

# Trends in Graduate Medical Education, 1999 through 2008

10 years of GME data collected  
through the National GME Census

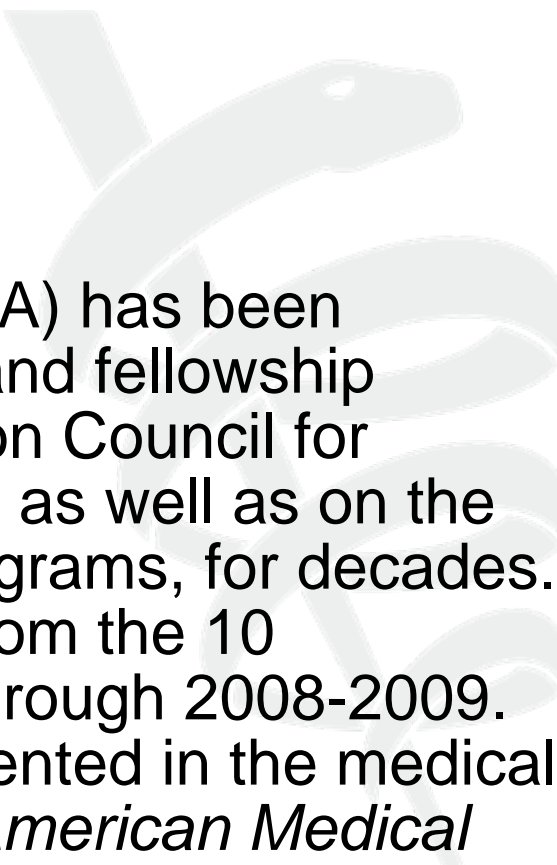


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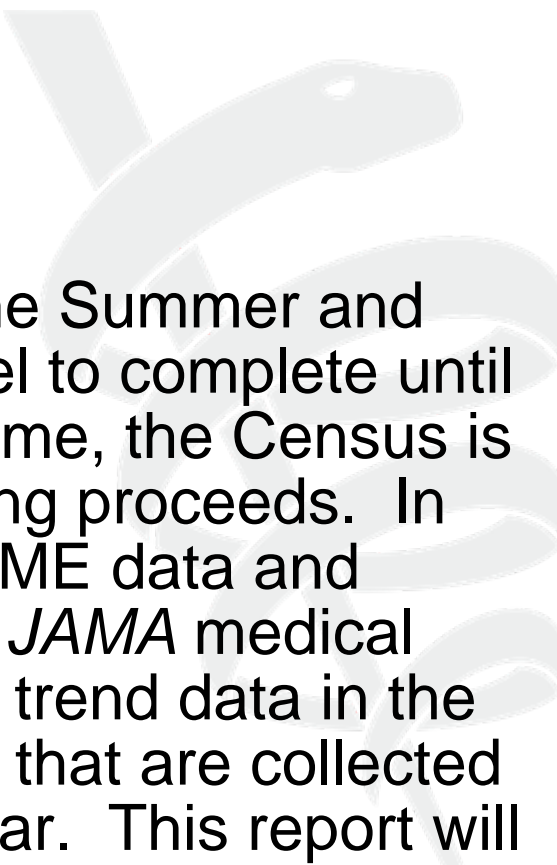
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The American Medical Association (AMA) has been collecting information about residency and fellowship programs accredited by the Accreditation Council for Graduate Medical Education (ACGME), as well as on the residents and fellows training in the programs, for decades. This report presents aggregated data from the 10 academic years spanning 1999-2000 through 2008-2009. Much of this information has been presented in the medical education issues of the *Journal of the American Medical Association* (JAMA). Due to subsequent data cleaning post-publication, some data points are different.

Exact survey methodology can be found in the various JAMA articles and appendices (see Appendix). Typically, programs are contacted in Summer of each year and asked to complete the National GME Census. The Census is comprised of two surveys: the program survey, which essentially collects information that will be placed on FREIDA Online; and the resident/fellow survey, which collects information on the trainees that will be used to update each physician's training status in the AMA's Physician Masterfile. FREIDA Online is a web site of the AMA's that medical students and residents use to search out information and statistics on ACGME-accredited programs (<http://www.ama-assn.org/go/freida>). Since 2000 the Census has been a part of GME Track, a data collection product of the Association of American Medical Colleges.



The National GME Census is open in the Summer and available for appropriate GME personnel to complete until December of the current year. At that time, the Census is closed, and data processing and cleaning proceeds. In September of the next year, tables of GME data and sometimes articles are published in the *JAMA* medical education issue. It is difficult to present trend data in the *JAMA* issues due to the amount of data that are collected and presented for a single academic year. This report will provide some of that trend data.

Separate tables and figures are accessible by selecting the link on each page.

Table 1 and Figures 1 and 2 demonstrate the growth in GME over these 10 years. Altogether, the average annual growth rate for both the number of programs and the number of residents and fellows was a little over 1%. The growth rate is not uniform; over the 10 years the number of specialty programs (specialty programs are “core” programs that, after completing, a physician can sit for an initial board certification exam) decreased an annual .44% a year, from 4,268 in 1999 to 4,100 in 2008.

The number of subspecialty programs grew an average 2.50% a year, from 3,678 to 4,594. Although there are many more physicians training in specialty programs than subspecialty programs, there are now more subspecialty programs than specialty programs; this crossover occurred in 2005-2006. The growth rate in the number of physicians in subspecialty programs is 3.70%, three hundred percent higher than the rate of growth in the number of residents in specialty programs (.70%).

**Table 1. Number of programs and residents, 1999-2000 through 2008-2009**

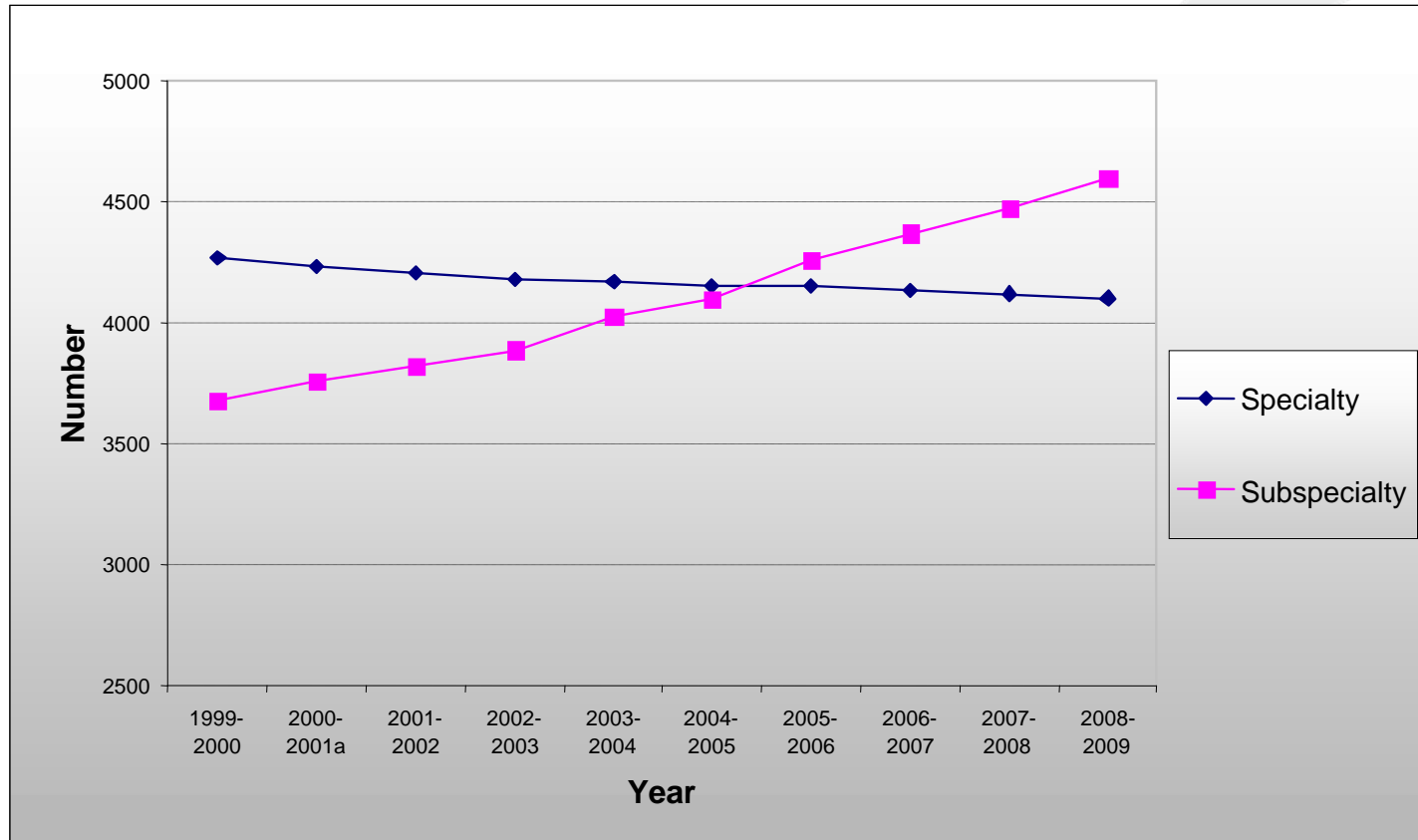
	Total Programs		Total Residents		Specialty programs		Subspecialty programs		Specialty residents		Subspecialty residents	
	No.	No.	No.	%	No.	%	No.	%	No.	%	No.	%
1999-2000	7946	97,989	4268	53.7	3678	46.3	85,460	87.2	12,529	12.8		
2000-2001 <sup>a</sup>	7985	96,806	4228	52.9	3757	47.1	85,081	87.9	11,725	12.1		
2001-2002	8025	96,410	4203	52.4	3822	47.6	84,319	87.5	12,091	12.5		
2002-2003	8064	98,258	4176	51.8	3888	48.2	85,368	86.9	12,890	13.1		
2003-2004	8192	99,964	4169	50.9	4023	49.1	86,357	86.4	13,607	13.6		
2004-2005	8246	101,291	4151	50.3	4095	49.7	86,975	85.9	14,316	14.1		
2005-2006	8403	103,106	4149	49.4	4254	50.6	88,241	85.6	14,865	14.4		
2006-2007	8502	104,879	4134	48.6	4368	51.4	89,269	85.1	15,610	14.9		
2007-2008	8589	106,012	4119	48.0	4470	52.0	89,618	84.5	16,394	15.5		
2008-2009	8694	108,176	4100	47.2	4594	52.8	90,907	84.0	17,269	16.0		
% average annual change	1.01	1.11	-0.44		2.50		0.70		3.70			

<sup>a</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents

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[Link to Table 1](#)

Figure 1. Number of specialty and subspecialty programs, 1999-2000 through 2008-2009

