AAOS
American Academy of Orthopaedic Surgeons

Orthopaedic Practice in the U.S. 2018

AAOS Department of Clinical Quality and Value

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I. EXECUTIVE SUMMARY

1) The AAOS has conducted an Orthopaedic Surgeon Census biennially since 1985 to update surgeon and practice information in the AAOS database. Information in this report is based on the most recent census of 30,141 orthopaedists on record with the AAOS.

2) Montana, Vermont, Wyoming, Alaska, and South Dakota have the highest density of orthopaedic surgeons (13 and over per 100,000 population). Mississippi, Texas, Nevada, Arkansas, and Oklahoma have the lowest surgeon density (below 8 per 100,000 population).

3) The average age of practicing orthopaedists is 56.5 years. The AAOS membership is made up of 92.2% male and 5.8% female (2.0% did not indicate their gender).

4) The primary reported race was Caucasian (85.9 %), followed by Asian (6.1%).

5) The orthopaedic workforce is made up of 89.9% employed full-time, and 10.1% part-time.

6) The largest proportion of respondents practice in *Private Practice – orthopaedic group* setting (36%, +/- 1.27), with an additional 17% (+/- 1.01) in *Hospital/Medical Center* and 14% (+/- .91) in *Academic Practice (salary from institution)*.

7) Sixty percent (+/-1.67) of respondents are specialists, 25% (+/-2.29) are general orthopaedic surgeons with specialty interest, and 15% (+/-2.44) are generalists.

8) The three most-frequently cited areas of practice are sports medicine (18.2%), total joint (14.4%), and hand (11.6%).

9) Overall, orthopaedists perform an average of 30 procedures per month, with full-time orthopaedists performing 32 procedures per month, and part-timers performing 7 procedures per month.

II. INTRODUCTION

This Orthopaedic Practice in the US (OPUS) report is 17th in a series produced by the American Academy of Orthopaedic Surgeons (AAOS) to focus on the orthopaedic workforce and practice characteristics in the United States. Information in this report is based on the most recent orthopaedic physician census of 30,141 orthopaedists on record with the AAOS.

III. METHODOLOGY

The 2018 AAOS Orthopaedic Physician Census was administered as an online survey. On January 22, 2018, email invitations were sent to AAOS fellow/member orthopaedic surgeons in the United States, its territories, and the United States Military overseas.

To help increase participation, a series of monthly reminder notices were sent to non-respondents. Surgeons without valid email addresses were mailed the survey and asked to complete it.

By July 8th, a total of 7,029 AAOS fellows/members had responded to the survey for an overall response rate of 23.3%. After examining the data and excluding those who had only partially completed the survey, a total of 6,775 respondents remained for analysis and inclusion.

Response rate by member group is shown below.

	Invited to answer the 2018 Census	Responded to the 2018 Census	Response Rate %
(3) Candidate Member Practitioner	1,828	531	29.0
(4) Candidate Member Prac Appl for Fellowship	26	15	57.7
(5) Applicant for Fellowship	2	1	50.0
(6) Other NONMEMBER Practitioner	3,803	334	8.8
(7) Active Fellow	18,323	4,330	23.6
(7AO) Associate Member Orthopaedic	92	32	34.8
(7DO) Associate Member Osteopathic	549	95	17.3
(8) Emeritus Fellow	5,518	1,437	26.0
Total	**30,141**	**6,775**	**22.5**

When respondents skipped over certain questions, it was possible to infer the response based on their answer to other questions. For example, if the orthopaedic surgeon indicated a retirement age but failed to mark “retired” on the data collection form, their work status of “retired” was inferred.

Age is backfilled from known date of birth information in AAOS records.

The questionnaire used in the 2018 AAOS Orthopaedic Physician Census can be found in Appendix A.

Although the census was distributed to the full population of orthopaedic surgeons, all active orthopaedists did not complete the census information. Therefore, we provide 95% confidence intervals (CIs) for data reported to indicate the uncertainty in estimates based on responses submitted. (CIs indicate that if the study were repeated 100 times, 95% of the time, the true value will fall within the interval provided.) CI values are provided in Appendix.

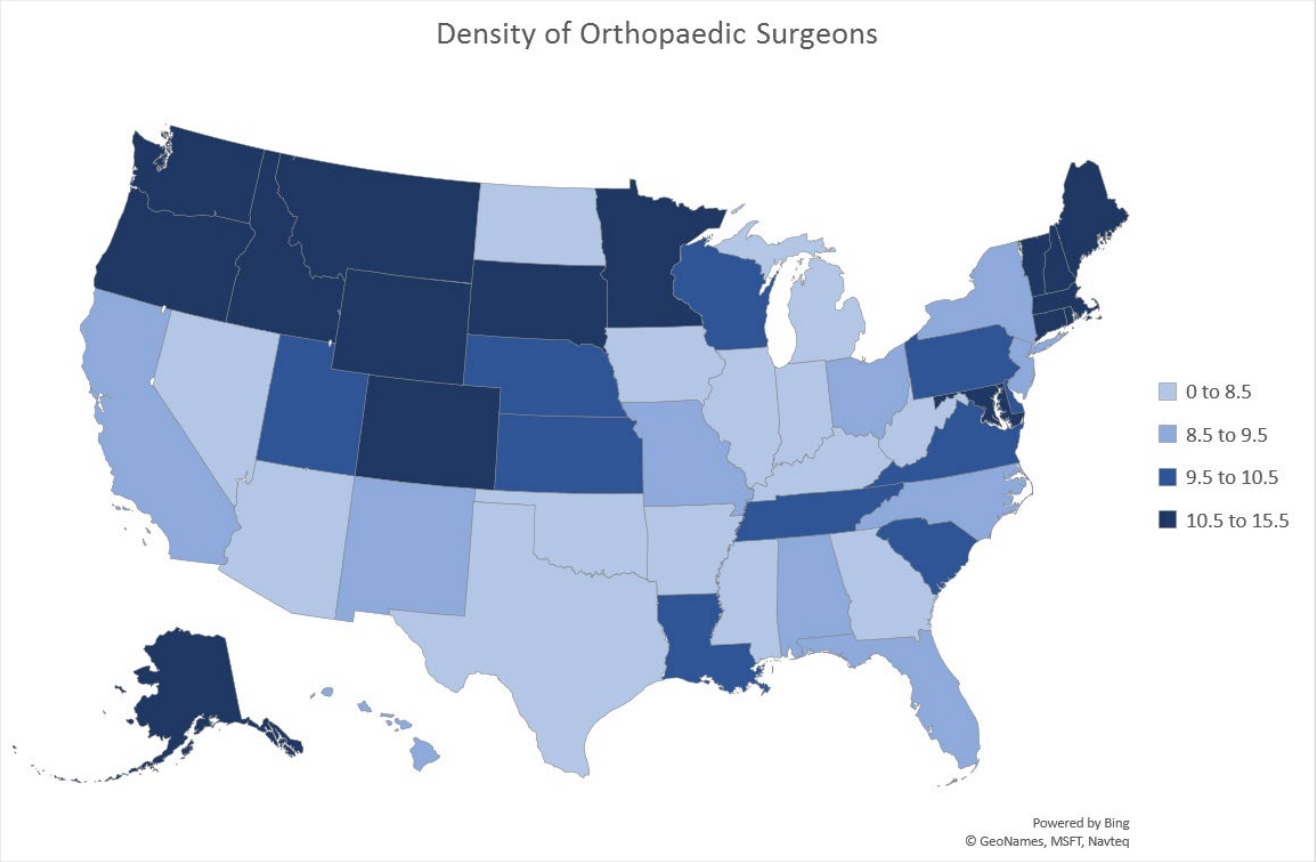
Data for the 2018 Orthopaedic Practice in the US Report was compiled and analyzed jointly by the AAOS Department of Clinical Quality and Value and the AAOS Marketing Research department.

SPSS was used for data analysis. Cross-tabulations, measures of association, and hypothesis tests including: t-tests, analyses of variance (ANOVAs), Chi-Square tests, Kruskal-Wallis, and median tests were used to analyze the data.

IV. ORTHOPAEDIC SURGEON DENSITY

The following information describes the population of US orthopaedic surgeons per 100,000 by state. Information in this section is based on 30,141 orthopaedic surgeons in the following AAOS membership categories: Candidate Member Practitioners (CMP's), CMP fellow applicants, applicants for fellowship, fellows, non-member practitioners, associate members, and emeritus fellows. The 2018 density of orthopaedic surgeons in the US is 9.25 per 100,000 population.

Figure 1 – 2018 Orthopaedic Density by State (per 100,000 people)



Montana, Vermont, Wyoming, Alaska, and South Dakota have the highest density of orthopaedic surgeons (13 and over per 100,000 population). Mississippi, Texas, Nevada, Arkansas, and Oklahoma have the lowest surgeon density (below 8 per 100,000 population).

Figure 2 - States with Highest and Lowest Surgeon Densities

Highest Density

State	US Population 2017*	# of Ortho Surgeons 2018	Ortho Surgeon Density 2018
Montana	1,050,493	155	14.75
Vermont	623,657	90	14.43
Wyoming	579,315	78	13.46
Alaska	739,795	99	13.38
South Dakota	869,666	113	12.99

Lowest Density

State	US Population 2017*	# of Ortho Surgeons 2018	Ortho Surgeon Density 2018
Mississippi	2,984,100	209	7.00
Texas	28,304,596	2020	7.14
Nevada	2,998,039	216	7.20
Arkansas	3,004,279	233	7.76
Oklahoma	3,930,864	310	7.89

*Orthopaedic surgeon density is calculated using the most recent population estimates from the US Census Bureau, 2017.

Figure 3 - Surgeon Density per 100,000 US Population

State	US Population 2017*	# of Ortho Surgeons 2018	Ortho Surgeon Density 2018
Alabama	4,874,747	430	8.82
Alaska	739,795	99	13.38
Arizona	7,016,270	592	8.44
Arkansas	3,004,279	233	7.76
California	39,536,653	3,562	9.01
Colorado	5,607,154	680	12.13
Connecticut	3,588,184	430	11.98
Delaware	961,939	94	9.77
District of Columbia	693,972	80	11.52
Florida	20,984,400	1,908	9.09
Georgia	10,429,379	834	8.00
Hawaii	1,427,538	134	9.39
Idaho	1,716,943	194	11.30
Illinois	12,802,023	1,085	8.48
Indiana	6,666,818	565	8.47
Iowa	3,145,711	264	8.39
Kansas	2,913,123	288	9.89
Kentucky	4,454,189	362	8.13
Louisiana	4,684,333	450	9.61
Maine	1,335,907	160	11.98
Maryland	6,052,177	667	11.02
Massachusetts	6,859,819	764	11.14
Michigan	9,962,311	809	8.12
Minnesota	5,576,606	585	10.49
Mississippi	2,984,100	209	7.00
Missouri	6,113,532	532	8.70

State	US Population 2017*	# of Ortho Surgeons 2018	Ortho Surgeon Density 2018
Montana	1,050,493	155	14.75
Nebraska	1,920,076	198	10.31
Nevada	2,998,039	216	7.20
New Hampshire	1,342,795	187	13.93
New Jersey	9,005,644	892	9.09
New Mexico	2,088,070	185	8.86
New York	19,849,399	1,803	9.08
North Carolina	10,273,419	944	9.19
North Dakota	755,393	63	8.34
Ohio	11,658,609	1,033	8.86
Oklahoma	3,930,864	310	7.89
Oregon	4,142,776	497	12.00
Pennsylvania	12,805,537	1,243	9.71
Rhode Island	1,059,639	131	12.36
South Carolina	5,024,369	487	9.69
South Dakota	869,666	113	12.99
Tennessee	6,715,984	671	9.99
Texas	28,304,596	2,020	7.14
Utah	3,101,833	310	9.99
Vermont	623,657	90	14.43
Virginia	8,470,020	836	9.87
Washington	7,405,743	780	10.53
West Virginia	1,815,857	143	7.87
Wisconsin	5,795,483	601	10.37
Wyoming	579,315	78	13.46
Total	**325,719,178**	**30,127**	**9.25**

*Population estimates from the US Census Bureau, 2017

DENSITY BY CENSUS DIVISION

Orthopaedic surgeon density was compared across US Census divisions. (See Appendix B for US Census division listing). Overall, New England states have the highest density of orthopaedic surgeons (11.9 per 100,000 population). The West South Central division has the lowest density of orthopaedic surgeons (7.55 per 100,000 population).

