VA	19	19	100%	ME	4	4	100%	NY	126	93	74%
VT	4	3	75%	OK	4	4	100%	CT	24	17	71%
WA	19	17	89%	PR	4	4	100%	OH	40	28	70%
WI	29	29	100%	VT	4	3	75%	WV	5	2	40%
WV	5	2	40%	WV	5	2	40%	NJ	13	5	38%
N = 42	1104	973	88%	N = 42	1104	973	88%	N = 42	1104	973	88%

Spare Table NOT USED IN THE ARTICLE:

NRMP results for 2001: Numbers matching into each State ranked by State, Number Matched, and Percentage matched. Av = Available positions; M = Matched.

Year	PG1 Positions			CA1 Positions			Sum of PG1 + CA1			Unfilled
	Students	All	Available	Students	All	Available	Students	All	Available	
1990	251	264	321	642	693	822	893	957	1143	186
1991	247	266	329	698	751	963	945	1017	1292	275
1992	244	273	352	682	752	1020	926	1025	1372	347
1993	199	235	325	632	708	1094	831	930	1386	456
1994	163	191	297	542	634	1022	705	825	1295	470
1995	93	136	241	330	400	902	423	536	1143	607
1996	43	113	234	126	211	712	169	324	946	622
1997	80	197	317	173	300	677	253	497	994	497
1998	118	246	347	270	399	661	388	645	1008	363
1999	137	255	376	288	401	671	425	656	1047	391
2000	171	291	349	378	510	656	549	801	1005	204
2001	237	332	371	476	641	733	713	973	1104	131

Table 1: Match Results for Anesthesiology 1990 - 2001.

"Students" are graduating seniors from US Allopathic Medical Schools.

"All" includes every category listed in Table 2.

"Available" represents the number of positions offered via the Match.

"Unfilled" represents the difference between "Available" and "All".

	1996	1997	1998	1999	2000	2001
Allopathic	169	253	388	425	549	713
Osteopathic	14	7	17	35	55	107
IMG/NonUS	130	213	201	152	133	79
IMG/US	10	22	34	41	59	50
Sponsored Grad	1	2	2	2	3	15
Fifth Pathway	0	0	0	1	2	4
Canadian	1	0	2	0	0	3
US Physician	0	0	1	0	0	2
Total	325	497	645	656	801	973

Table 2: Distribution via the Match 1996 to 2001.

Distribution into anesthesiology from various sources over the last six years. During this period the number of Osteopathic physicians entering anesthesiology has risen significantly.