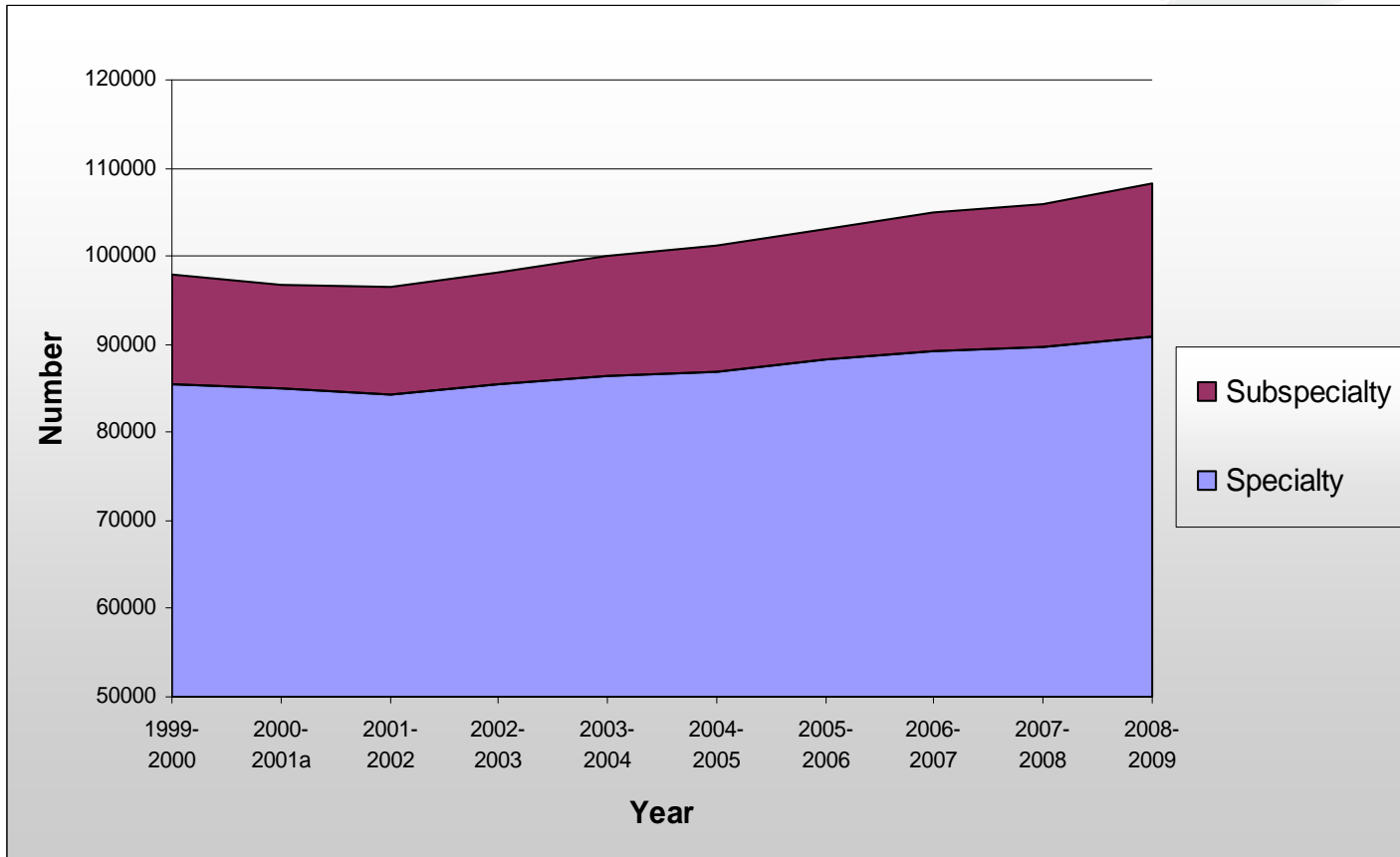


<sup>a</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

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[Link to Figure 1](#)

Figure 2. Number of specialty and subspecialty residents, 1999-2000 through 2008-2009



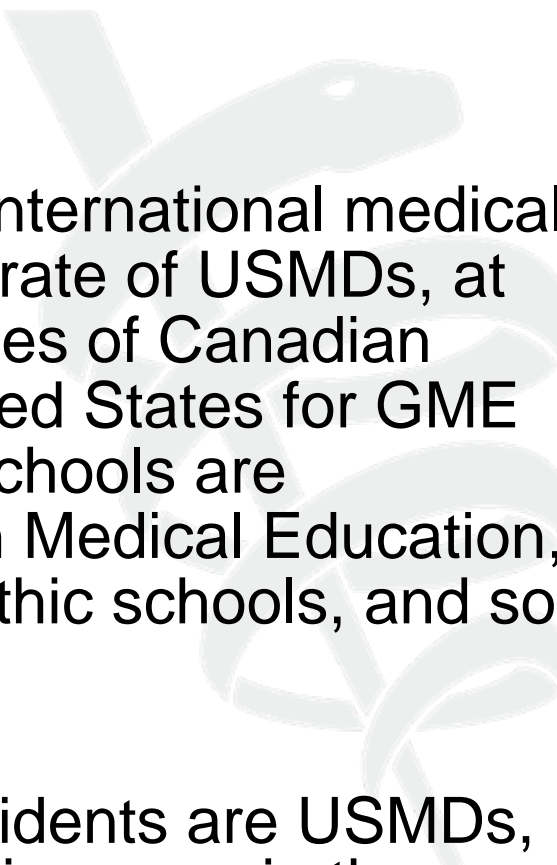
<sup>a</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

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[Link to Figure 2](#)

Table 2 and Figure 3 present information on the type of medical school residents graduated from over the 10 years. The number of residents who are graduates of US allopathic schools (USMD) has been growing at a rate of .61% a year, but the overall proportion of residents who are USMDs has fallen, from 68.7% to 65.7%.

While a small minority, the number of residents who are graduates of colleges of osteopathic medicine (DO) has grown at a rate of 7.26% per year, nearly doubling in number (DOs have the option of training in osteopathic internship or residency programs – accredited by the American Osteopathic Association -- as well as in allopathic residency programs, which are accredited by the ACGME. The data the National GME Census collects is on ACGME-accredited programs only; therefore, these statistics on DOs do not include all DOs in GME.).



The number of graduates of foreign or international medical schools (IMG) has grown at double the rate of USMDs, at 1.27% per year. The number of graduates of Canadian medical schools immigrating to the United States for GME has fallen steadily (Canadian medical schools are accredited by the Liaison Committee on Medical Education, the same body that accredits US allopathic schools, and so are not considered foreign).

While proportionally two-thirds of all residents are USMDs, they make up only 36.0% of the overall increase in the number of residents training over the 10 years; DOs 31.9% and IMGs 32.1%.

**Table 2. Number of residents, by medical school origin, 1999-2000 through 2008-2009<sup>a</sup>**

	USMD		DO		Canadian school		IMG		Unknown/Un-accredited		Total residents
	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1999-2000	67,356	68.7	3894	4.0	538	0.5	26,126	26.7	75	0.1	97,989
2000-2001 <sup>b</sup>	65,949	68.1	4236	4.4	491	0.5	25,554	26.4	576	0.6	96,806
2001-2002	65,669	68.1	4757	4.9	429	0.4	25,530	26.5	25	<0.0	96,410
2002-2003	66,643	67.8	5334	5.4	419	0.4	25,802	26.3	60	0.1	98,258
2003-2004	67,129	67.2	5843	5.8	394	1.4	26,582	26.6	16	<0.0	99,964
2004-2005	68,453	67.6	5679	5.6	416	0.4	26,734	26.4	9	<0.0	101,291
2005-2006	68,580	66.5	6476	6.3	387	0.4	27,650	26.8	13	<0.0	103,106
2006-2007	69,721	66.5	6629	6.3	353	0.3	28,176	26.9	0	0.0	104,879
2007-2008	70,056	66.1	6784	6.4	341	0.3	28,824	27.2	7	<0.0	106,012
2008-2009	71,119	65.7	7237	6.7	326	0.3	29,488	27.3	6	<0.0	108,176
% average annual change	0.61		7.26		-5.29		1.37		<sup>c</sup>		1.11

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

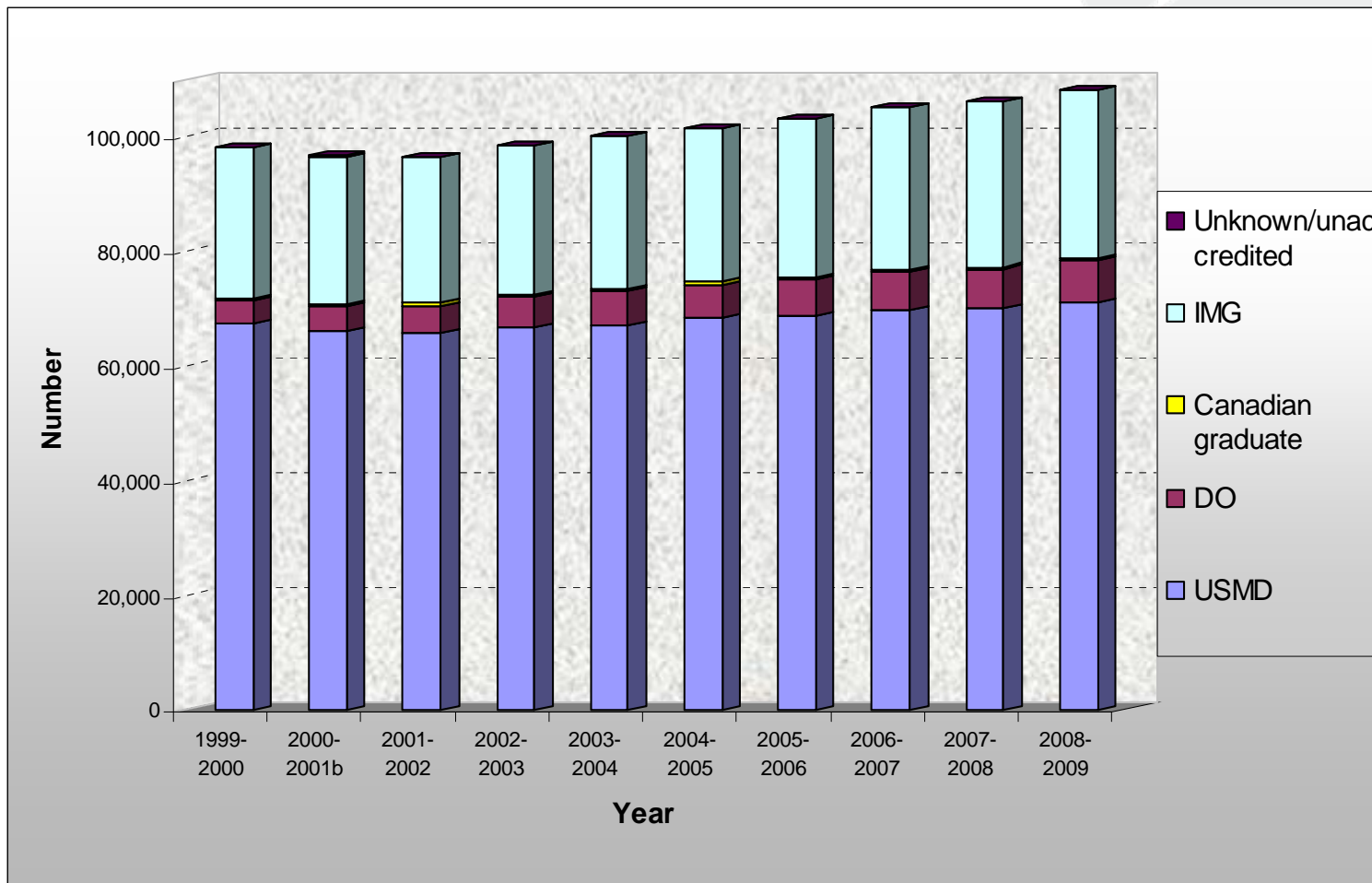
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Not calculated.

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[Link to Table 2](#)

Figure 3. Number of residents by medical school, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from JAMA GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

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[Link to Figure 3](#)

Table 3 and Figure 4 display the information on medical school origin just for residents training in specialty programs. These are residents training in programs that can lead to initial board certification. Here there is no growth rate in the number of USMDs, remaining flat over the 10 years. The overall increase in residents in specialty programs, growing at .7% annually, is driven exclusively by the growth in the number of DOs and IMGs, growing annually at nearly 7% and 1.5%, respectively.