Figure 4 - Density of Orthopaedic Surgeons per 100,000 Population by Census Division

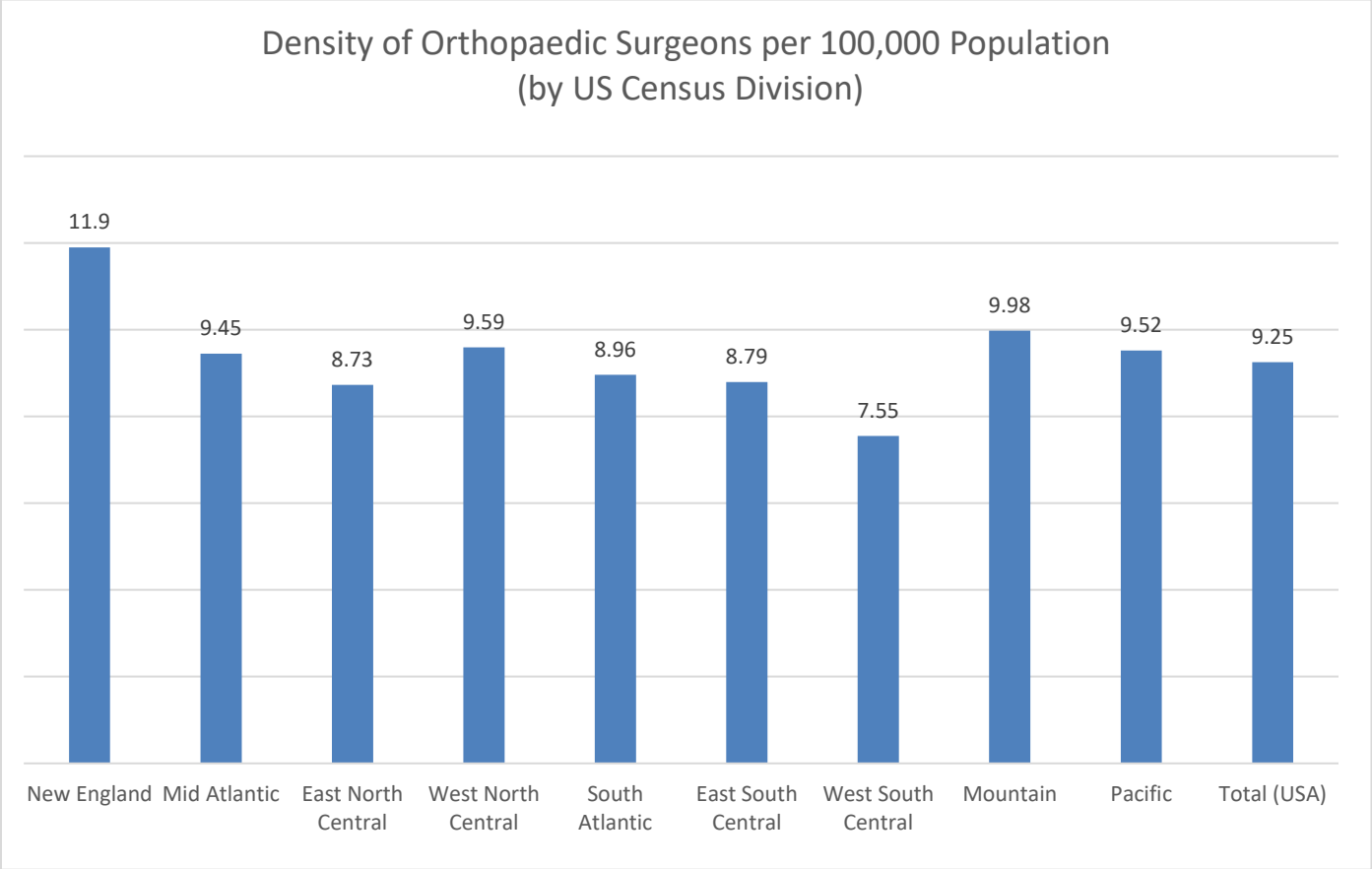


Figure 5 - Orthopaedic Density by Census Division

Census Division	US Population 2017* (by Division)	# of Ortho Surgeons 2018 (by Division)	Ortho Surgeon Density 2018 (per 100,000 by Division)
New England	14,810,001	1,762	11.90
Mid Atlantic	41,660,580	3,938	9.45
East North Central	46,885,244	4,093	8.73
West North Central	21,294,107	2,043	9.59
South Atlantic	68,042,709	6,096	8.96
East South Central	19,029,020	1,672	8.79
West South Central	39,924,072	3,013	7.55
Mountain	24,158,117	2,410	9.98
Pacific	53,252,505	5,072	9.52
TOTAL (US)	**325,719,178**	**30,127**	**9.25**

*Population estimates from the US Census Bureau, 2017

AVERAGE AGE BY STATE

The average age of these orthopaedists is 56.45 years (including CMPs, CMP fellow applicants, applicants for fellowship, fellows, associate members, non-member practitioners, and emeritus fellows who indicated an active work status). The chart below shows the average age of orthopaedic surgeons by state.

Figure 6 - Average Age of Orthopaedic Surgeons by State

State	Mean Age	State	Mean Age
Alabama	56.21	Montana	57.45
Alaska	55.39	Nebraska	54.06
Arizona	56.41	Nevada	56.43
Arkansas	56.37	New Hampshire	57.99
California	58.76	New Jersey	55.82
Colorado	56.01	New Mexico	61.69
Connecticut	57.62	New York	56.23
Delaware	57.60	North Carolina	55.91
District of Columbia	55.64	North Dakota	53.68
Florida	58.45	Ohio	55.01
Georgia	55.17	Oklahoma	57.04
Hawaii	56.96	Oregon	58.16
Idaho	56.12	Pennsylvania	56.41
Illinois	55.11	Rhode Island	58.36
Indiana	54.20	South Carolina	56.88
Iowa	54.09	South Dakota	52.58
Kansas	55.59	Tennessee	55.96
Kentucky	56.41	Texas	55.16
Louisiana	55.77	Utah	55.53
Maine	58.87	Vermont	58.71
Maryland	56.25	Virginia	56.14
Massachusetts	57.70	Washington	57.13
Michigan	55.38	West Virginia	55.95
Minnesota	54.19	Wisconsin	56.33
Mississippi	54.94	Wyoming	54.23
Missouri	54.92	**TOTAL**	**56.45**

GENDER BY STATE

The AAOS membership is made up of 92.2% male and 5.8% female surgeons (2.0% did not indicate their gender). States with the largest proportions of female members are Maine (11.9%), District of Columbia (11.3%), Minnesota (10.6%), Hawaii (9.0%), and Massachusetts (8.6%).

Figure 7 - Percentage of Gender by State

		FEMALE	MALE	NOT INDICATED	TOTAL
Alabama	N	14	406	10	**430**
	%	3.3%	94.4%	2.3%	**100.0%**
Alaska	N	4	94	1	**99**
	%	4.0%	94.9%	1.0%	**100.0%**
Arizona	N	32	538	22	**592**
	%	5.4%	90.9%	3.7%	**100.0%**
Arkansas	N	10	221	2	**233**
	%	4.3%	94.8%	.9%	**100.0%**
California	N	231	3,247	84	**3,562**
	%	6.5%	91.2%	2.4%	**100.0%**
Colorado	N	52	618	10	**680**
	%	7.6%	90.9%	1.5%	**100.0%**
Connecticut	N	25	391	14	**430**
	%	5.8%	90.9%	3.3%	**100.0%**
Delaware	N	5	87	2	**94**
	%	5.3%	92.6%	2.1%	**100.0%**
District of Columbia	N	9	71	0	**80**
	%	11.3%	88.8%	0.0%	**100.0%**
Florida	N	79	1786	43	**1908**
	%	4.1%	93.6%	2.3%	**100.0%**
Georgia	N	43	779	12	**834**
	%	5.2%	93.4%	1.4%	**100.0%**
Hawaii	N	12	118	4	**134**
	%	9.0%	88.1%	3.0%	**100.0%**
Idaho	N	9	183	2	**194**
	%	4.6%	94.3%	1.0%	**100.0%**
Illinois	N	59	986	40	**1085**
	%	5.4%	90.9%	3.7%	**100.0%**
Indiana	N	22	537	6	**565**
	%	3.9%	95.0%	1.1%	**100.0%**
Iowa	N	16	246	2	**264**
	%	6.1%	93.2%	.8%	**100.0%**
Kansas	N	12	271	5	**288**
	%	4.2%	94.1%	1.7%	**100.0%**
Kentucky	N	20	332	10	**362**
	%	5.5%	91.7%	2.8%	**100.0%**
Louisiana	N	22	421	7	**450**
	%	4.9%	93.6%	1.6%	**100.0%**
Maine	N	19	141	0	**160**
	%	11.9%	88.1%	.0%	**100.0%**

		FEMALE	MALE	NOT INDICATED	TOTAL
Maryland	N	53	600	14	**667**
	%	7.9%	90.0%	2.1%	**100.0%**
Massachusetts	N	66	686	12	**764**
	%	8.6%	89.8%	1.6%	**100.0%**
Michigan	N	48	745	16	**809**
	%	5.9%	92.1%	2.0%	**100.0%**
Minnesota	N	62	517	6	**585**
	%	10.6%	88.4%	1.0%	**100.0%**
Mississippi	N	9	199	1	**209**
	%	4.3%	95.2%	.5%	**100.0%**
Missouri	N	36	489	7	**532**
	%	6.8%	91.9%	1.3%	**100.0%**
Montana	N	11	142	2	**155**
	%	7.1%	91.6%	1.3%	**100.0%**
Nebraska	N	8	188	2	**198**
	%	4.0%	94.9%	1.0%	**100.0%**
Nevada	N	9	202	5	**216**
	%	4.2%	93.5%	2.3%	**100.0%**
New Hampshire	N	8	177	2	**187**
	%	4.3%	94.7%	1.1%	**100.0%**
New Jersey	N	48	821	23	**892**
	%	5.4%	92.0%	2.6%	**100.0%**
New Mexico	N	8	174	3	**185**
	%	4.3%	94.1%	1.6%	**100.0%**
New York	N	120	1,644	39	**1,803**
	%	6.7%	91.2%	2.2%	**100.0%**
North Carolina	N	42	885	17	**944**
	%	4.4%	93.8%	1.8%	**100.0%**
North Dakota	N	1	62	0	**63**
	%	1.6%	98.4%	0.0%	**100.0%**
Ohio	N	47	968	18	**1033**
	%	4.5%	93.7%	1.7%	**100.0%**
Oklahoma	N	13	295	2	**310**
	%	4.2%	95.2%	.6%	**100.0%**
Oregon	N	44	446	7	**497**
	%	8.9%	89.7%	1.4%	**100.0%**
Pennsylvania	N	61	1,159	23	**1,243**
	%	4.9%	93.2%	1.9%	**100.0%**
Rhode Island	N	7	122	2	**131**
	%	5.3%	93.1%	1.5%	**100.0%**
South Carolina	N	13	466	8	**487**
	%	2.7%	95.7%	1.6%	**100.0%**
South Dakota	N	4	106	3	**113**
	%	3.5%	93.8%	2.7%	**100.0%**
Tennessee	N	26	638	7	**671**
	%	3.9%	95.1%	1.0%	**100.0%**
Texas	N	106	1,869	45	**2,020**
	%	5.2%	92.5%	2.2%	**100.0%**
Utah	N	10	294	6	**310**
	%	3.2%	94.8%	1.9%	**100.0%**

		FEMALE	MALE	NOT INDICATED	TOTAL
Vermont	N	12	77	1	**90**
	%	13.3%	85.6%	1.1%	**100.0%**
Virginia	N	63	749	24	**836**
	%	7.5%	89.6%	2.9%	**100.0%**
Washington	N	67	701	12	**780**
	%	8.6%	89.9%	1.5%	**100.0%**
West Virginia	N	6	134	3	**143**
	%	4.2%	93.7%	2.1%	**100.0%**
Wisconsin	N	25	572	4	**601**
	%	4.2%	95.2%	.7%	**100.0%**
Wyoming	N	4	71	3	**78**
	%	5.1%	91.0%	3.8%	**100.0%**
TOTAL	**N**	**1,732**	**27,671**	**593**	**29,996**
	%	**100.0%**	**100.0%**	**100.0%**	**100.0%**