1997			1998			1999			2000			2001		
State	TA	TM	State	TA	TM	State	TA	TM	State	TA	TM	State	TA	TM
CA	96	60	CA	100	91	CA	103	87	CA	100	95	CA	109	106
NY	81	39	TX	75	54	NY	103	61	NY	94	69	NY	126	93
FL	47	35	MA	66	51	MA	83	54	TX	78	65	TX	80	70
TX	70	34	NY	96	43	TX	75	40	MA	76	64	MA	74	68
MA	58	33	FL	44	34	PA	71	35	PA	58	41	PA	74	65
IL	66	21	IL	69	32	IL	65	30	IL	65	39	IL	63	48
NC	28	20	PA	65	26	NC	34	27	NC	33	33	FL	38	36
LA	32	19	MI	34	24	MI	31	26	FL	31	31	NC	35	35
WI	26	19	NC	28	23	FL	39	25	MI	30	30	MD	32	32
MD	27	18	MD	29	22	MO	28	20	MO	33	26	MI	29	29
VA	20	18	WI	25	21	WI	21	20	MD	29	25	WI	29	29
OH	38	16	MN	23	20	VA	20	18	WI	19	19	OH	40	28
MI	29	15	VA	20	19	IN	20	16	LA	18	18	MO	33	26
PA	63	15	MO	31	15	MD	23	16	WA	19	18	GA	22	20
WA	18	13	WA	18	15	OH	44	16	OH	39	17	MN	20	20
KY	15	12	IN	18	14	WA	22	16	IN	20	16	TN	22	20
AL	12	11	AL	12	12	MN	16	15	KY	16	15	VA	19	19
MN	14	11	KY	14	12	AL	14	14	MN	18	15	IN	20	18
MS	12	10	GA	16	11	GA	16	13	AL	14	14	CT	24	17
AZ	19	8	LA	13	11	LA	23	13	VA	20	14	LA	18	17
GA	16	7	OH	32	11	CO	12	12	TN	22	13	WA	19	17
IN	15	7	TN	24	11	KY	11	9	CO	12	12	KY	17	15
MO	23	7	CO	10	10	MS	7	7	IA	12	12	AL	14	14
TN	25	7	DC	12	8	SC	9	7	GA	17	11	DC	13	12
DC	17	5	MS	7	7	TN	22	7	NE	10	9	IA	12	12
IA	15	5	IA	12	5	AR	6	6	AZ	8	8	KS	12	11
AR	4	4	OR	5	5	AZ	6	6	SC	9	7	CO	10	10
KS	10	4	AZ	10	4	KS	15	6	AR	6	6	UT	10	10
NJ	16	4	KS	8	4	OK	6	6	CT	13	6	AR	8	8
OK	6	4	NH	8	4	DC	19	4	KS	9	6	NE	8	8
CO	10	3	NJ	20	4	NJ	16	4	NM	6	6	SC	9	8
NM	6	3	OK	6	4	NM	6	4	UT	6	6	AZ	7	7
CT	7	2	SC	7	4	IA	10	3	MS	7	5	MS	7	6
NH	6	2	ME	3	3	NH	6	3	NH	5	5	NM	6	6
UT	10	2	NE	7	3	CT	19	2	OK	6	5	OR	6	6
ME	3	1	WV	8	3	ME	4	2	DC	13	4	NH	5	5
NE	4	1	NM	6	2	NE	8	2	PR	4	4	NJ	13	5
OR	5	1	AR	1	1	OR	5	2	ME	4	3	ME	4	4
SC	16	1	CT	22	1	UT	1	1	OR	6	3	OK	4	4
VT	4	0	VT	4	1	WV	4	1	WV	5	3	PR	4	4
WV	5	0	PR	-	-	VT	4	0	VT	4	2	VT	4	3
PR	-	-	UT	-	-	PR	-	-	NJ	11	1	WV	5	2
N=41	994	497	N=40	1008	645	N=41	1047	656	N=42	1005	801	N = 42	1104	973

Table 3: Positions available & matched by State for 1997 to 2001.

For each year the data is ranked by number matched. This year, of the total matching into anesthesiology, 20% went to the top 2 States, 41% to the top 5, and 60% to the top 10.