**Table 3. Number of residents in specialty programs, by medical school origin, 1999-2000 through 2008-2009<sup>a</sup>**

	USMD		DO		Canadian school		IMG		Unknown/Un-accredited		Total residents
	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1999-2000	60,764	71.1	3568	4.2	353	0.4	20,712	24.2	63	0.1	85,460
2000-2001 <sup>b</sup>	59,751	70.2	3931	4.6	320	0.4	20,765	24.4	314	0.4	85,081
2001-2002	58,864	69.8	4404	5.2	291	0.3	20,738	24.6	22	<0.0	84,319
2002-2003	59,111	69.2	4919	5.8	299	0.4	20,991	24.6	48	0.1	85,368
2003-2004	59,120	68.5	5305	6.1	274	0.3	21,647	25.1	11	<0.0	86,357
2004-2005	59,735	68.7	5086	5.8	293	0.3	21,854	25.1	7	<0.0	86,975
2005-2006	59,531	67.5	5770	6.5	283	0.3	22,646	25.7	11	<0.0	88,241
2006-2007	60,238	67.5	5815	6.5	250	0.3	22,966	25.7	0	0.0	89,269
2007-2008	60,236	67.2	5916	6.6	230	0.3	23,229	25.9	7	<0.0	89,618
2008-2009	60,838	66.9	6297	6.9	189	0.2	23,578	25.9	5	<0.0	90,907
% average annual change	0.02		6.67		-6.44		1.46		c		0.7

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

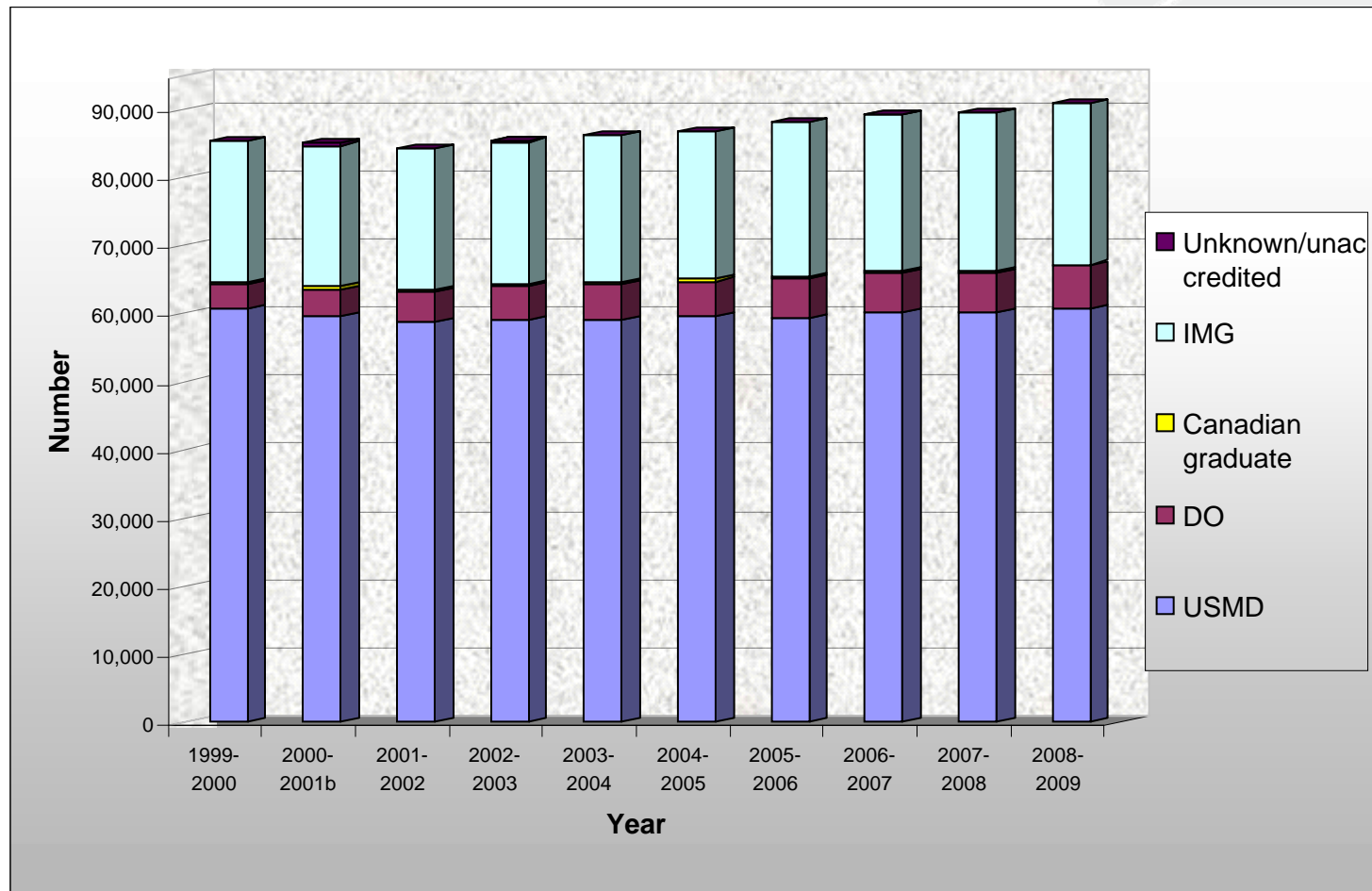
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Not calculated.

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[Link to Table 3](#)

Figure 4. Specialty residents by medical school, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 4](#)

Table 4 and Figure 5 present the same information for residents training in subspecialty programs. Here there is dramatic growth in the number of USMDs and DOs, and not as much for IMGs. There are limited number of subspecialty training opportunities in programs accredited by the AOA; therefore, many DOs seeks subspecialty training in ACGME-accredited programs. IMGs have historically been overrepresented in subspecialty training, as many IMGs come to the United States purposely seeking advanced training. Their proportion has decreased with the steady climb of USMDs seeking subspecialty training.

**Table 4. Number of residents in subspecialty programs, by medical school origin, 1999-2000 through 2008-2009<sup>a</sup>**

	USMD		DO		Canadian school		IMG		Unknown/Un-accredited		Total residents
	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1999-2000	6592	52.6	326	2.6	185	1.5	5414	43.2	12	0.1	12,529
2000-2001 <sup>b</sup>	6198	52.9	305	2.6	171	1.5	4789	40.8	262	2.2	11,725
2001-2002	6805	56.3	353	2.9	138	1.1	4792	39.6	3	<0.0	12,091
2002-2003	7532	58.4	415	3.2	120	0.9	4811	37.3	12	0.1	12,890
2003-2004	8009	58.9	538	4.0	120	0.9	4935	36.3	5	<0.0	13,607
2004-2005	8718	60.9	593	4.1	123	0.9	4880	34.1	2	<0.0	14,316
2005-2006	9049	60.9	706	4.7	104	0.7	5004	33.7	2	<0.0	14,865
2006-2007	9483	60.7	814	5.2	103	0.7	5210	33.4	0	0.0	15,610
2007-2008	9820	59.9	868	5.3	111	0.7	5595	34.1	0	0.0	16,394
2008-2009	10,281	59.5	940	5.4	137	0.8	5910	34.2	1	<0.0	17,269
% average annual change	5.17		12.89		-2.51		1.12		<sup>c</sup>		3.7

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

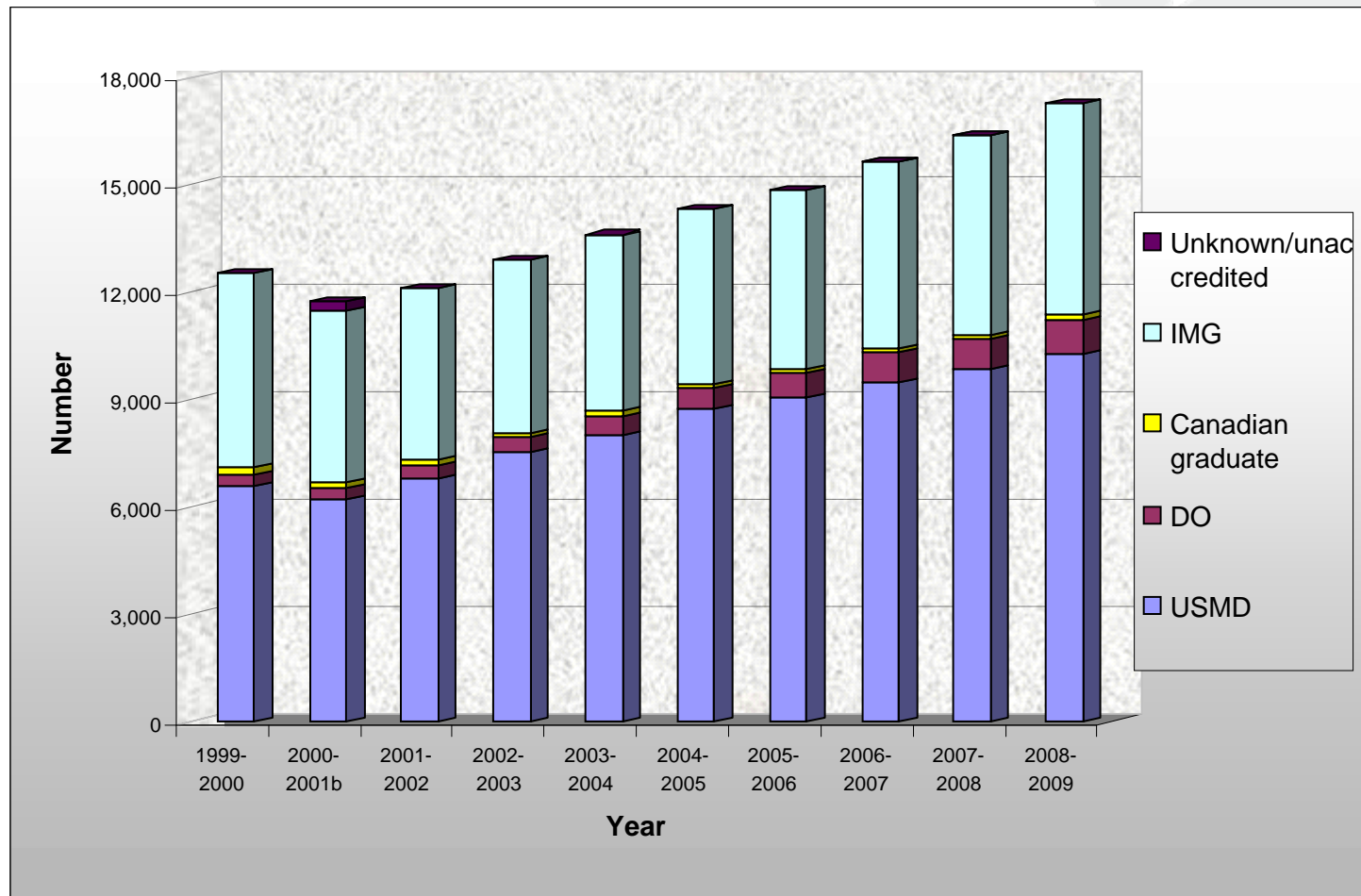
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Not calculated.

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[Link to Table 4](#)

Figure 5. Subspecialty residents by medical school, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 5](#)

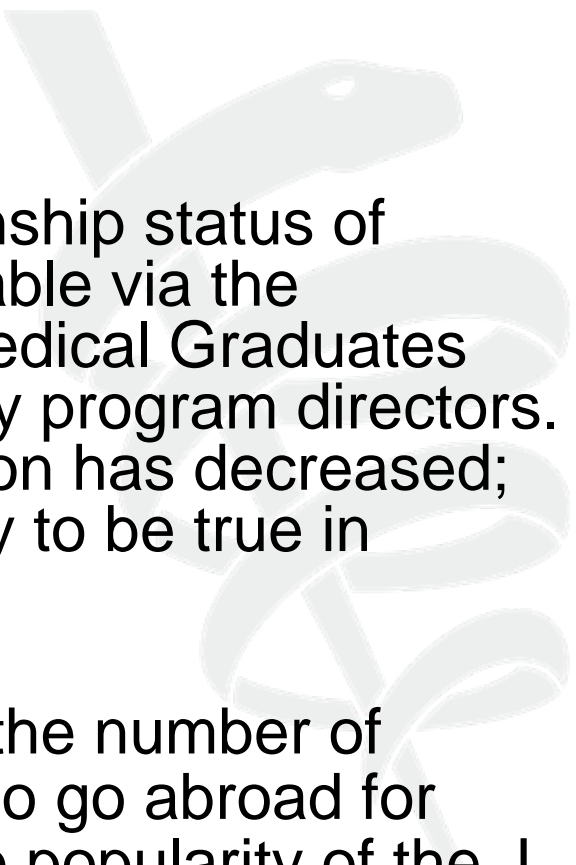


Table 5 and Figure 6 present the citizenship status of IMGs. Some of this information is available via the Educational Commission for Foreign Medical Graduates (ECFMG) but the majority is provided by program directors. Over time the reliability of this information has decreased; however, the trends presented are likely to be true in direction.

Two notable trends are the increase in the number of citizens, either native or naturalized, who go abroad for medical school, and the decrease in the popularity of the J visa, replaced principally by the H visa (data not shown).