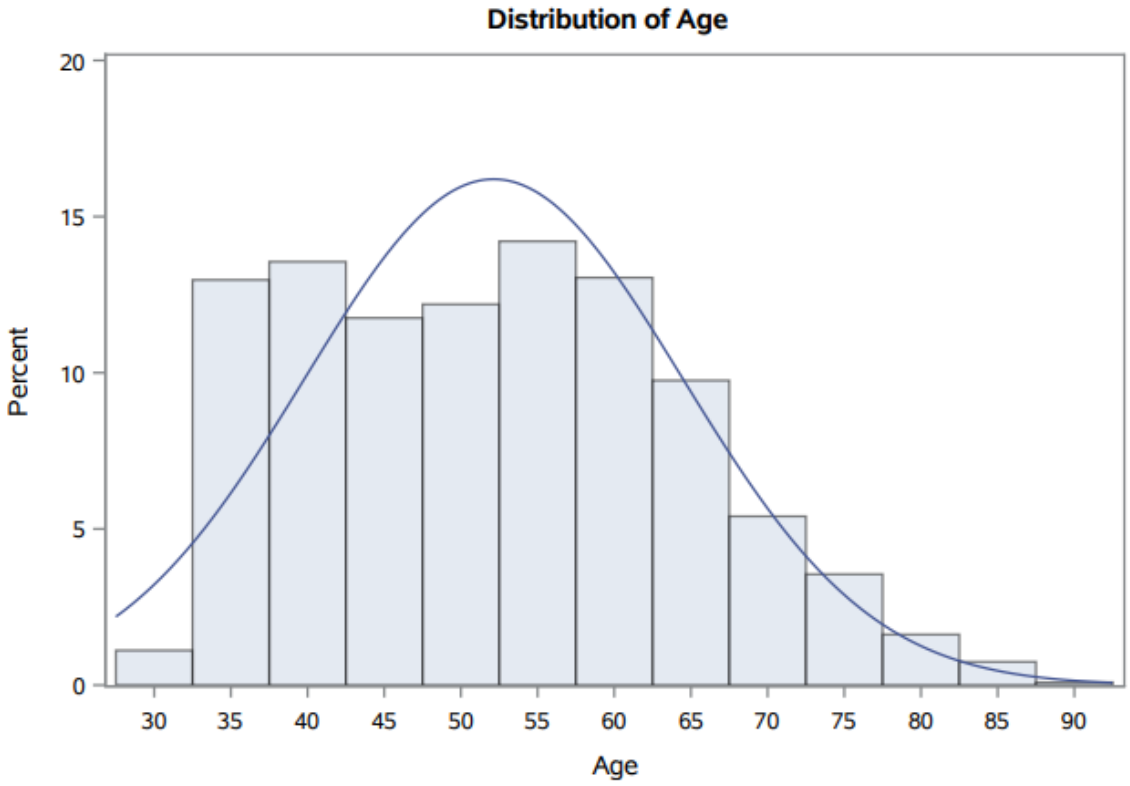
V. PRACTICING ORTHOPAEDIC SURGEON CHARACTERISITCS

Information in this section is based on respondents to the 2018 AAOS Orthopaedic Physician Census. Specifically, 5,517 full-time and part-time practicing orthopaedists from the following membership categories: Candidate Member Practitioners (CMP's), CMP fellow applicants, applicants for fellowship, fellows, associate members, non-member practitioners, and emeritus fellows.

AGE OF CENSUS RESPONDENTS

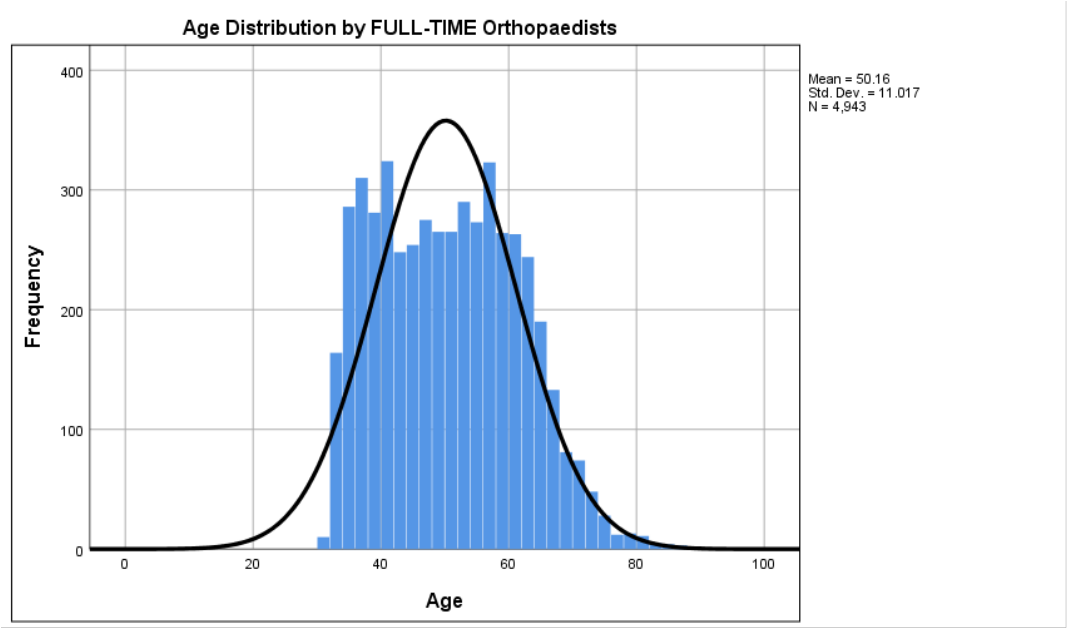
The average age of these practicing respondents is 52.13 years (+/- 0.33 years). The median age (50th percentile or midpoint) is 52 years. Ages range from 30 to 92 years old.

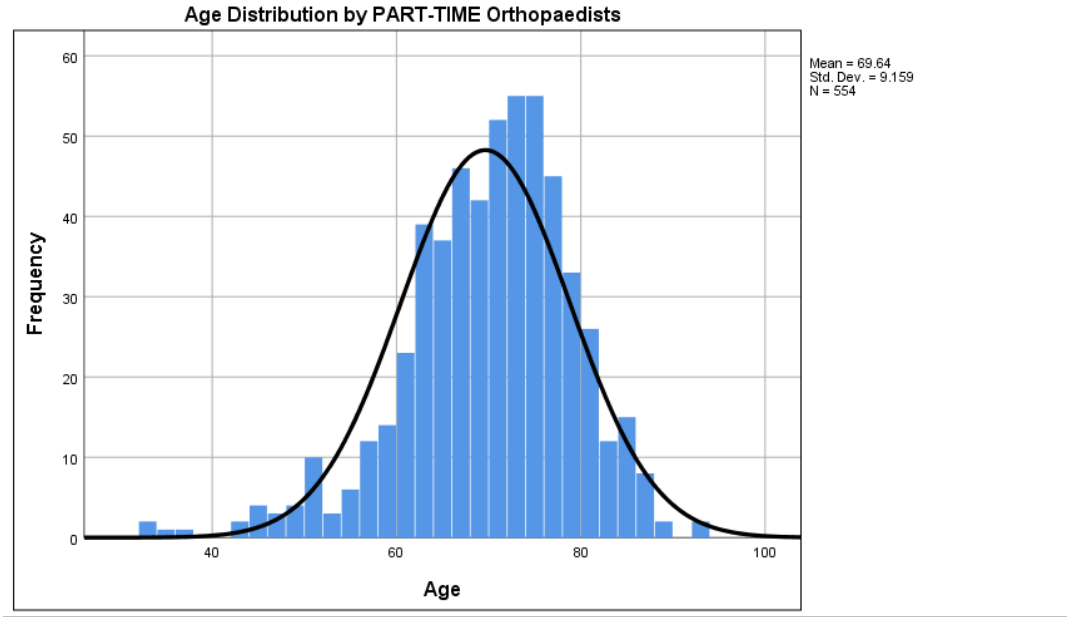
Figure 8 - Age Distribution of Census Respondents



Mean age differs by work status [t (744.24 df) = -46.41; p<.01]. The mean age for full-time orthopaedists is 50.16 years old (+/- 0.31) compared to the mean age of part-time orthopaedists, 69.64 years old (+/- 0.76). Figure 9 illustrates the difference in age distribution for full-time and part-time orthopaedists.

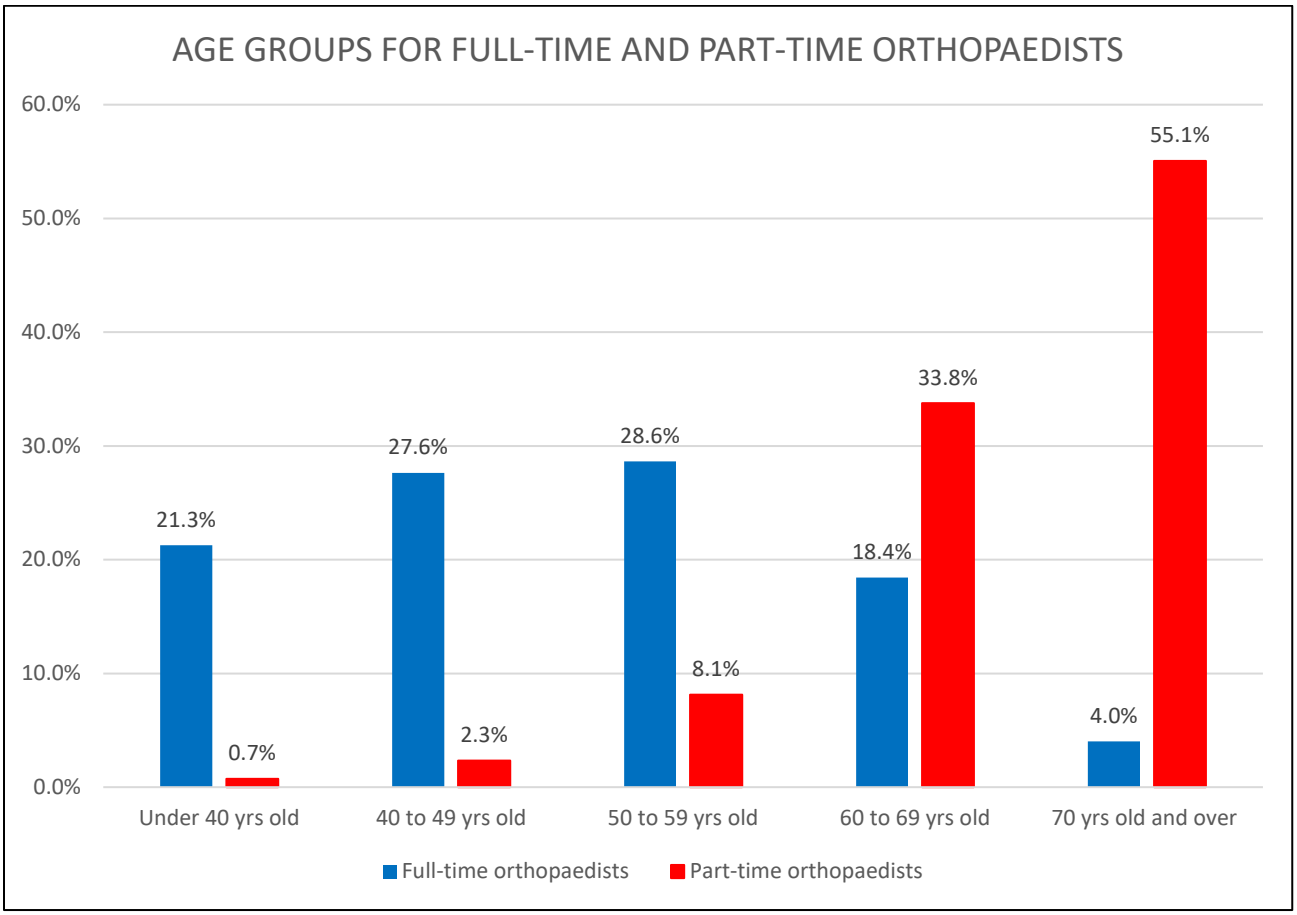
Figure 9 - Age Distribution by Work Status





The majority of full-time orthopaedists (77.5%) are under the age of 60, while the majority of part-time orthopaedists (88.9%) are 60 or older. Differences are significant [X^2 (4 df) = 1788.826; p<.01].