Key: TA = Total positions Available
TM = Total positions Matched

NRMP Match Results for the Top 20 Schools and Programs

1994 Medical Schools	Anes	Grads	1994 Residencies	TM	TA
Med Coll Wisc, Milwaukee	19	185	U California, San Francisco	24	24
Univ Illinois, Chicago	18	168	Emory U School of Med, Atlanta	20	20
SUNY HSC, Brooklyn	17	191	Brigham & Women's Hosp, Boston	20	20
New York Med Coll, New York	15	165	Jackson Memorial Hosp, Miami	18	21
U Tex Med Branch, Galveston	15	174	Johns Hopkins Hosp, Baltimore	18	18
U Tex HSC, San Antonio	15	180	Univ Mich Hosps, Ann Arbor	17	22
Indiana U Sch Med, Indianapolis	15	245	Mayo School Med, Rochester	17	17
Hahnemann Univ, Philadelphia	14	149	Med Coll Wisc, Milwaukee	17	18
U Texas, Houston	14	172	The New York Hospital, New York	16	16
Wayne State U, Detroit	13	233	U Tex Med Branch, Galveston	16	16
Univ of Pittsburgh, Pittsburgh	12	117	Stanford U Hospital, Stanford	15	15
U Tex SW Med School, Dallas	12	174	Hosp U Pennsylvania, Philadelphia	15	15
SUNY HSC, Syracuse	11	157	Thomas Jefferson U, Philadelphia	14	18
Univ Arkansas, Little Rock	10	121	U Tex SW Med School, Dallas	14	20
U California, San Francisco	10	146	UCLA Med Center, Los Angeles	13	15
SUNY, Buffalo	10	150	Yale-New Haven Hosp, New Haven	13	16
Med Coll Georgia, Augusta	10	154	Univ Chicago Hospitals, Chicago	13	13
U Mich Med Sch, Ann Arbor	10	197	Massachusetts Gen Hosp, Boston	13	18
Wright State Univ, Dayton	9	84	Mount Sinai Hospital, New York	13	15
Univ Nebraska, Omaha	9	103	U South Florida, Tampa	12	13
Total for top 20 medical schools	258	3265	Total for top 20 residencies	318	350
Total for all 133 medical schools	705	14209	Total for all 144 residencies	825	1295

2001 Medical Schools	Anes	Grads	2001 Residencies	TM	TA
Indiana U Sch Med, Indianapolis	29	252	U California, San Francisco	22	22
U Texas, Houston	22	168	Johns Hopkins Hosp, Baltimore	22	22
U Tex HSC, San Antonio	21	177	Brigham & Women's Hosp, Boston	20	20
Med Coll Wisc, Milwaukee	20	178	Med Col Wisc Aff Hosp, Milwaukee	20	20
University of Colorado, Denver	16	118	U Tex Med School, Houston	19	19
Loma Linda Univ, Loma Linda	15	158	UCLA Med Center, Los Angeles	18	18
Creighton University, Omaha	14	103	Indiana U Sch Med, Indianapolis	18	20
Tufts University, Boston	13	158	Univ Mich Hosps, Ann Arbor	18	18
Ohio State Univ, Columbus	13	178	McGaw Med Ctr NW Univ, Chicago	17	17
Univ of Washington, Seattle	12	164	Massachusetts Gen Hosp, Boston	17	22
Univ of Wisconsin, Madison	12	132	U Florida Shands Hosp, Gainesville	16	16
U Southern Calif, Los Angeles	11	151	Emory U School of Med, Atlanta	16	16
University of Iowa, Iowa City	11	168	Mayo School Med, Rochester	16	16
Univ Minnesota, Minneapolis	11	208	NYP Hosp-NY Cornell, New York	16	16
Oklahoma Univ, Oklahoma City	11	103	U Alabama Hosp, Birmingham	14	14
Univ of Pittsburgh, Pittsburgh	11	134	Wake Forest Univ, Winston-Salem	14	14
U Tex SW Med School, Dallas	11	183	U Southern California, Los Angeles	13	13
Univ of Utah, Salt Lake City	10	79	Thomas Jefferson U, Philadelphia	13	16
U California, Irvine	9	83	Univ Hlth Ctr, Pittsburgh	13	13
U California, San Diego	9	110	U Tex SW Med School, Dallas	13	15
Total for top 20 medical schools	281	3005	Total for top 20 residencies	335	347
Total for all 131 medical schools	713	14464	Total for all 125 residencies	973	1104

Table 4: Recruitment from the top 20 schools and into the top 20 residencies in 1994 and 2001.