**Table 5. Number of IMGs by citizenship status (Native/naturalized, permanent resident, visa or unknown)<sup>a</sup>**

	Native/naturalized		Permanent resident		J visa		Other visa		Other/Unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	4936	18.9	9305	35.6	7867	30.1	2206	8.4	1812	6.9	26,126
2000-2001 <sup>b</sup>	5260	20.6	8266	32.3	6720	26.3	1841	7.2	3467	13.6	25,554
2001-2002	5448	21.3	6847	26.8	5483	21.5	1657	6.5	6095	23.9	25,530
2002-2003	5835	22.6	6687	25.9	4799	18.6	1801	7.0	6680	25.9	25,802
2003-2004	6853	25.8	6674	25.1	4192	15.8	2487	9.4	6376	24.0	26,582
2004-2005	6488	24.3	6538	24.5	3841	14.4	3161	11.8	6706	25.1	26,734
2005-2006	7093	25.7	6745	24.4	3845	13.9	4083	14.8	5884	21.3	27,650
2006-2007	6878	24.4	6589	23.4	3960	14.1	4475	15.9	6274	22.3	28,176
2007-2008	6982	24.2	6246	21.7	3963	13.7	4813	16.7	6820	23.7	28,824
2008-2009	7071	24.0	5965	20.2	4152	14.1	5006	17.0	7294	24.7	29,488
% average annual change	4.27		-4.64		-6.50		10.85		20.82		1.37

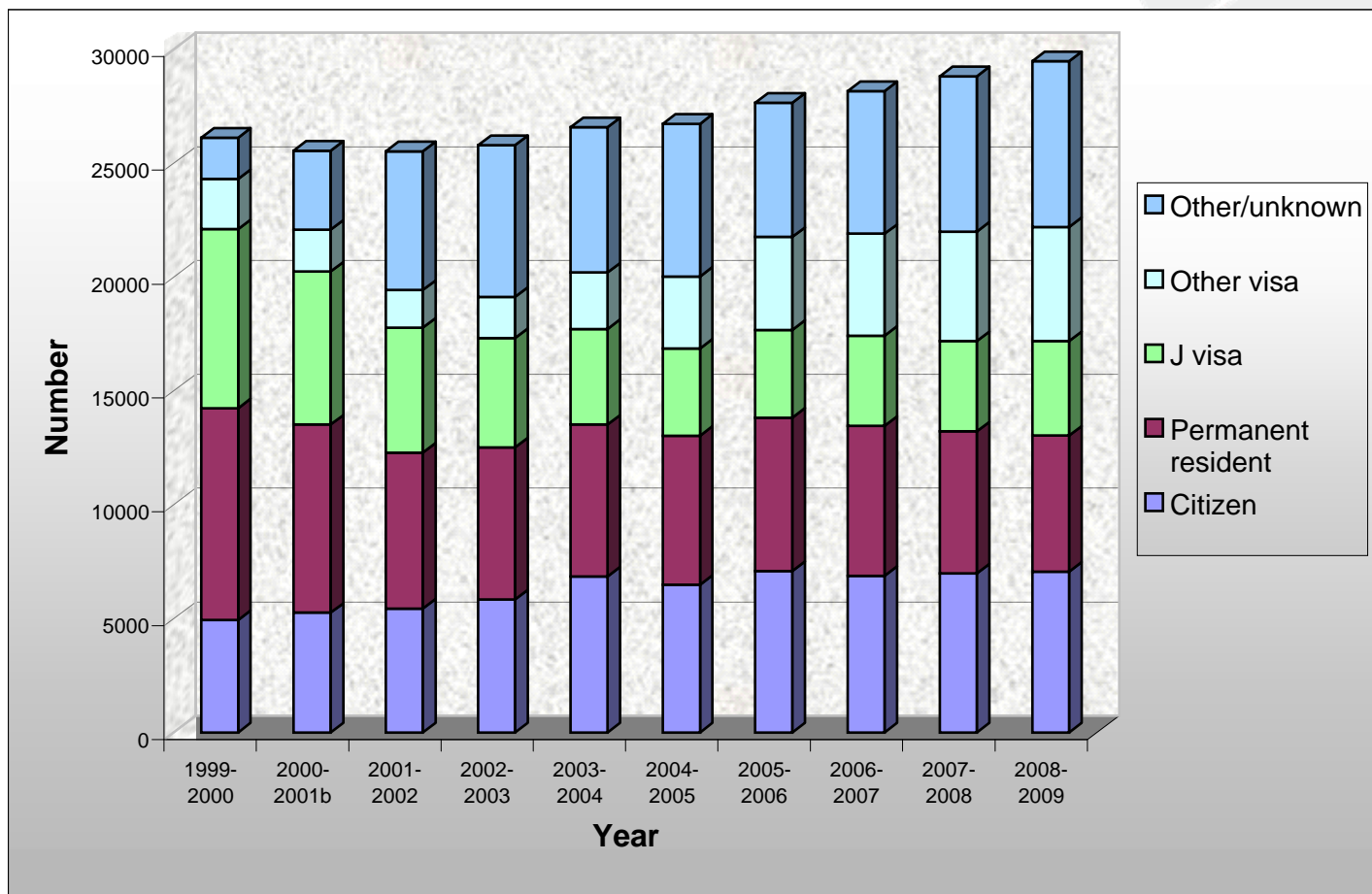
<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents

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[Link to Table 5](#)

Figure 6. IMGs by citizenship status, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from JAMA GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 6](#)

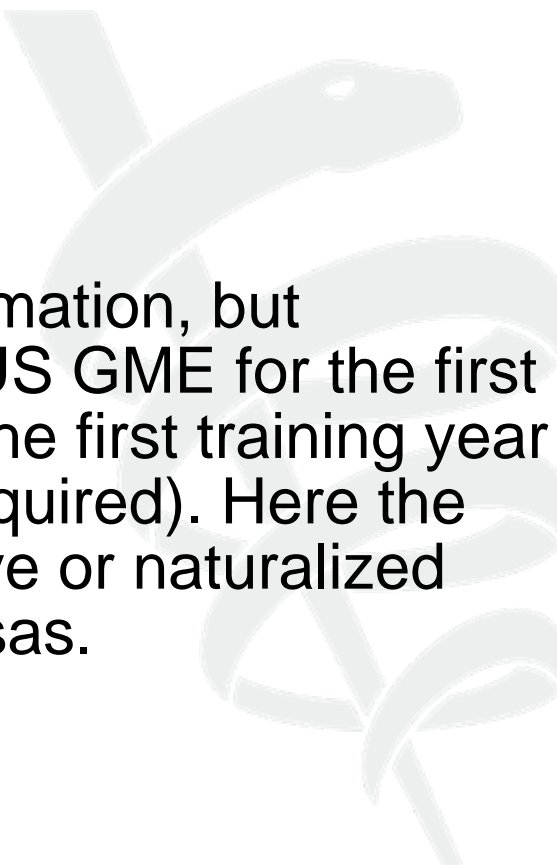


Table 6 and Figure 7 show similar information, but exclusively for IMGs who are entering US GME for the first time (GY1 stands for graduate year 1, the first training year in GME, for which no prior training is required). Here the trends are similar, with a growth in native or naturalized IMGs and a decrease in IMGs with J visas.

**Table 6. Number of GY1 (first entry to US GME) IMGs by citizenship status (Native/naturalized, permanent resident, visa or unknown)<sup>a</sup>**

	Native/naturalized		Permanent resident		J visa		Other visa		Other/Unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	1316	22.9	2100	36.6	1395	24.3	559	9.7	370	6.4	5740
2000-2001 <sup>b</sup>	1092	32.9	818	24.7	515	15.5	253	7.6	639	19.3	3317
2001-2002	1189	22.8	960	18.4	605	11.6	342	6.6	2117	40.6	5213
2002-2003	1182	21.0	1287	22.9	580	10.3	527	9.4	2148	38.2	5628
2003-2004	1275	20.9	1286	21.1	580	9.5	822	13.5	2143	35.1	6106
2004-2005	1181	19.3	1236	20.2	606	9.9	951	15.5	2159	35.2	6133
2005-2006	1468	22.7	1287	19.9	676	10.5	1039	16.1	1988	30.8	6458
2006-2007	1314	19.9	1260	19.1	767	11.6	1034	15.6	2238	33.8	6613
2007-2008	1458	21.5	1082	15.9	782	11.5	1131	16.6	2342	34.5	6795
2008-2009	1619	23.1	1058	15.1	811	11.6	1101	15.7	2409	34.4	6998
% average annual change	3.06		-3.10		-1.62		13.52		35.35		5.03

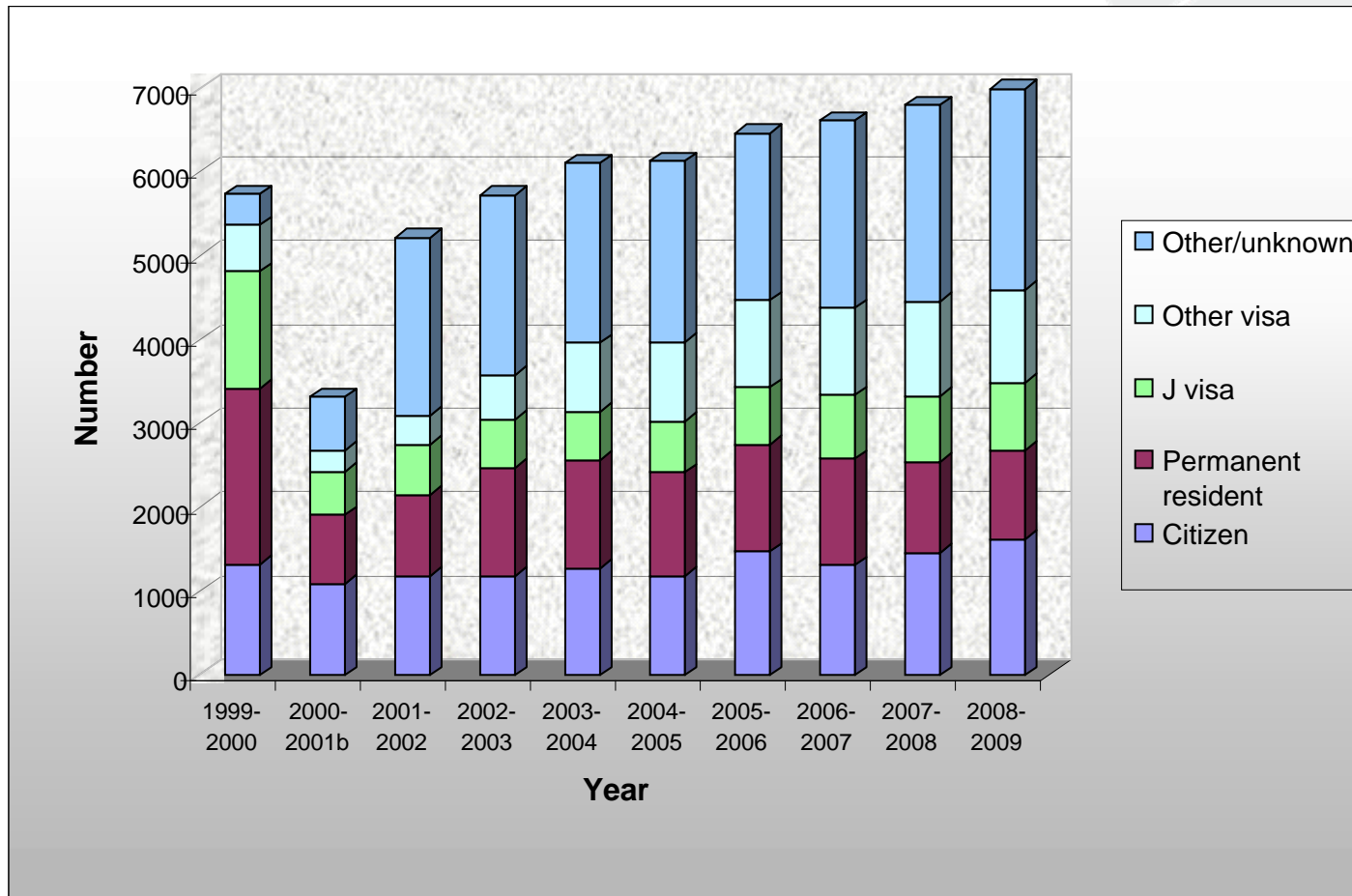
<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

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[Link to Table 6](#)

Figure 7. GY1 IMGs by citizenship status, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 7](#)

Table 7 and Figure 8 present information on GY1 residents by the type of medical school, and echoes somewhat Table 2 and Figure 3. Although during this period there has been a slight increase in the number of allopathic medical schools and in class size, until recently that did not translate into an increase in GY1 USMDs, due to the length of medical school education; hence the relatively flat annual growth rate of .13%.