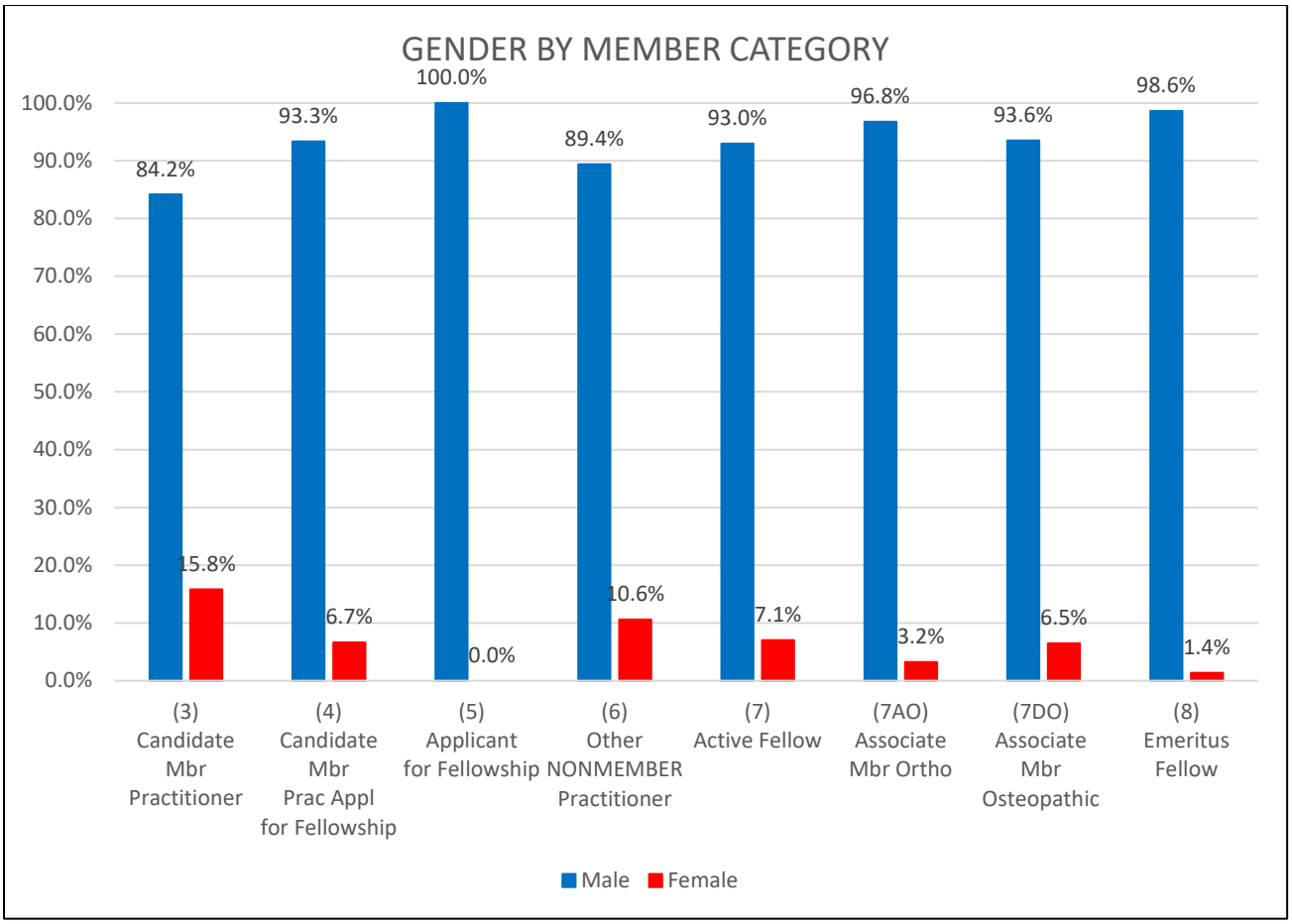
Figure 10 - Work Status by Age Groups



GENDER

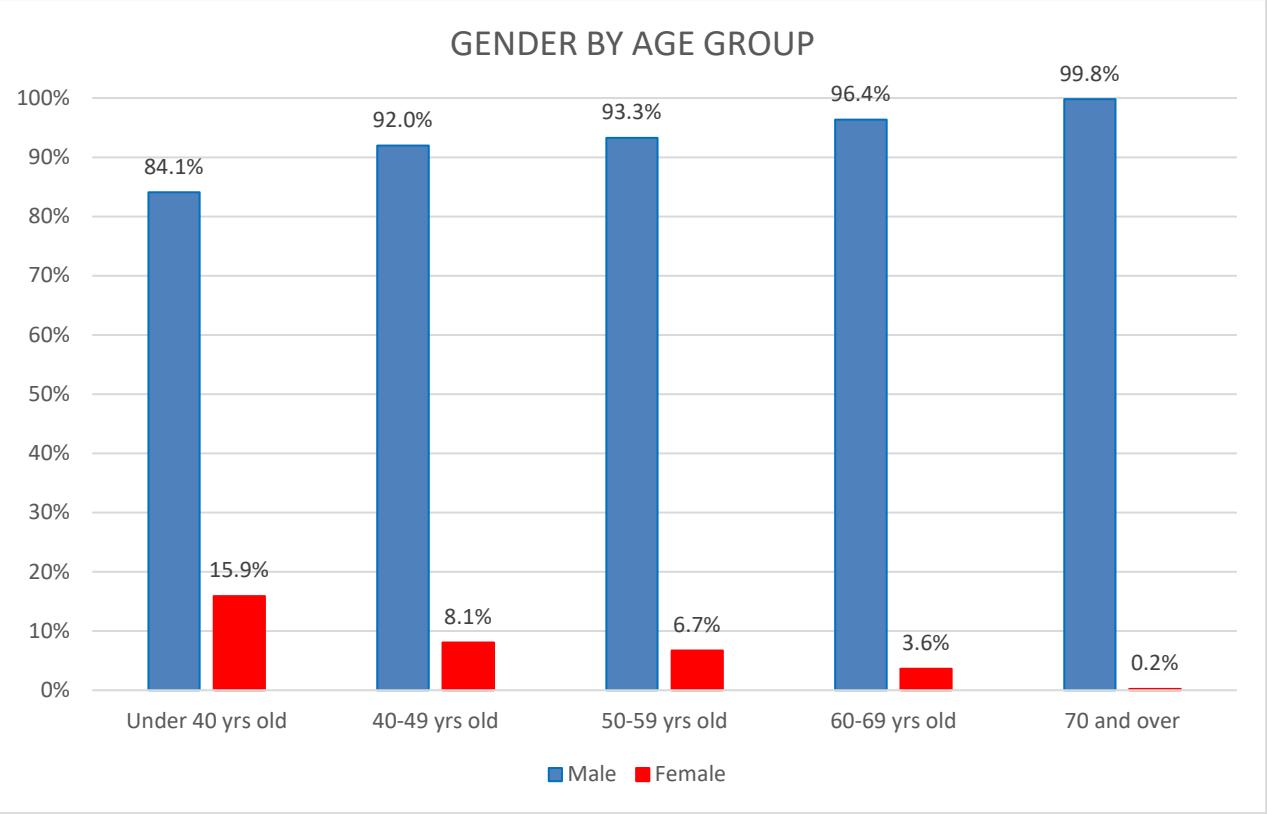
Practicing orthopaedist respondents are composed of 92.4% males, and 7.6% females. There is a significant difference between males and females in all member categories [X^2 (7 df) = 77.208; p<.01].

Figure 11 - Gender by Member Category



Gender also varies by age group [X^2 (4 df) = 169.571; p<.01], with a larger proportion of females under the age of 50 than in age groups of 50 years old and older. Few orthopaedists over the age of 60 are female.

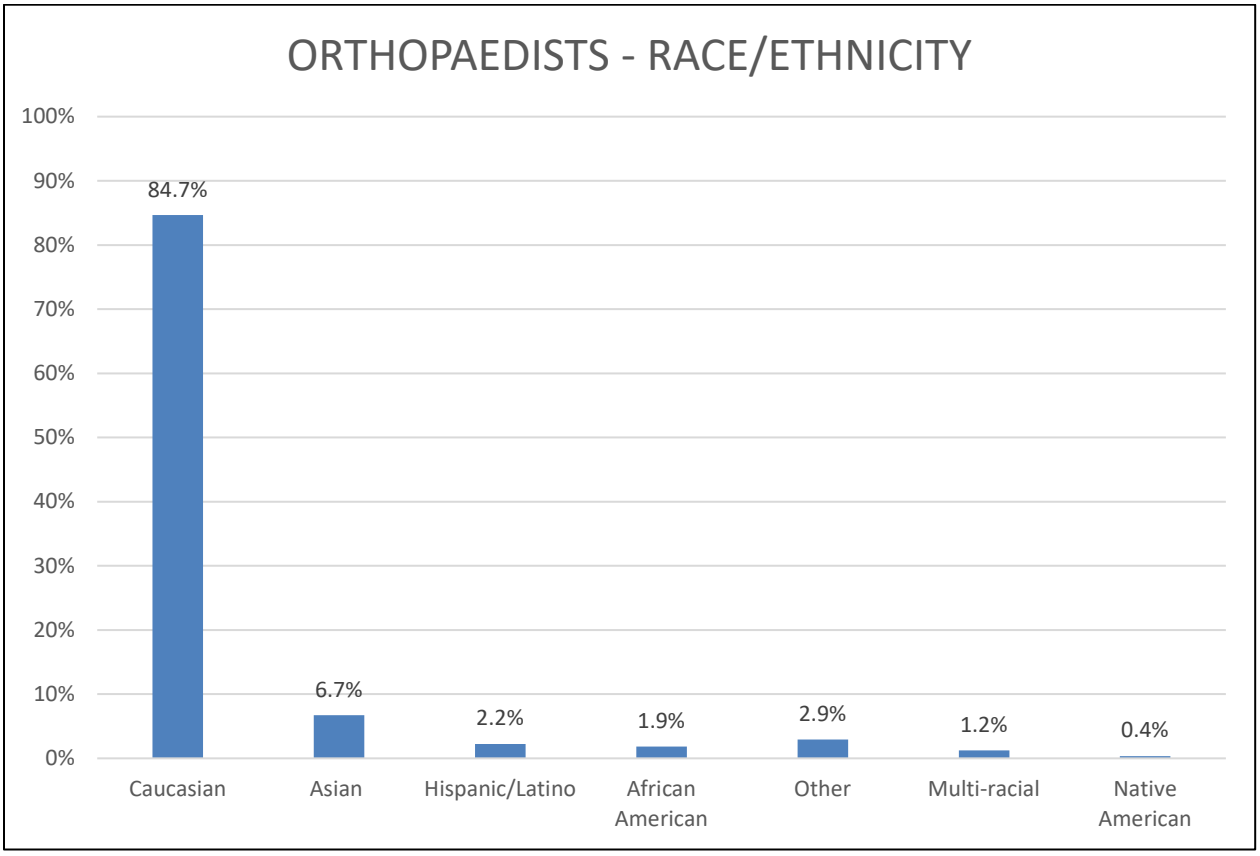
Figure 12 - Gender by Age Group



RACE/ETHNICITY

The primary reported race among practicing orthopaedists was Caucasian (84.7%), followed by Asian (6.7%). Relatively few indicated they are African American, Hispanic/Latino, Native American, or multi-racial. A full list of "other" race/ethnicity is found in Appendix C, Table 1.

Figure 13 - Orthopaedists Race/Ethnicity



RACE/ETHNICITY BY GENDER

Statistically significant differences in race/ethnicity were found between male and female practicing orthopaedists [X^2 (6 df) = 17.69; p<.01]. By comparison, male orthopaedists are more likely to be Caucasian than are female orthopaedists.