Key: Anes = Students at that medical school matching into anesthesiology

Grads = Total students at that medical school entering the match

TM = Total positions Matched

TA = Total positions Available

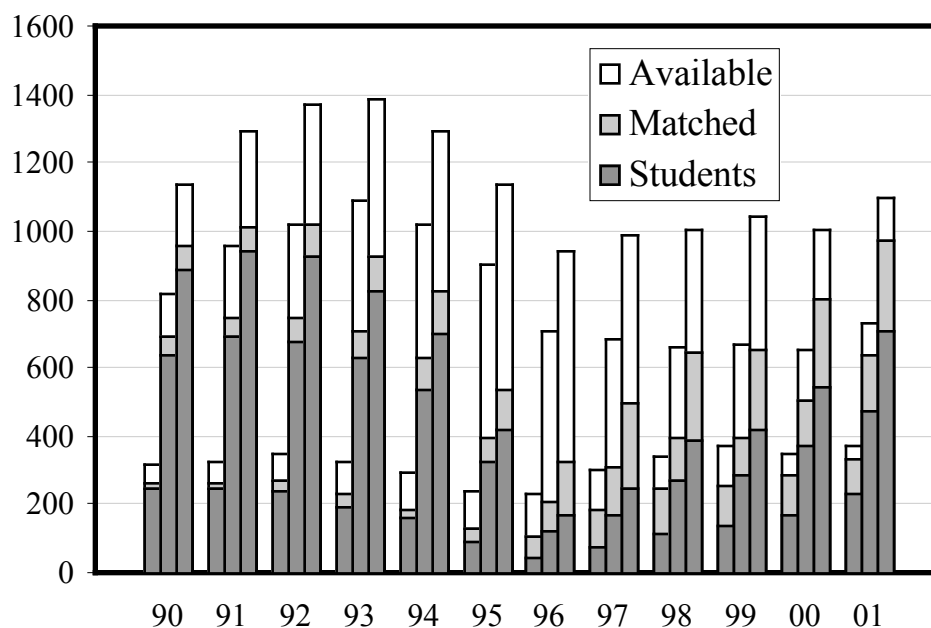


Figure 1. **Graph of the NRMP Match Results for Anesthesiology 1990 - 2000.**

For each year, the right hand column represents the sum of the left (PG1) and center (CA1). The lower (dark) bar of each column represents the number of graduating seniors from US allopathic medical schools. The size of the middle (gray) bar represents the number of other recruits; the upper border of the gray bar indicates the total number recruited. The size of the top bar (white) indicates the number of unfilled places; the upper border of the white bar indicates the number of places offered via the Match.

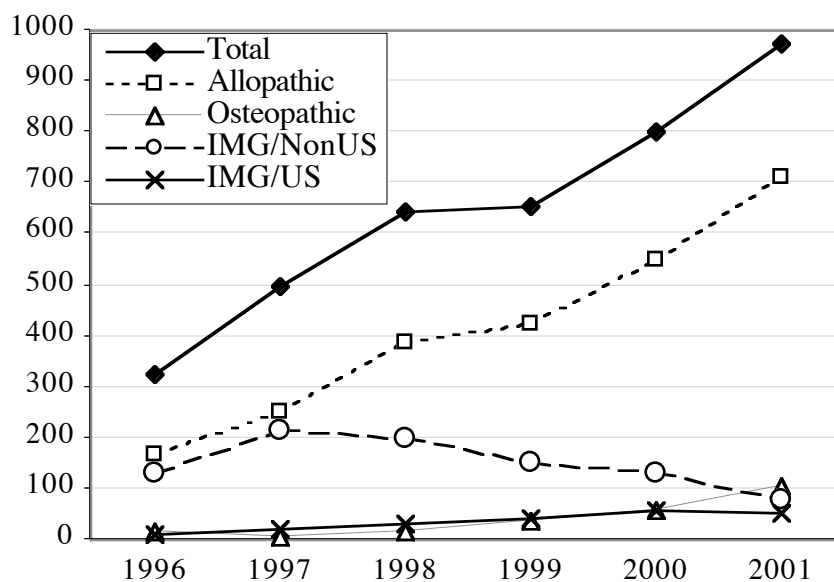


Figure 2. **Graph of the distribution of people recruited via the Match 1996 to 2001.**

This graph is based on the larger categories in Table 2. It shows that the major increase in recruitment is attributable to increased recruitment from US allopathic medical schools.