Osteopathic medical schools, however, have been increasing steadily. In 1999-2000 there were 17 osteopathic medical schools, growing to 21 in 2005-2006. The number of DO GY1s in ACGME-accredited programs doubled between 1999-2000 and 2008-2009, from 921 to 1809. The number of graduates from Canadian schools entering US ACGME programs has dropped from 72 to 26. IMGs entering GME for the first time grew at an annual rate of 5%. The increase in the number of GY1s over the 10 years is principally of IMGs, at over 50% and DOs, roughly 40%.

**Table 7. Number of GY1s (first entry to US GME) by medical school (allopathic, osteopathic, Canadian, international, unknown/unaccredited)<sup>a</sup>**

	USMD		DO		Canadian		IMG		Unknown/unaccredited		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	15,570	69.8	921	4.1	72	0.3	5740	25.7	17	0.1	22,320
2000-2001 <sup>b</sup>	14,948	76.7	1014	5.2	62	0.3	3317	17.0	146	0.7	19,487
2001-2002	14,885	69.7	1184	5.5	58	0.3	5214	24.4	2	0.0	21,343
2002-2003	14,840	67.9	1313	6.0	81	0.4	5628	25.7	2	0.0	21,864
2003-2004	14,925	66.5	1372	6.1	55	0.2	6106	27.2	1	0.0	22,459
2004-2005	15,260	66.9	1338	5.9	71	0.3	6133	26.9	0	0.0	22,802
2005-2006	15,329	65.7	1479	6.3	65	0.3	6458	27.7	6	0.0	23,337
2006-2007	15,518	65.8	1419	6.0	47	0.2	6613	28.0	0	0.0	23,597
2007-2008	15,326	64.5	1594	6.7	44	0.2	6795	28.6	0	0.0	23,759
2008-2009	15,724	64.0	1809	7.4	26	0.1	6998	28.5	3	0.0	24,560
% average annual change	0.13		8.01		-7.46		5.03		<sup>c</sup>		1.23

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

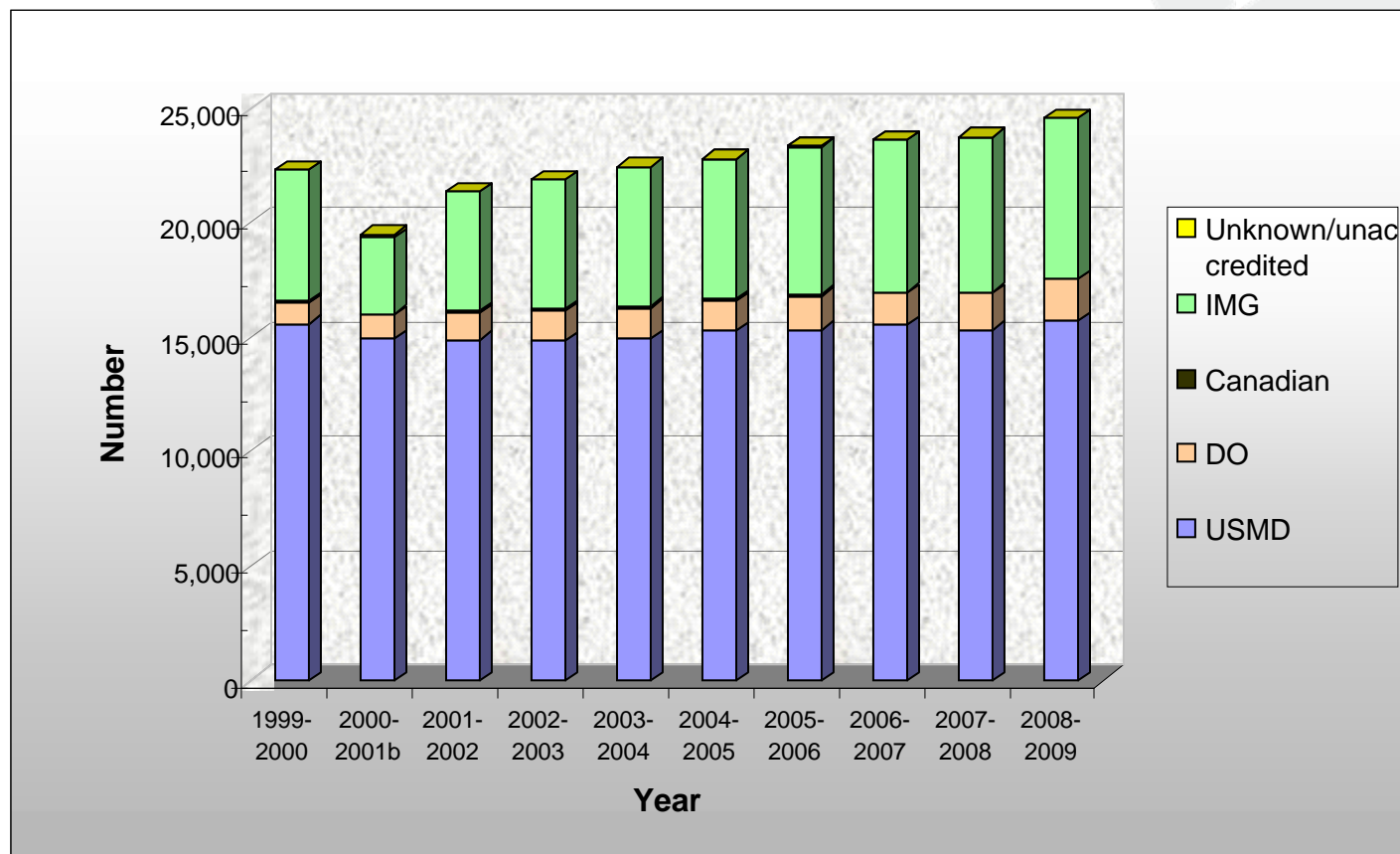
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Not calculated.

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[Link to Table 7](#)

Figure 8. GY1s by medical school, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 8](#)

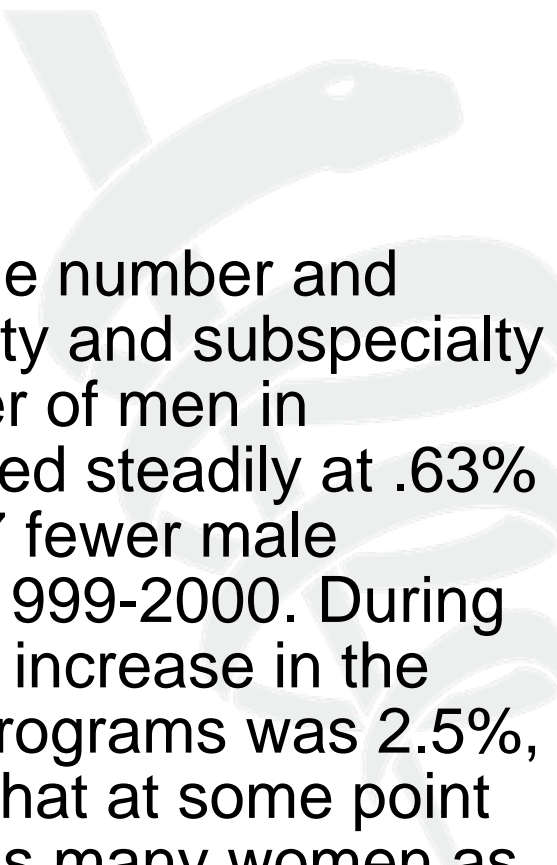
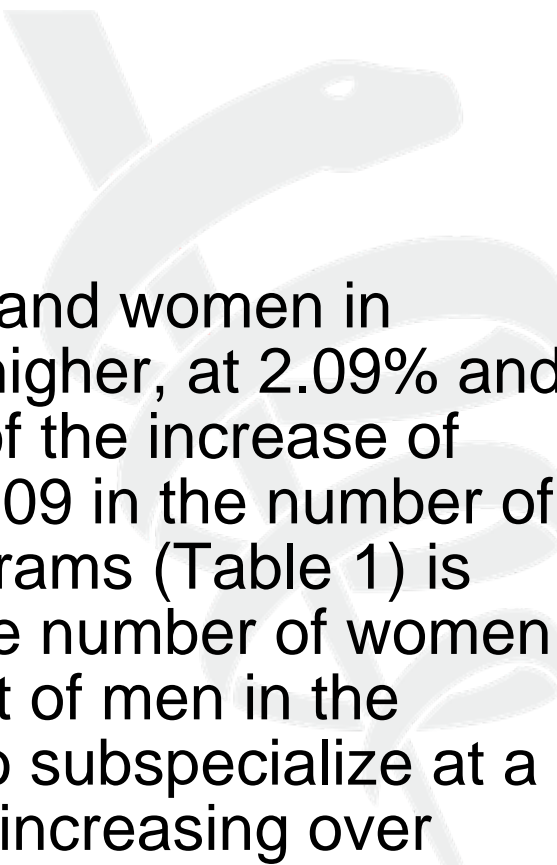


Table 8 and Figures 9 and 10 present the number and proportion of men and women in specialty and subspecialty programs over the 10 years. The number of men in specialty training programs has decreased steadily at .63% per year; in 2008-2009 there were 2,857 fewer male residents in specialty programs than in 1999-2000. During the same time period, the annual rate of increase in the number of women in specialty training programs was 2.5%, increasing by 8,355. Figure 9 suggests that at some point in the next several years there may be as many women as men in specialty training programs.



The growth rate for the number of men and women in subspecialty programs is substantially higher, at 2.09% and 6.97%, respectively. Nearly two-thirds of the increase of 4,740 between 1999-2000 and 2008-2009 in the number of physicians training in subspecialty programs (Table 1) is made up of women. It is unlikely that the number of women in subspecialty programs will match that of men in the foreseeable future, as women appear to subspecialize at a lower rate (although that rate has been increasing over time; it has also been increasing for men).

**Table 8. Men and women in specialty and subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>**

	Specialty				Subspecialty				Unknown sex		Total
	Men		Women		Men		Women		No.	%	
	No.	%	No.	%	No.	%	No.	%			
1999-2000	51,772	52.8	33,621	34.3	8715	8.9	3768	3.8	113	0.1	97,989
2000-2001 <sup>b</sup>	50,872	52.6	33,919	35.0	7911	8.2	3555	3.7	549	0.6	96,806
2001-2002	50,075	51.9	34,209	35.5	8133	8.4	3945	4.1	48	0.0	96,410
2002-2003	50,364	51.3	34,963	35.6	8525	8.7	4327	4.4	79	0.1	98,258
2003-2004	50,186	50.2	36,136	36.1	8814	8.8	4770	4.8	58	0.1	99,964
2004-2005	49,834	49.2	37,135	36.7	9065	8.9	5241	5.2	16	0.0	101,291
2005-2006	49,892	48.4	38,347	37.2	9259	9.0	5603	5.4	5	0.0	103,106
2006-2007	49,503	47.2	39,765	37.9	9643	9.2	5967	5.7	1	0.0	104,879
2007-2008	48,921	46.1	40,691	38.4	10,025	9.5	6368	6.0	7	0.0	106,012
2008-2009	48,915	45.2	41,976	38.8	10,422	9.6	6847	6.3	16	0.0	108,176
% average annual change	-0.63		2.50		2.09		6.97		<sup>c</sup>		1.11

<sup>a</sup> Counts may differ from JAMA GME tables due to subsequent data cleaning.