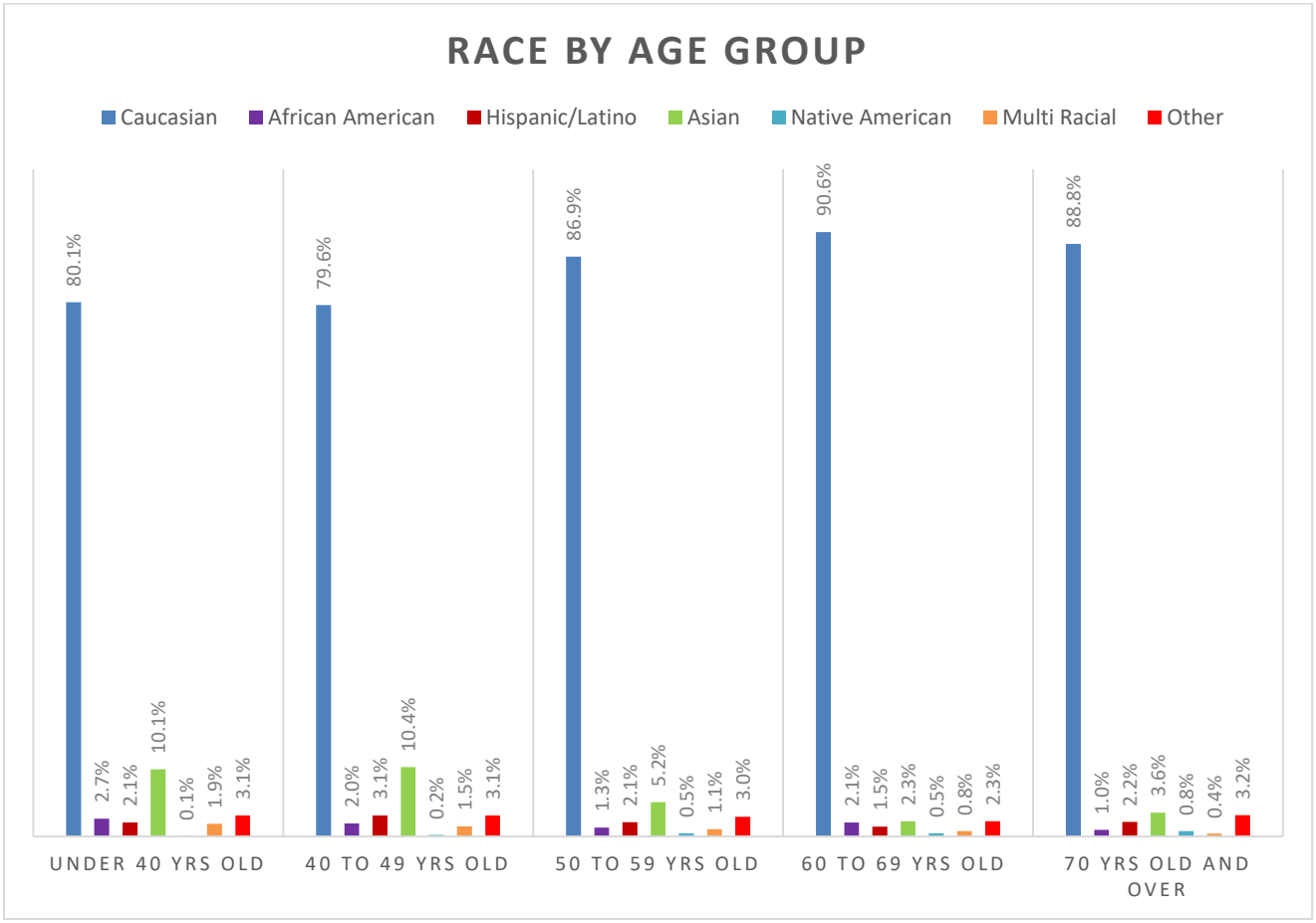
Figure 14 - Race by Gender

	Male (N=5,075)	Female (N=421)
Caucasian	85.12%	79.10%
African American	1.75%	3.09%
Hispanic/Latino	2.17%	3.09%
Asian	6.54%	9.03%
Native American	0.35%	0.48%
Multi-racial	1.12%	2.61%
Other	2.94%	2.61%

RACE/ETHNICITY BY AGE GROUP

Significant differences were found in reported race/ethnicity by age group [X^2 (24 df) = 137.186; p<.01]. Overall, Caucasians make up a majority of the practicing orthopaedic workforce in all age groups. Caucasians (80.1%) lead in the number of entering the orthopaedic workforce, followed by Asians (10.1%). Less than 10% of people entering the orthopaedic workforce are made up of African American, Hispanic/Latino, Native American, Multi-racial, and "other" combined.

Figure 15 – Race/Ethnicity by Age Group



ORTHOPAEDIC SOCIETY MEMBERSHIP

Orthopaedists were asked to indicate their membership status in four organizations: American College of Surgeons, American Medical Association, State Medical Society, and State Orthopaedic Society. Seventy-five percent of practicing orthopaedic respondents marked that they're a member of at least one of these organizations. Among those that indicated membership, most are members in a State Orthopedic Society (81.5%).

Figure 16 - Membership in Orthopaedic Societies

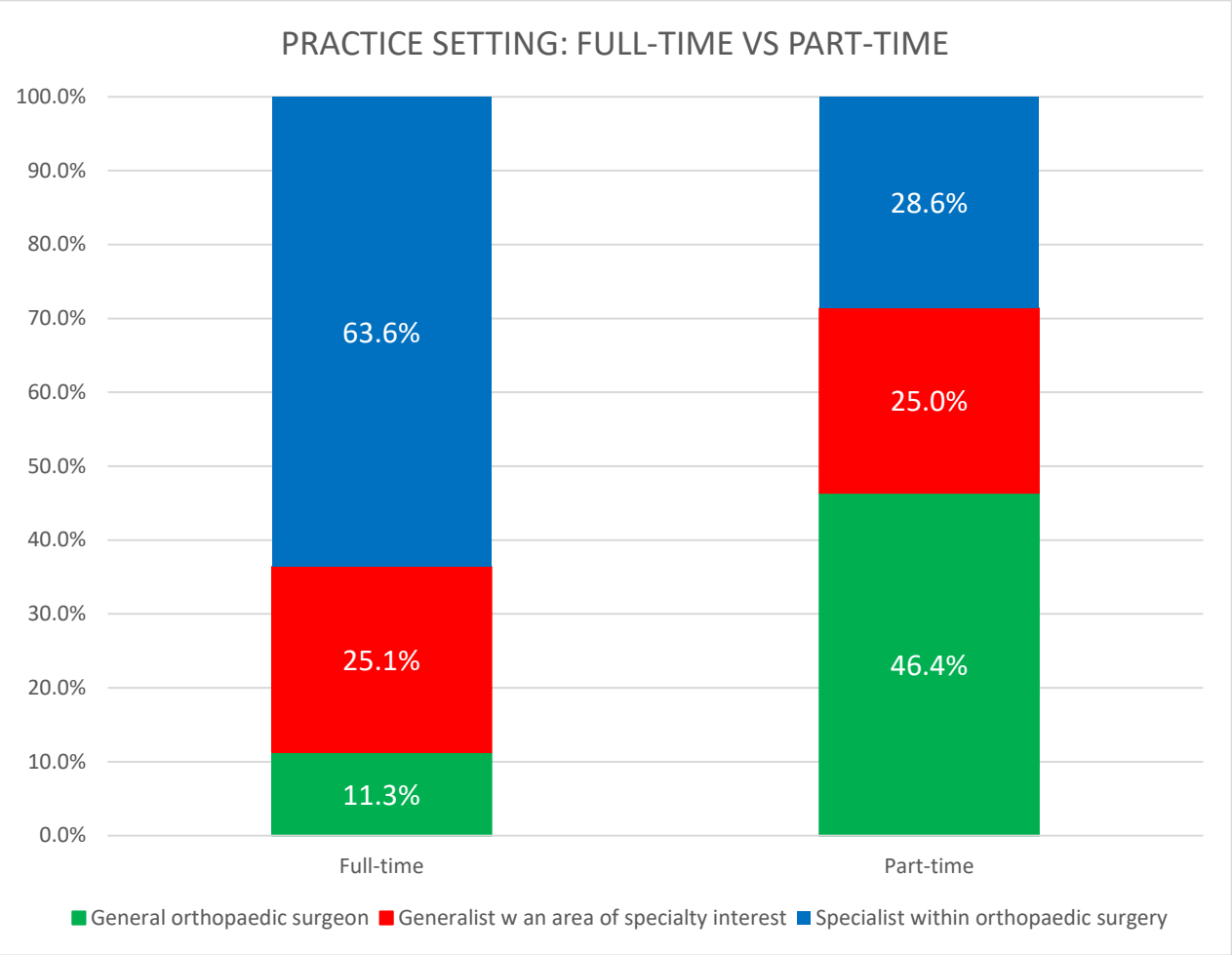
Indicate your membership in the following organizations (N=4,160 – member of at least one)

	Frequency	%
American College of Surgeons	535	12.9
American Medical Association	991	23.8
State Medical Society	2,258	54.3
State Orthopaedic Society	3,390	81.5

WORK STATUS

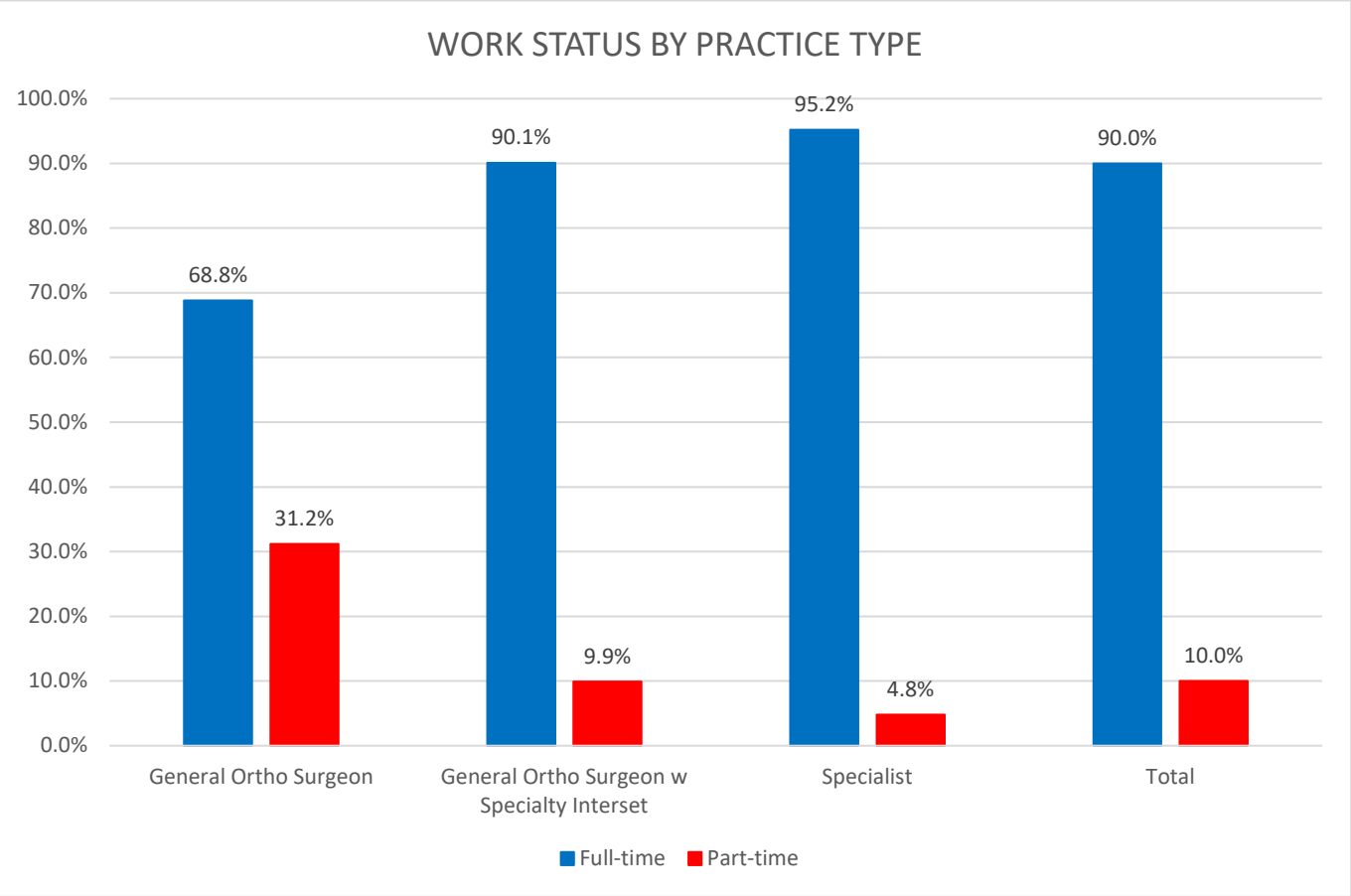
The orthopaedic workforce is made up of 90% employed full-time, and 10% part-time. Full- time orthopaedists are mostly specialists (63.6%), while part-time orthopaedists are mostly general orthopaedic surgeons (46.4%).

Figure 17 - Practice Setting: Full-time vs Part-time Orthopaedists



There is a significant difference between full-time and part-time orthopaedists in terms of practice type [X^2 (2 df) = 509.411; p<.01].

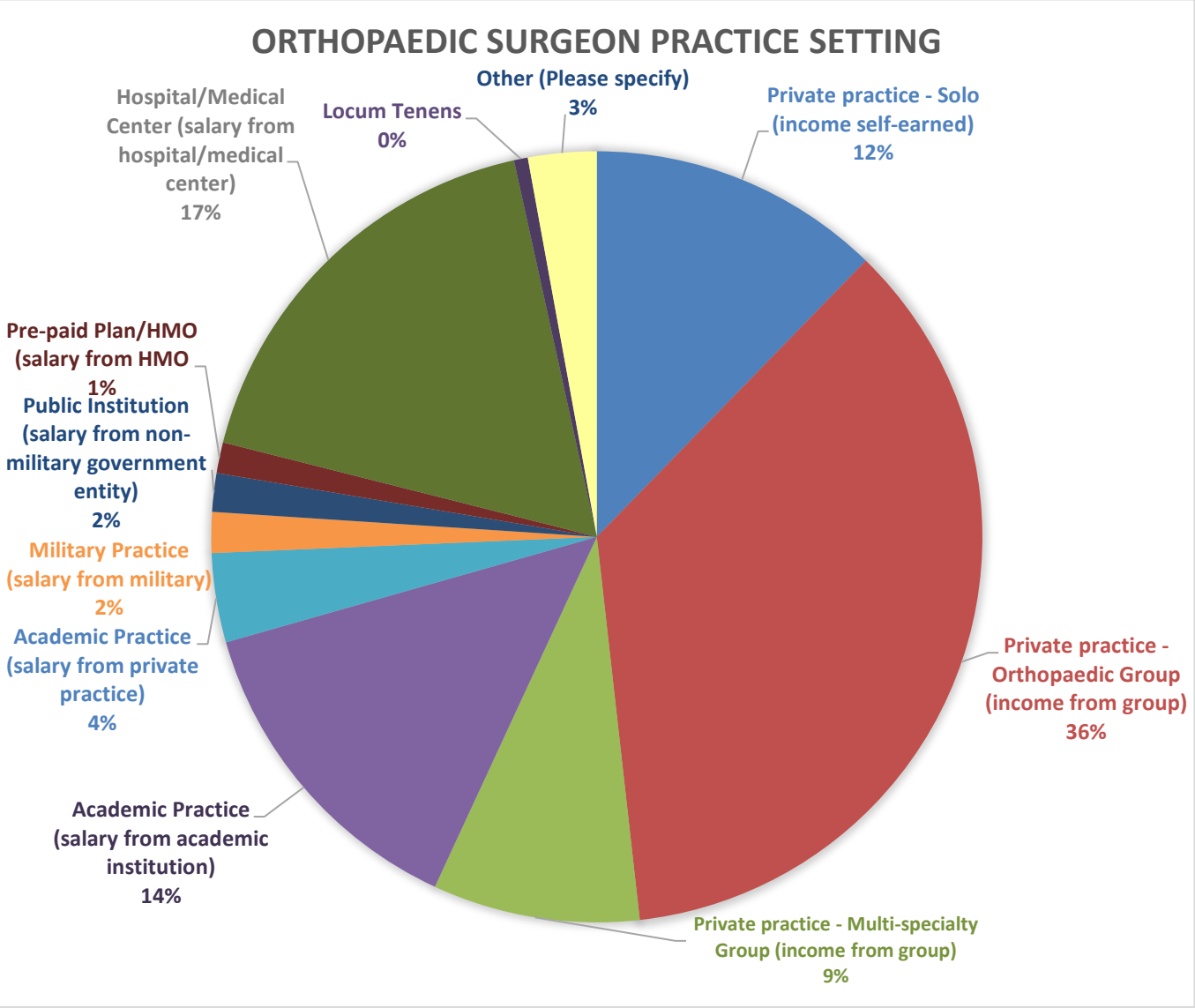
Figure 18 - Work Status by Practice Type



PRACTICE SETTING

Members were asked to identify the setting that best describes their current practice. The largest proportion of respondents practice in *Private Practice – orthopaedic group* setting (36%, +/- 1.27), with an additional 17% (+/- 1.01) in *Hospital/Medical Center* and 15% (+/- .91) in *Academic Practice (salary from institution)*.

Figure 19 - Practice Setting



PRACTICE SETTING BY WORK STATUS

Most full-time orthopaedists work in *private practice – ortho group* (37.5%) and *hospital/medical center* (18.1%) settings. Most part-time orthopaedists work in *private practice - solo* (26.3%) and *ortho group* (22.1%) practice settings. A higher proportion of part-time orthopaedists work in private practice – solo, public institutions, locum tenens, and "other" practice settings compared to their full-time colleagues [X^2 (10 df) = 766.735; p<.01].

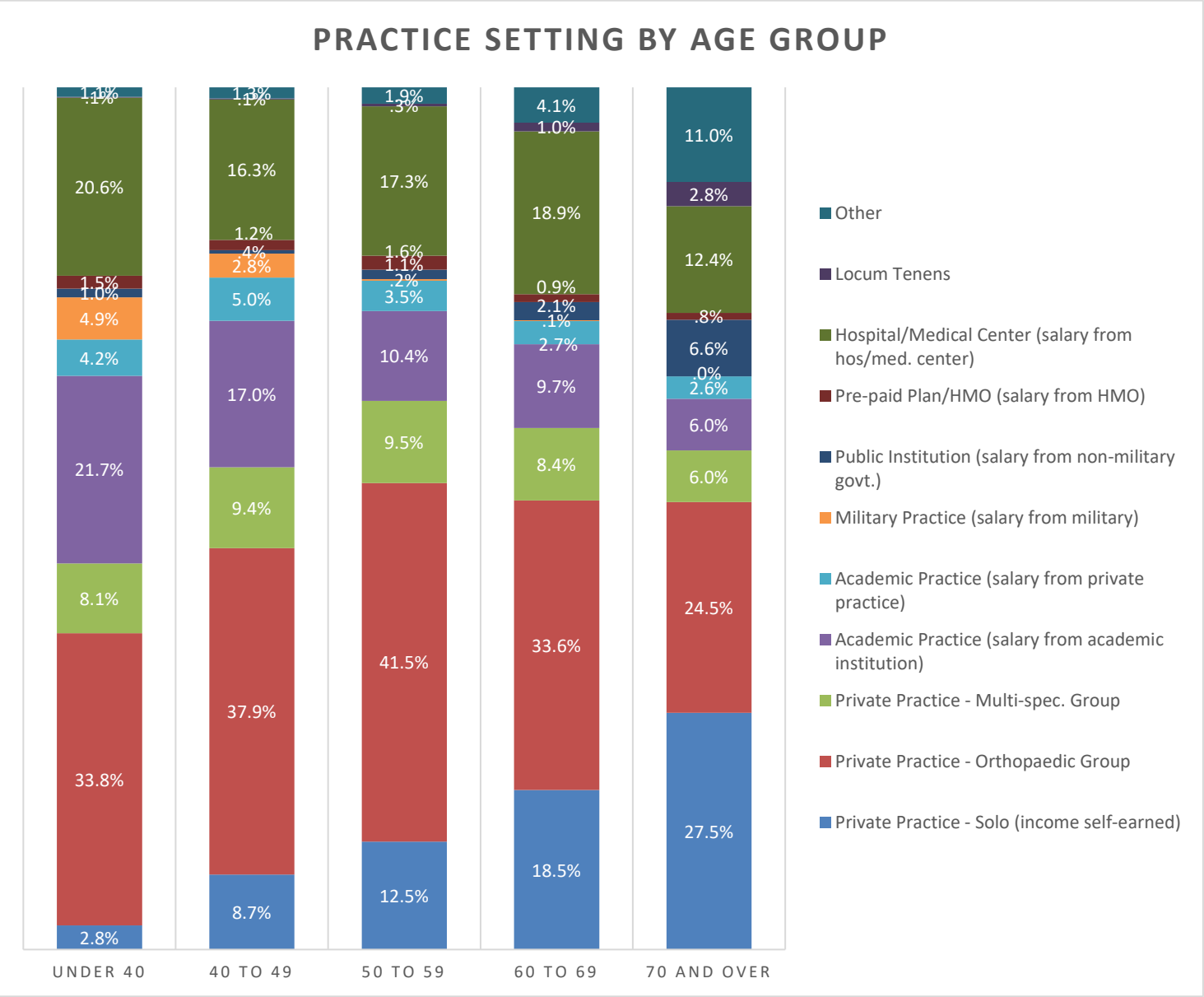
Figure 20 - Practice Setting by Work Status

	Full Time		Part Time	
	Valid %	95% CI (+/-)	Valid %	95% CI (+/-)
Private Practice - Solo (income self-earned)	10.7%	0.862	26.3%	3.671
Private Practice - Orthopaedic Group	37.5%	1.348	22.1%	3.461
Private Practice - Multi-specialty Group	9.0%	0.797	5.8%	1.950
Academic Practice (salary from academic institution)	14.6%	0.983	5.4%	1.891
Academic Practice (salary from private practice)	4.1%	0.550	0.7%	0.708
Military Practice (salary from military)	1.9%	0.376	0.4%	0.501
Public Institution (salary from non-military govt. entity)	1.0%	0.284	6.7%	2.087
Pre-paid Plan/HMO (salary from HMO)	1.3%	0.317	1.1%	0.865
Hospital/Medical Center (salary from hospital/med. center)	18.1%	1.071	13.2%	2.826
Locum Tenens	0.0%	0.039	5.6%	1.920
Other	1.8%	0.368	12.7%	2.776

PRACTICE SETTING BY AGE GROUP

Differences in practice setting across age groups are significant [X^2 (40 df) = 815.496; p<.01]. Compared to those aged 60 and older, fewer orthopaedists under 50 are in *private practice – solo* settings.

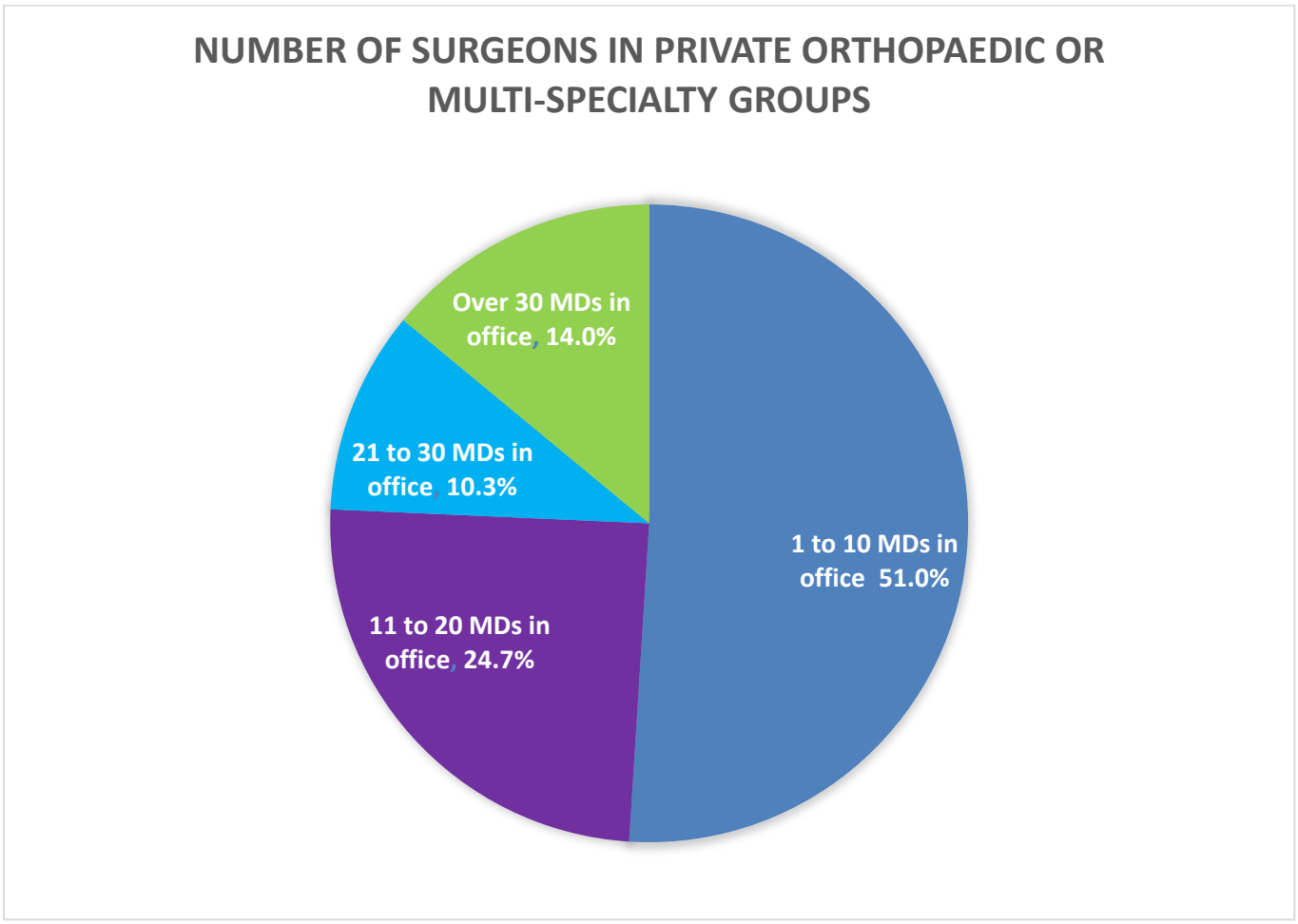
Figure 21 - Practice Setting by Age Group



PRACTICE SIZE

Full-time orthopaedists in private orthopaedic or multi-specialty groups reported working in an average group size of 21 surgeons (+/- 3.29), median of 10. The number of orthopaedists reported ranged from 1 to 3,500. Fifty-one percent of respondents in private orthopaedic or multi-specialty groups reported having 1 to 10 physicians in their office.