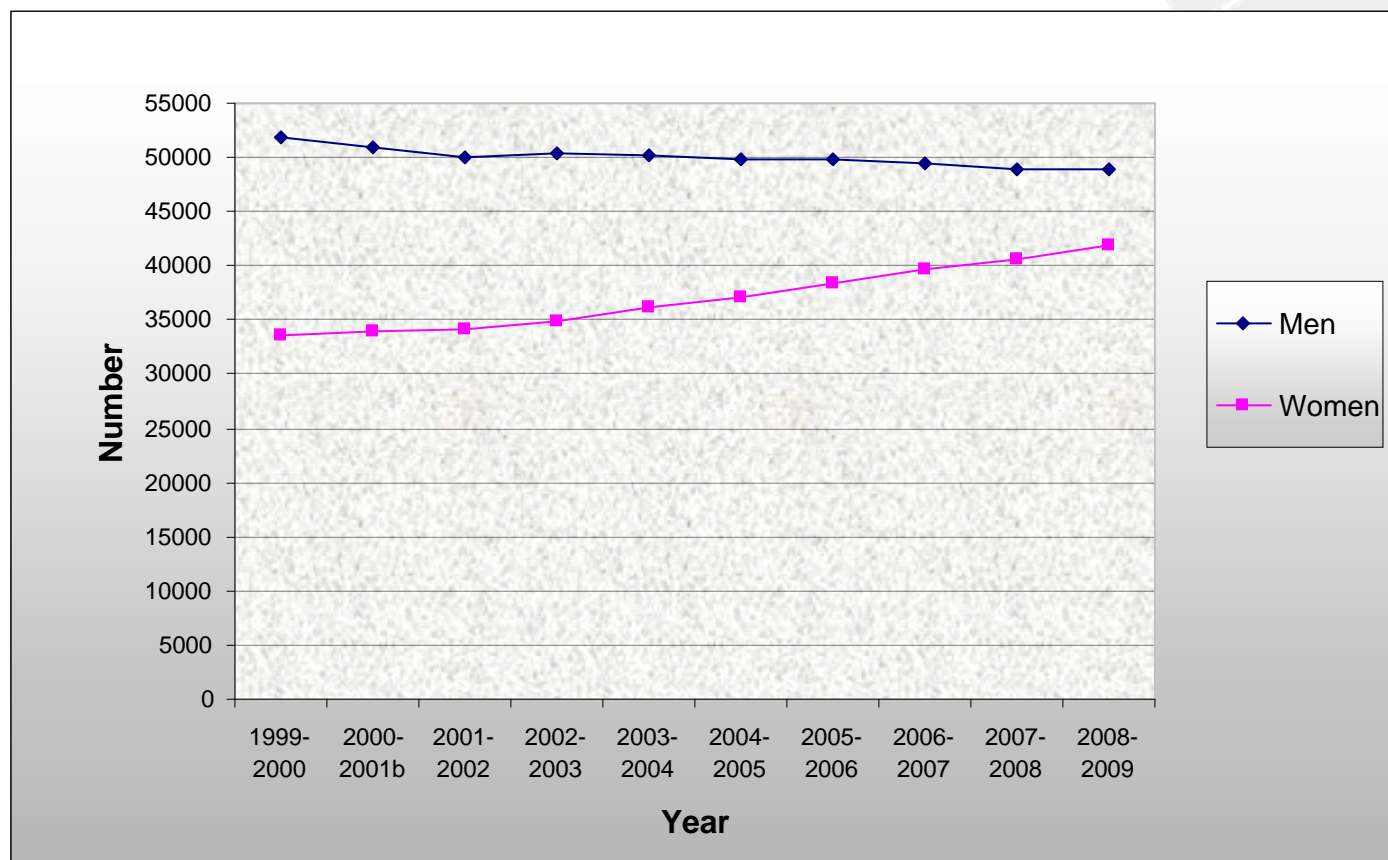
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Not calculated.

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[Link to Table 8](#)

Figure 9. Men and women in specialty programs, 1999-2000 through 2008-2009<sup>a</sup>



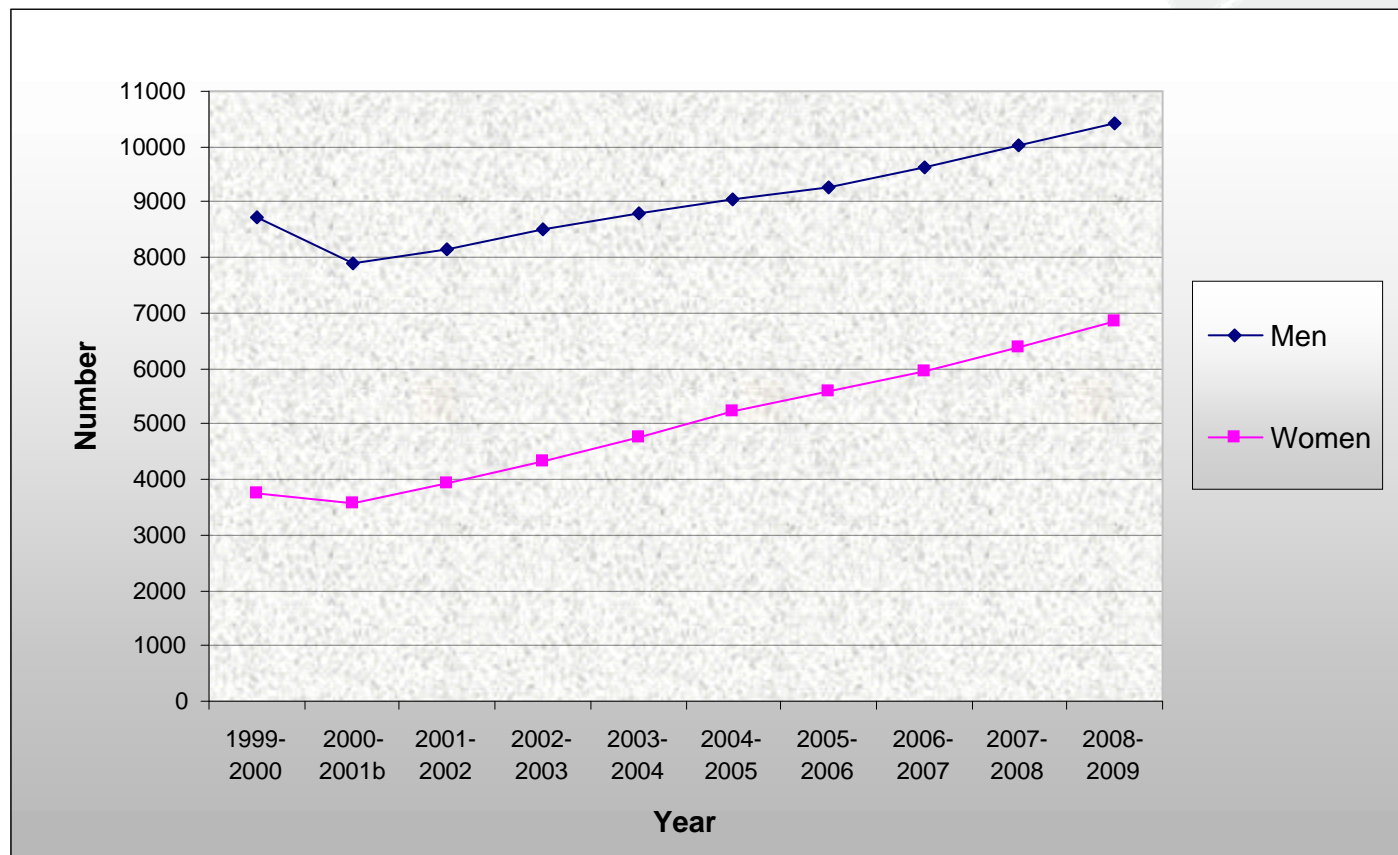
<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

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[Link to Figure 9](#)

Figure 10. Men and women in subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>

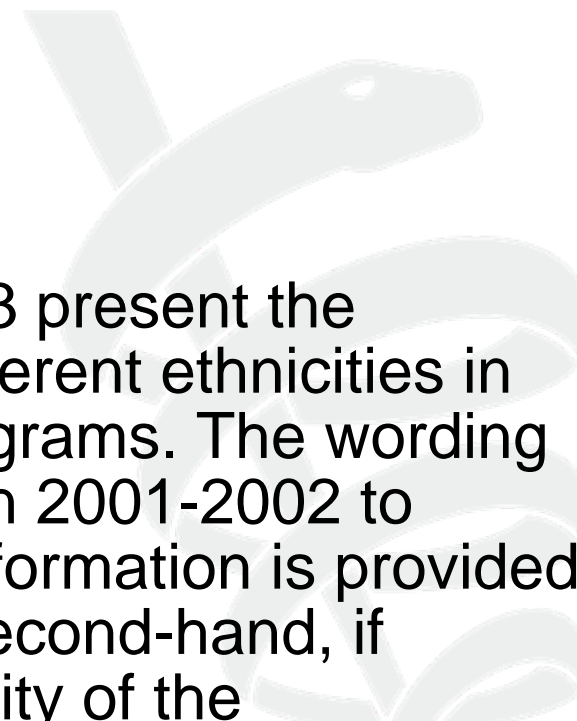


<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

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[Link to Figure 10](#)



Tables 9 and 10 and Figures 12 and 13 present the number and percent of residents of different ethnicities in specialty and subspecialty training programs. The wording of this inquiry in the Census changed in 2001-2002 to become two questions. Much of this information is provided by training personnel and so is often second-hand, if provided at all. Please note the variability of the “other/unknown” category. For this discussion, any resident marked as being Hispanic has been removed from a race category (the vast majority are marked as either “other” or “unknown”); therefore these categories are mutually exclusive.

Trends evident from these tables are that there are increasing proportions of residents in specialty programs who are Asian/Pacific Islander, Hispanic, or Native American/Alaskan; all three categories grew at approximately 5% per year. The number of residents who are black has gone up numerically, but the growth rate per year is not quite 1%. Furthermore, in the mid-2000's the number of black residents actually went down, and then began increasing in the late 2000's.

The growth trends by racial/ethnic category for residents in subspecialty programs are more dramatic. The numbers of Asian/Pacific Islanders, blacks, and Hispanics in subspecialty programs have all doubled or nearly doubled. The annual growth rate for these three groups is double the rate for the number of residents in subspecialty programs overall. The number of subspecialty residents who are Native American/Alaskan remains low, but is growing.

**Table 9. Race/ethnicity of residents in specialty programs, 1999-2000 through 2008-2009<sup>a</sup>**

	White, non-Hispanic		Asian/Pacific Islander		Black, non-Hispanic		Hispanic		Native American/Alaskan		Other/unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	49,284	57.7	15,427	18.1	4903	5.7	4371	5.1	192	0.2	11,283	13.2	85,460
2000-2001 <sup>b</sup>	55,743	65.5	18,131	21.3	5586	6.6	4809	5.7	190	0.2	622	0.7	85,081
2001-2002 <sup>c</sup>	49,950	59.2	20,139	23.9	5213	6.2	5137	6.1	237	0.3	3643	4.3	84,319
2002-2003	48,113	56.4	19,671	23.0	4896	5.7	5076	5.9	267	0.3	7345	8.6	85,368
2003-2004	44,995	52.1	21,162	24.5	4672	5.4	5673	6.6	212	0.2	9643	11.2	86,357
2004-2005	44,494	51.2	20,923	24.1	4600	5.3	5515	6.3	230	0.3	11,213	12.9	86,975
2005-2006	43,359	49.1	21,074	23.9	4642	5.3	5457	6.2	218	0.2	13,491	15.3	88,241
2006-2007	46,023	51.6	22,492	25.2	5094	5.7	6055	6.8	184	0.2	9421	10.6	89,269
2007-2008	44,784	50.0	22,237	24.8	5024	5.6	6305	7.0	174	0.2	11,094	12.4	89,618
2008-2009	46,265	50.9	23,123	25.4	5256	5.8	6763	7.4	270	0.3	9230	10.2	90,907
% average annual change	-0.48		4.78		0.99		5.10		5.91		59.06		0.69

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

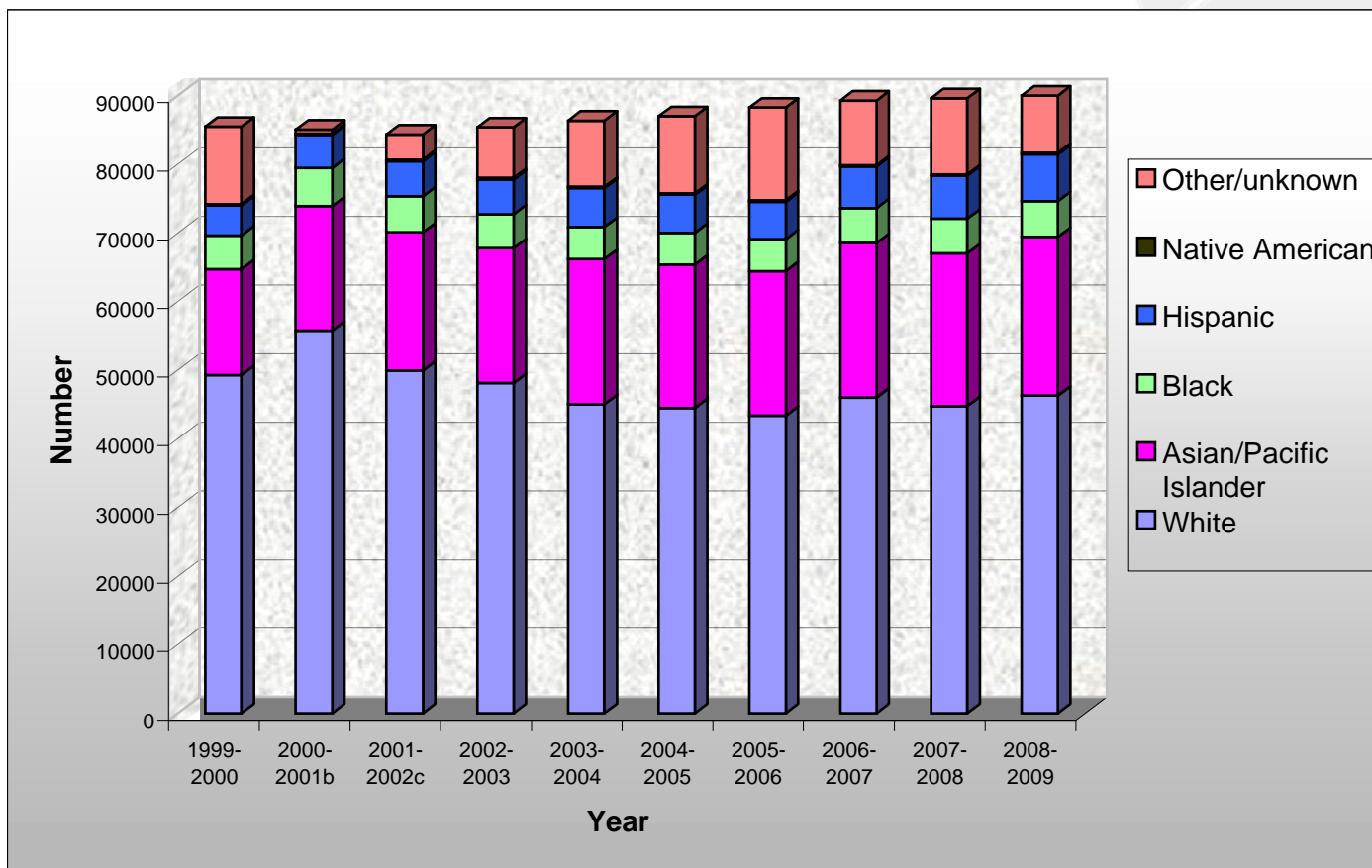
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions. Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

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[Link to Table 9](#)

Figure 11. Race/ethnicity of residents in specialty programs, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions. Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

[Link to Figure 11](#)

**Table 10. Race/ethnicity of residents in subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>**

	White, non-Hispanic		Asian/Pacific Islander		Black, non-Hispanic		Hispanic		Native American/Alaskan		Other/unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	5768	46.0	2873	22.9	460	3.7	711	5.7	14	0.1	2703	21.6	12,529
2000-2001 <sup>b</sup>	6824	58.2	3354	28.6	529	4.5	698	6.0	26	0.2	294	2.5	11,725
2001-2002 <sup>c</sup>	6557	54.2	3692	30.5	549	4.5	752	6.2	7	0.1	534	4.4	12,091
2002-2003	6525	50.6	3665	28.4	552	4.3	796	6.2	7	0.1	1345	10.4	12,890
2003-2004	7291	53.6	4165	30.6	622	4.6	906	6.7	11	0.1	612	4.5	13,607
2004-2005	7772	54.3	4270	29.8	634	4.4	904	6.3	20	0.1	716	5.0	14,316
2005-2006	8007	53.9	4397	29.6	664	4.5	936	6.3	21	0.1	840	5.7	14,865
2006-2007	8137	52.1	4865	31.2	690	4.4	1020	6.5	20	0.1	878	5.6	15,610
2007-2008	7998	48.8	5201	31.7	717	4.4	1135	6.9	22	0.1	1321	8.1	16,394
2008-2009	8746	50.6	5760	33.4	792	4.6	1336	7.7	25	0.1	610	3.5	17,269
% average annual change	4.95		8.17		6.33		7.43		19.50		13.93		3.70

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

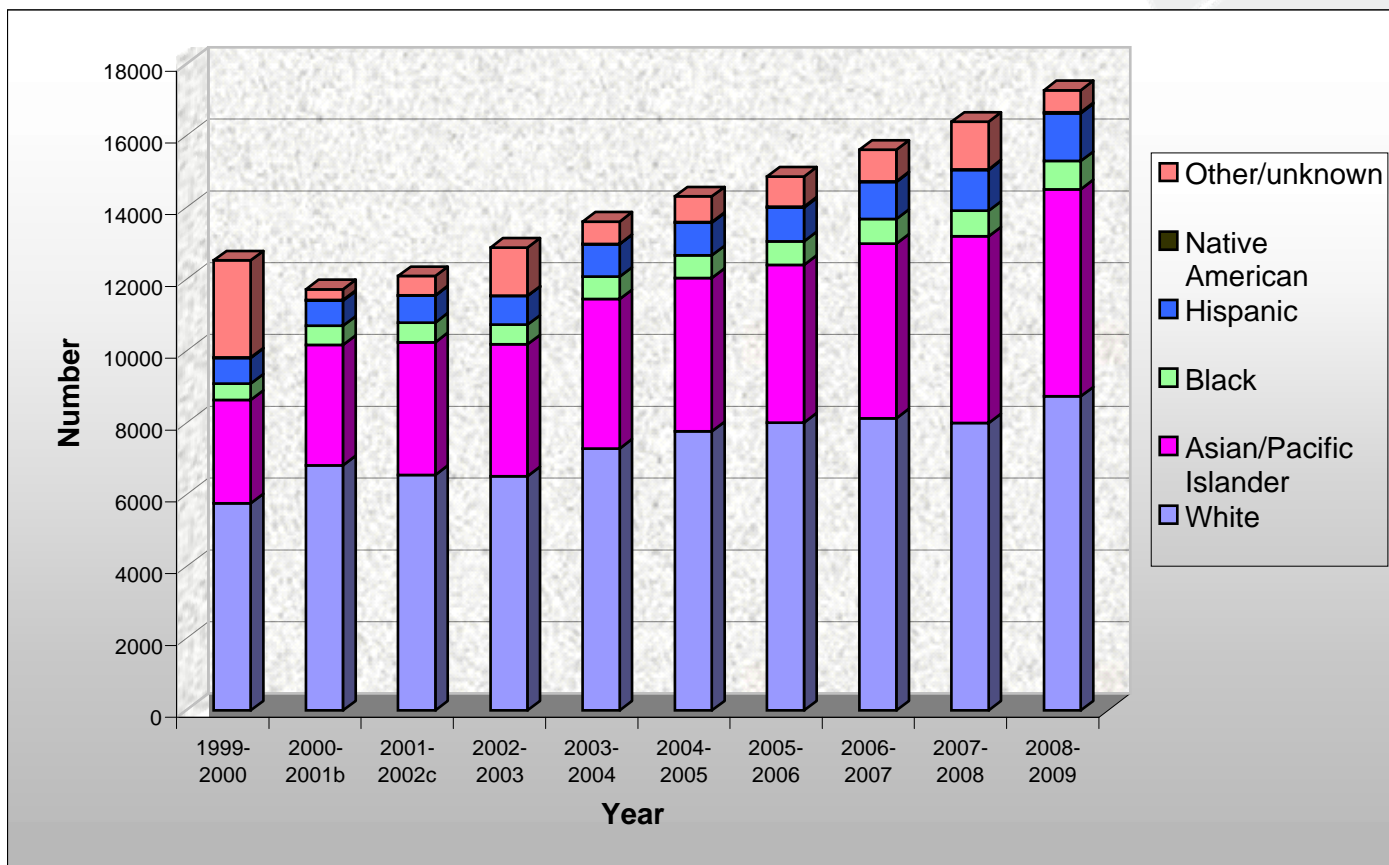
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions. Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

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[Link to Table 10](#)

Figure 12. Race/ethnicity of residents in subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions.

Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

[Link to Figure 12](#)

Tables 11 and 12 and Figures 13 and 14 provide the same analysis, but exclusively for graduates of medical schools in the United States (USMD and DO). The high proportion and variability in the number of residents of unknown race/ethnicity makes it difficult to discern absolute patterns. It does appear however, as with the racial/ethnic makeup of of all residents, the number of USMD and DO Hispanics, Native American/Alaskans and Asians are growing at a faster rate than the number of residents in specialty programs overall (Table 11, Figure 13). For residents in subspecialty programs, these same groups are growing, as well as the number of blacks.

**Table 11. Race/ethnicity of USMD and DO residents in specialty programs, 1999-2000 through 2008-2009<sup>a</sup>**

	White, non-Hispanic		Asian/Pacific Islander		Black, non-Hispanic		Hispanic		Native American/Alaskan		Other/unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	42,974	66.8	7916	12.3	3992	6.2	2688	4.2	167	0.3	6595	10.3	64,332
2000-2001 <sup>b</sup>	45,861	72.0	9649	15.2	4517	7.1	3190	5.0	186	0.3	279	0.4	63,682
2001-2002 <sup>c</sup>	41,558	65.7	10,692	16.9	4143	6.5	3463	5.5	226	0.4	3186	5.0	63,268
2002-2003	40,973	64.0	10,796	16.9	3926	6.1	3481	5.4	249	0.4	4605	7.2	64,030
2003-2004	37,980	59.0	10,831	16.8	3651	5.7	3669	5.7	201	0.3	8093	12.6	64,425
2004-2005	37,408	57.7	10,939	16.9	3495	5.4	3471	5.4	212	0.3	9296	14.3	64,821
2005-2006	36,699	56.2	10,370	15.9	3454	5.3	3095	4.7	195	0.3	11,488	17.6	65,301
2006-2007	39,535	59.9	11,437	17.3	3834	5.8	3524	5.3	181	0.3	7542	11.4	66,053
2007-2008	38,904	58.8	11,499	17.4	3870	5.9	3609	5.5	172	0.3	8098	12.2	66,152
2008-2009	41,054	61.2	12,618	18.8	4191	6.2	3941	5.9	267	0.4	5064	7.5	67,135
% average annual change	-0.35		5.60		0.82		4.71		7.15		115.61		0.48