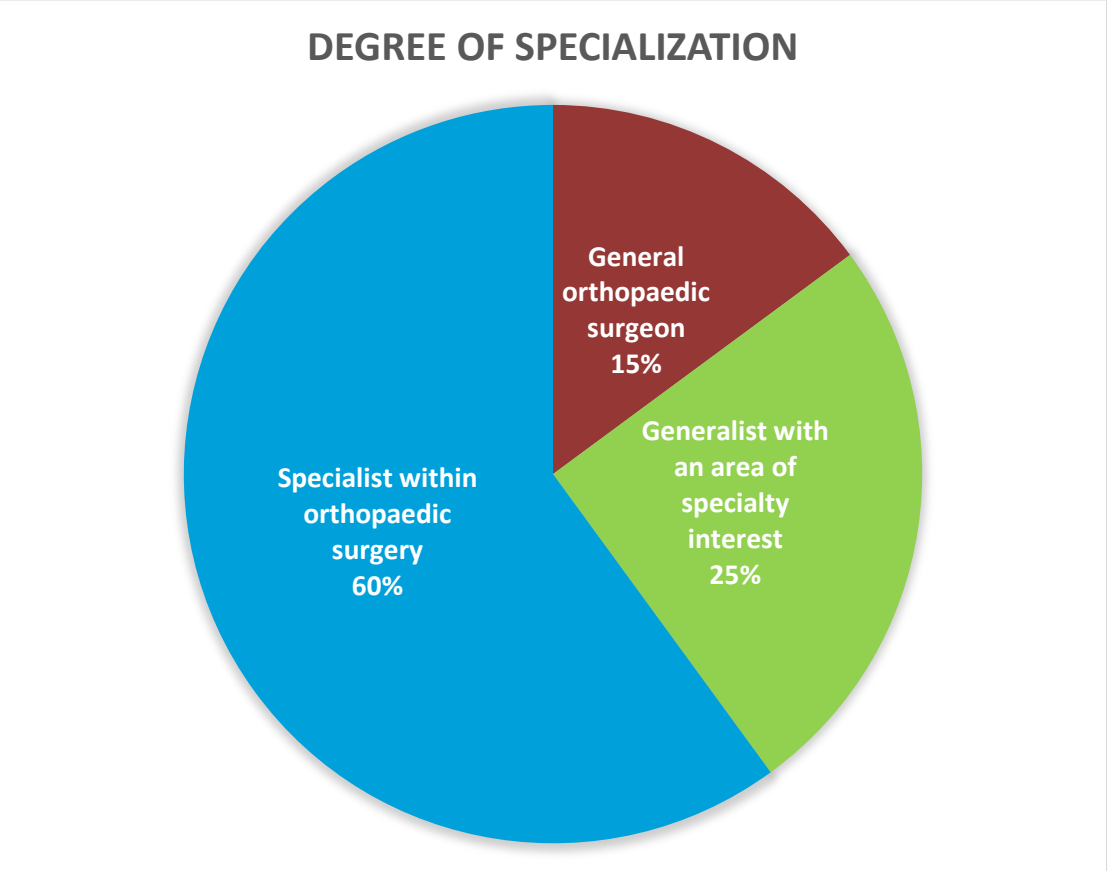
Figure 22 - Number of Surgeons in Private/Multi-Specialty Groups



DEGREE OF SPECIALIZATION

Sixty percent (+/-1.67) of practicing respondents are specialists, 25% (+/-2.29) are general orthopaedic surgeons with specialty interest, and 15% (+/-2.44) are generalists.

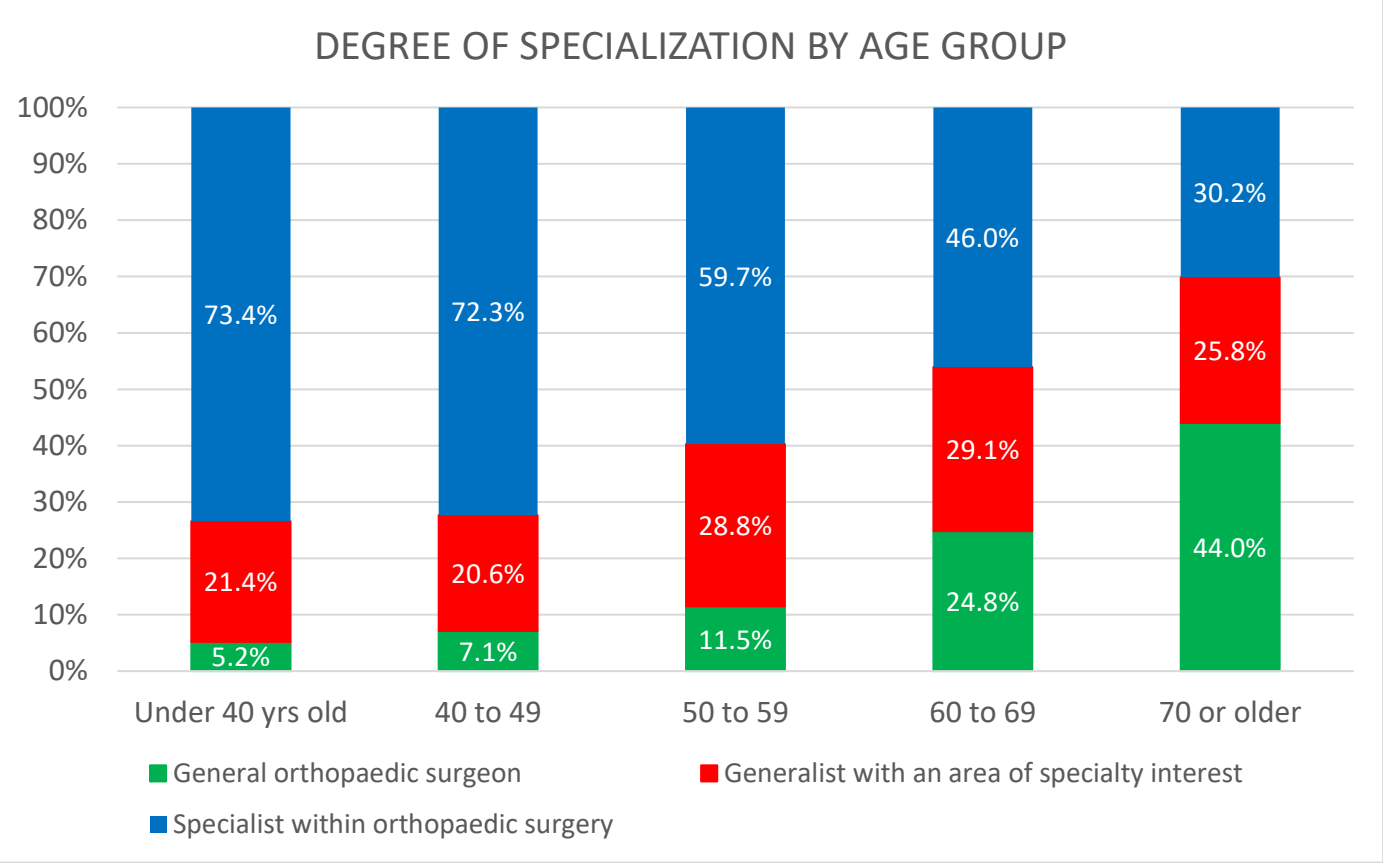
Figure 23 - Degree of Specialization Distribution



DEGREE OF SPECIALIZATION BY AGE GROUP

There are significant differences in degree of specialization by age group [X^2 (8 df) = 694.85; p<.01]. By comparison, orthopaedic surgeons under 50 years old are more likely to be *specialists*, whereas those aged 60 and older are more likely to be *general orthopaedic surgeons*.

Figure 24 - Degree of Specialization by Age Group



SPECIALTY AREAS

Respondents were asked to identify the one area of orthopaedic surgery they considered their primary specialty area. The three most-frequently cited areas of practice are sports medicine (18.2%), total joint (14.4%), and hand (11.6%). Ten percent of respondents indicated they do not have a primary specialty area.

Figure 25 - Specialty Areas

Primary Specialty Area	Valid % (N=5,497)	95% CI (+/-)
Sports medicine	18.2	1.02
I do not have a primary specialty area	10.4	0.81
Total joint	14.4	0.93
Hand	11.6	0.85
Adult spine	8.3	0.73
Trauma	5.8	0.62
Foot/ankle	5.2	0.59
Pediatric orthopaedics	5.1	0.58
Adult knee	4.5	0.55
Shoulder/elbow	4.3	0.54
Arthroscopy	2.9	0.44
Non-operative practice	2.3	0.40
Adult hip	1.9	0.36
Other (Please specify)	1.9	0.36
Orthopaedic oncology	1.5	0.32
Disability/legal ortho	1.0	0.26
Pediatric spine	0.6	0.20
Rehab/prosthetics/orthotics	0.0	0.04
Total	100.0	

SPECIALTY AREAS BY AGE GROUP

Differences in specialty areas were found by age group. Figure 26 shows that all specialty areas have significant difference between age groups except for rehabilitation/prosthetics/orthotics and pediatric spine.

Figure 26 - Chi Square Values of All Specialty Areas

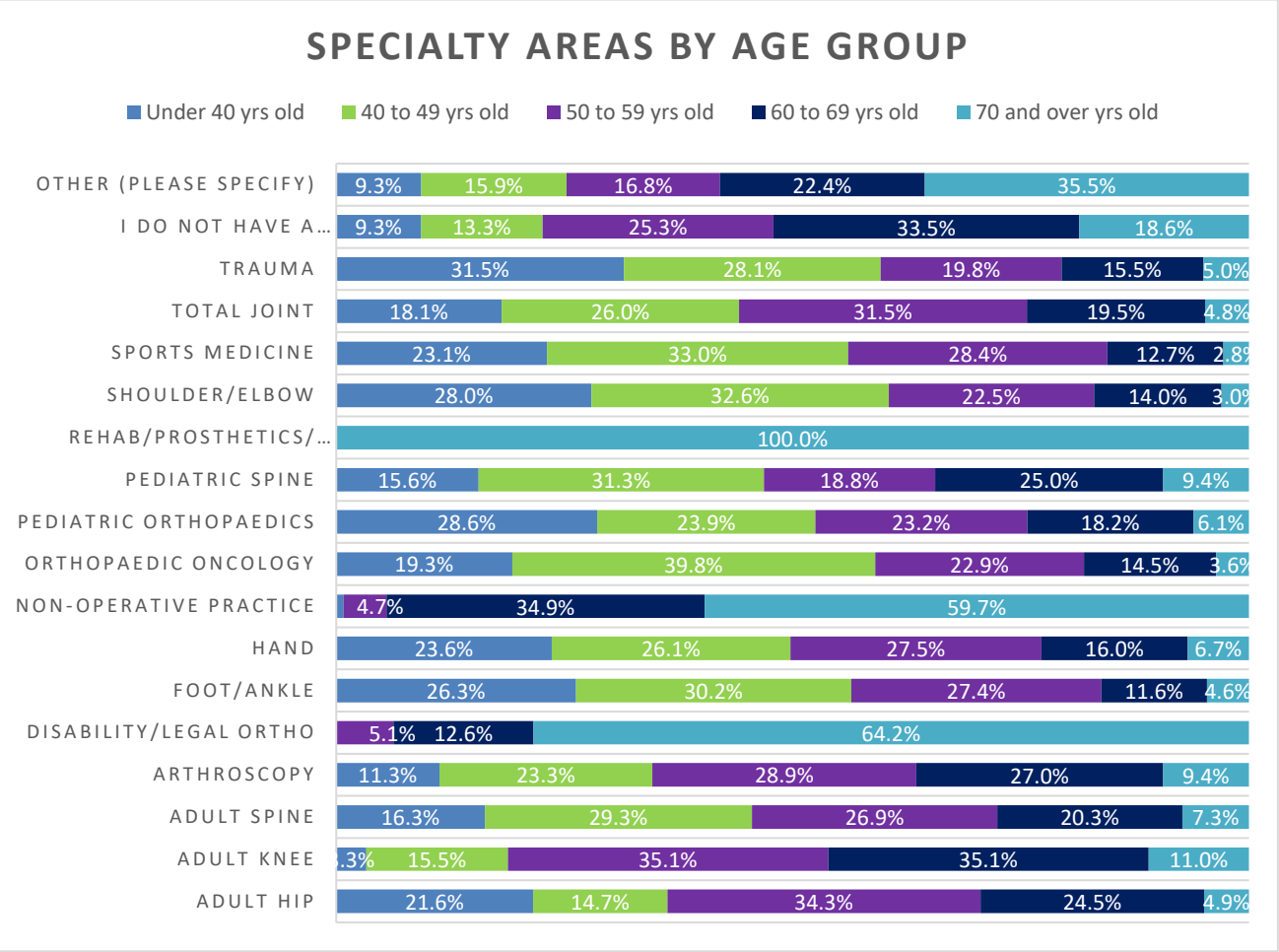
	Chi-square value	df	p value	Significant difference between age groups?
Adult Hip	25.594[a]	4	.000	Yes
Adult Knee	89.176[a]	4	.000	Yes
Adult Spine	70.746[a]	4	.000	Yes
Arthroscopy	21.226[a]	4	.000	Yes
Disability/legal	75.403[a]	4	.000	Yes
Foot & Ankle	90.555[a]	4	.000	Yes
Hand	129.022[a]	4	.000	Yes
Non-operative practice	164.889[a]	4	.000	Yes
Orthopaedic Oncology	30.078[a]	4	.000	Yes
Pediatric Orthopaedics	66.555[a]	4	.000	Yes
Pediatric Spine	4.598[a]	4	.331	No
Rehabilitation/prosthetics/orthotics	3.459[a]	4	.484	No
Shoulder & Elbow	84.171[a]	4	.000	Yes
Sports Medicine	398.411[a]	4	.000	Yes
Total Joint	187.521[a]	4	.000	Yes
Trauma	112.150[a]	4	.000	Yes
No specialty area	96.644[a]	4	.000	Yes
Other specialty area	8.347[a]	4	.080	Yes