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

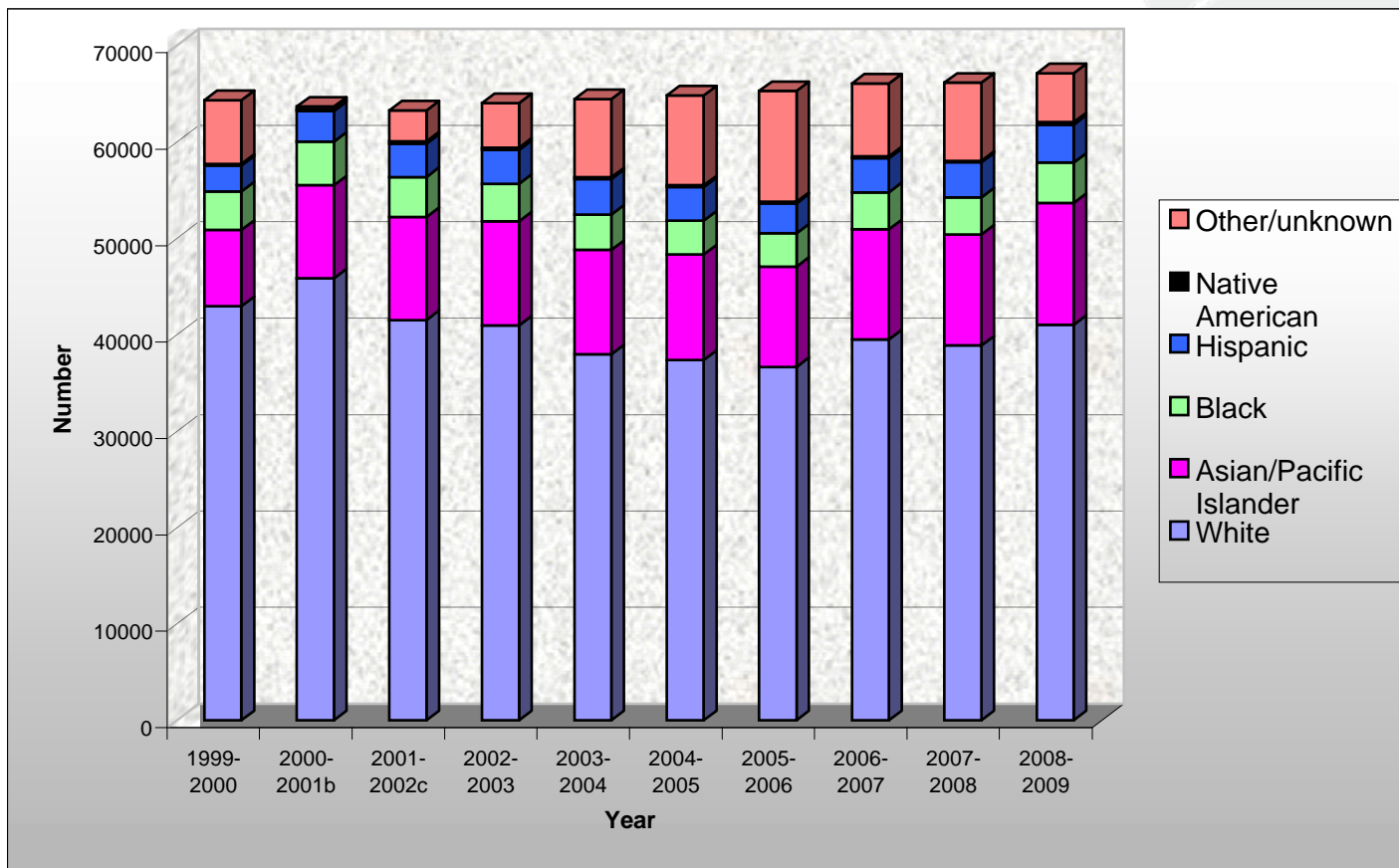
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions. Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

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[Link to Table 11](#)

**Figure 13. Race/ethnicity of USMD and DO residents in specialty programs, 1999-2000 through 2008-2009<sup>a</sup>**



<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning .

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents .

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions.

Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

[Link to Figure 13](#)

**Table 12. Race/ethnicity of USMD and DO residents in subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>**

	White, non-Hispanic		Asian/Pacific Islander		Black, non-Hispanic		Hispanic		Native American		Other/unknown		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1999-2000	4360	63.0	971	14.0	264	3.8	291	4.2	11	0.2	1021	14.8	6918
2000-2001 <sup>b</sup>	4761	73.2	1112	17.1	296	4.6	278	4.3	25	0.4	31	0.5	6503
2001-2002 <sup>c</sup>	4719	65.9	1313	18.3	331	4.6	327	4.6	6	0.1	462	6.5	7158
2002-2003	4908	61.8	1427	18.0	342	4.3	382	4.8	6	0.1	882	11.1	7947
2003-2004	5449	63.8	1774	20.8	394	4.6	461	5.4	11	0.1	458	5.4	8547
2004-2005	5914	63.5	1917	20.6	416	4.5	501	5.4	15	0.2	548	5.9	9311
2005-2006	6289	64.5	2006	20.6	431	4.4	507	5.2	18	0.2	504	5.2	9755
2006-2007	6425	62.4	2233	21.7	460	4.5	530	5.1	18	0.2	631	6.1	10,297
2007-2008	6239	58.4	2323	21.7	453	4.2	538	5.0	22	0.2	1113	10.4	10,688
2008-2009	7030	62.7	2637	23.5	529	4.7	682	6.1	24	0.2	319	2.8	11,221
% average annual change	5.57		11.91		8.18		10.37		24.70		153.12		5.63

<sup>a</sup> Counts may differ from *JAMA* GME tables due to subsequent data cleaning.

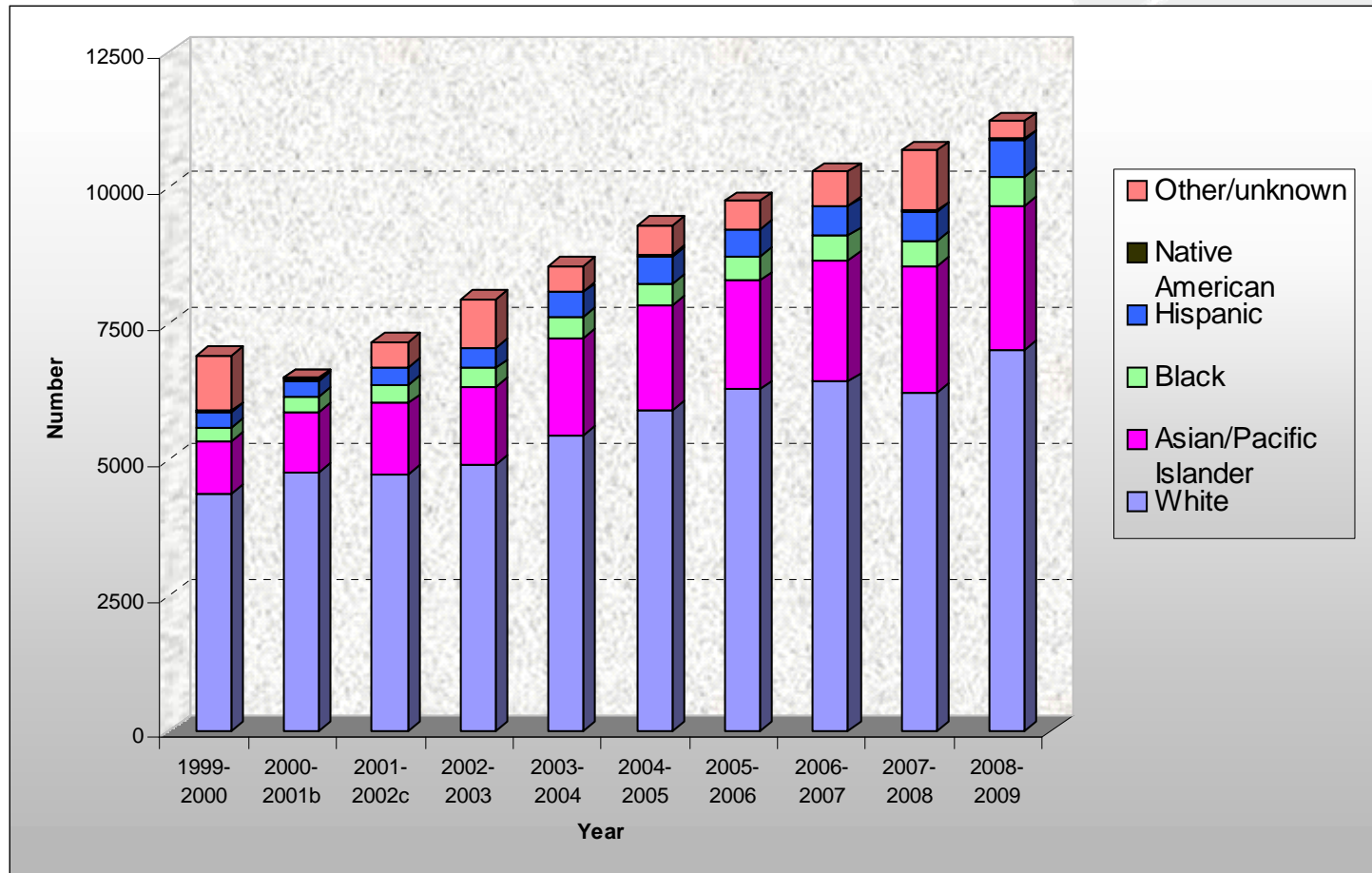
<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were asked as two separate questions. Results reported here will differ from *JAMA* GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

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[Link to Table 12](#)

**Figure 14. Race/ethnicity of USMD and DO residents in subspecialty programs, 1999-2000 through 2008-2009<sup>a</sup>**



<sup>a</sup> Counts may differ from JAMA GME tables due to subsequent data cleaning.

<sup>b</sup> National GME Census encountered technical difficulties, resulting in an undercount of residents.

<sup>c</sup> Beginning in 2001-2002, race and Hispanic ethnicity were used as two separate questions.

Results reported here will differ from JAMA GME tables, as for the years post 2001-2002, anyone marked as Hispanic is not duplicated in any race, ie, categories are treated as mutually exclusive.

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[Link to Figure 14](#)

# Major Trends

As has been observed elsewhere, training in accredited subspecialty programs has increased dramatically in the past decade. By 2008, there were 916 more subspecialty programs and 4,470 more physicians training in them compared to 1999. There was a loss of 168 core specialty programs during this period, with a gain of 5,447 residents. Physicians training in subspecialty programs made up 47% of the overall increase in the number of physicians training in ACGME-accredited programs, although overall they made up 16% of the GME population.

Graduates of osteopathic medical schools are increasingly seeking and obtaining training positions in ACGME-accredited training programs. There are fewer training opportunities for DOs in AOA-accredited specialty and subspecialty programs compared to ACGME programs, so increasing participation in ACGME programs is not unexpected. The number of graduates of Canadian medical schools training in the US, never a large number, has declined by 39%. Until recently, the number of graduates of allopathic medical schools was flat, and therefore the number in ACGME-accredited programs overall has been relatively stable, particularly for entrants to GME, GY1 residents. Growth in the number of USMDs in GME has been in further specialty and subspecialty training.

## Major Trends (cont.)

Other substantial changes in the characteristics of residents includes the increase in the number of women in training, and the increase in the number of US citizen IMGs. The proportion of female trainees went from 38.1% to 45.1%; more than a quarter of that growth was in women in subspecialty programs. In total, the number of men in GME dropped by 1,150 (1.9%); this is borne entirely by the drop in the number of men in specialty programs. There were 1,707 more men in subspecialty training in 2008 compared to 1999, an increase of 19.6%. Echoing other reports, there are more US citizens going to medical school abroad and returning to the US for GME. The variability in reporting citizenship/visa status prevents too many comparisons, however the gain of 2,135 is substantial, a 43.3% increase.

## Major Trends (cont.)

Racial/ethnic changes over this time period have included increases in the Under-Represented Minorities (URM) of Hispanics and Native Americans/Alaskans, but not a noticeable increase in the number of blacks. All three categories of URM gained in subspecialty training. The number of Asian/Pacific Islander physicians training in specialty and subspecialty programs grew faster than the number of trainees overall.

Looking only at USMD and DOs, who are products of the US medical education system, the growth rate of blacks in specialty programs was only slightly more than the growth rate overall; however, the annual growth rate in subspecialty training was 45% higher than the the total annual growth rate. The largest annual growth rate was in the number of Native Americans/Alaskans, for both specialty and subspecialty training, growing at a rate of 7.15% and 24.7%, respectively. The number of Hispanic USMDs and DOs in both types of training has also grown substantially more than the growth overall. The number of Asian/Pacific Islander USMDs and DOs had nearly nearly doubled and tripled, in specialty and subspecialty training, respectively. The racial and ethnic characteristics of the US medical workforce, in the near future at least, will continue to not reflect the characteristics of the US population at large.

# Appendix

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