Figure 27 shows the frequency distribution of age groups by primary specialty area. Surgeons aged 60 or older mostly specialize in rehab/prosthetics/orthotics (100.0%), non-operative practice (94.6%), and disability/legal orthopaedics (76.8%).

Surgeons between 40 to 59 years old are likely to specialize in sports medicine (61.4%), foot and ankle (57.6%), total joint (57.5%), adult spine (56.2%), shoulder and elbow (55.1%), hand (53.6%), arthroscopy (52.2%), and pediatric spine (50.1%) specialties.

The three most-frequently cited areas of practice among orthopaedists under the age of 40 are: trauma (31.5%), pediatric orthopaedics (28.6%), and shoulder and elbow (28.0%).

Figure 27 - Specialty Area by Age Group



WORK HOURS

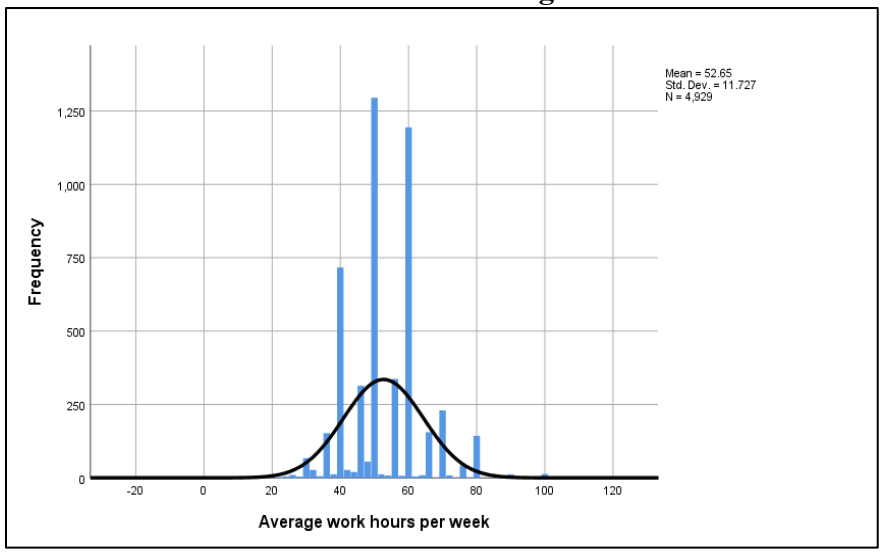
Full-time orthopaedists work an average of 52.65 hours per week. Answers ranged from 0 to 120 hours per week. Part-time orthopaedists work an average of 22.72 hours per week. Answers ranged from 0 to 115 hours per week.

Figure 28 - Average Hours per Week on All Activities (Excluding On-Call Time)

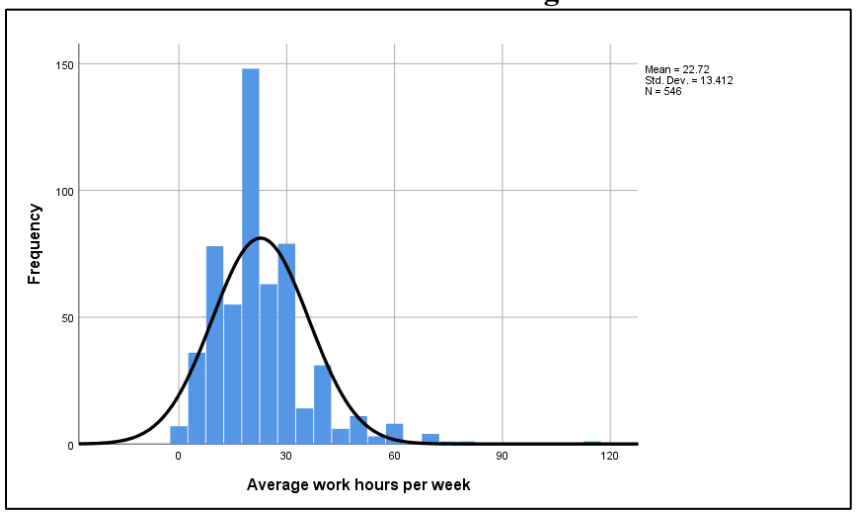
	Valid N	Missing N	Mean	Std Dev	Min	Max	95% CI (+/-)
Full time	4,929	33	52.65	11.727	0	120	0.33
Part time	546	9	22.72	13.412	0	115	1.13

Figure 29 - Work Hours Distribution by Full and Part-time Ortho Surgeons

Hours Per Week – Full-time Ortho Surgeons



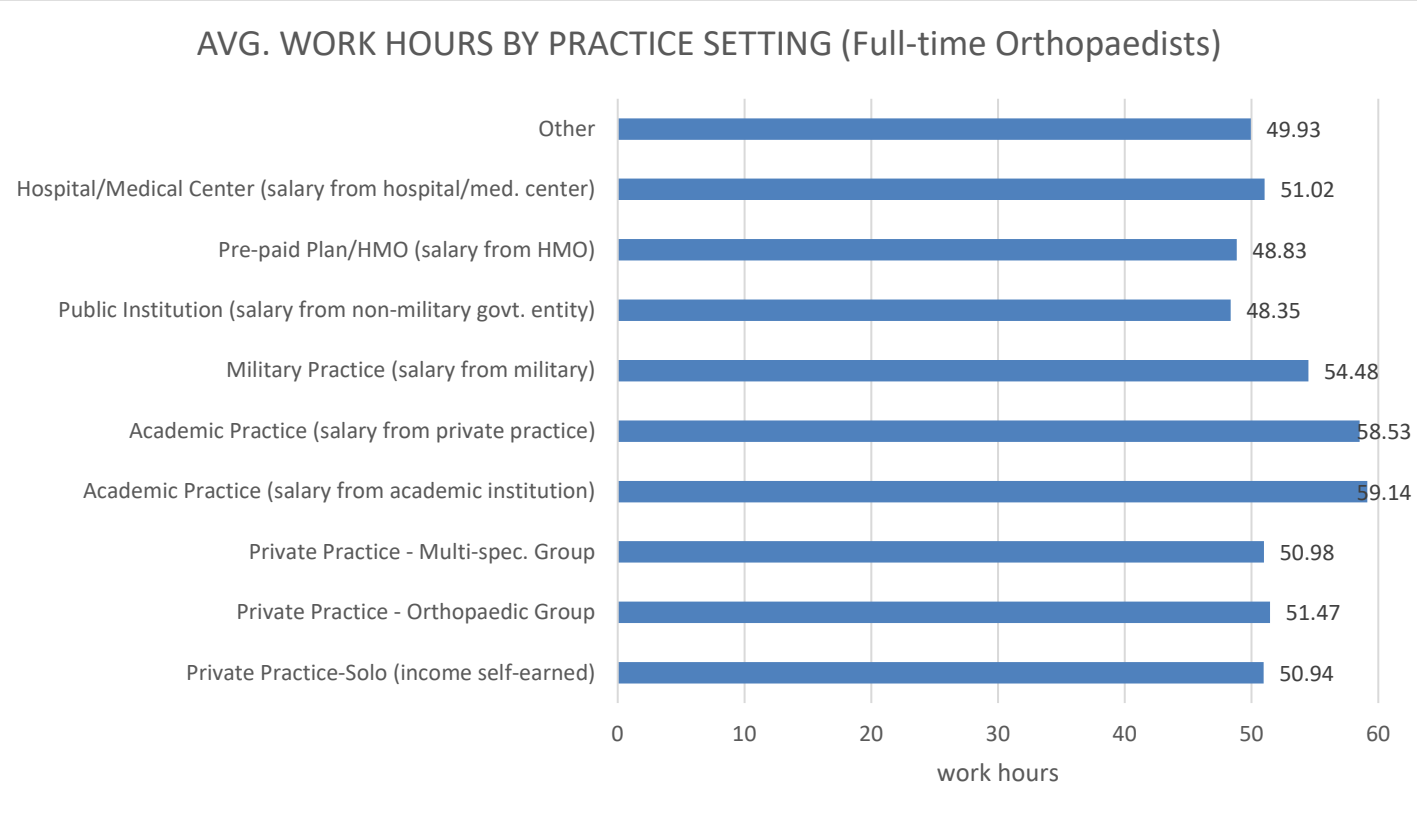
Hours Per Week – Part-time Ortho Surgeons



WORK HOURS BY PRACTICE SETTING

Significant differences in work hours of full-time orthopaedists are evident across practice settings [F (9, 4913) = 41.692; p<.01]. By comparison, full-time orthopaedists in academic practice settings reported working the longest hours (59.14 hours per week – salary from academic institution; 58.53 hours – salary from private practice).

Figure 30- Full-time Orthopaedists' Average Work Hours by Practice Setting



WORK HOURS BY DEGREE OF SPECIALIZATION

Significant differences in work hours of full-time orthopaedists are evident across degree of specialization [F (2, 4915) = 91.973; p<.01]. Specialists report the longest work hours (54.22 per week), while generalists work the least number of hours (47.88 per week).

Figure 31 - Full Time Orthopaedists' Work Hours* by Degree of Specialization

Degree of Specialization	N	Mean	Std. Dev.	Std. Error	Min	Max	95% CI (+/-)
General orthopaedic surgeon	555	47.88	11.846	.503	8	100	0.99
Generalist with an area of specialty interest	1,238	50.86	10.954	.311	0	100	0.61
Specialist within orthopaedic surgery	3,125	54.22	11.645	.208	0	120	0.41
Total	4,918	52.66	11.709	.167	0	120	

*Excludes On-call times

WORK HOURS BY AGE GROUP

The number of work hours per week varies by age group [F (4, 4905) = 47.357; p<.01]. Full-time orthopaedic surgeons under the age of 60 work the most and surgeons in the 60 to 69 years old (50.87 hours) and the 70 years old and older (43.09 hours) age groups work the least per week.

Figure 32 - Full-time Orthopaedists' Work Hours* by Age Group

Age Group	N	Mean	Std. Dev.	Std. Error	Min	Max	95% CI (+/-)
Under 40 yrs old	1,050	54.27	11.002	.340	2	120	0.67
40 to 49 yrs old	1,356	53.61	10.994	.299	9	120	0.59
50 to 59 yrs old	1,405	52.86	11.406	.304	0	110	0.60
60 to 69 yrs old	901	50.87	12.453	.415	1	120	0.81
70 yrs old and over	198	43.09	13.290	0.944	0	87	1.86
Total	4,910	52.61	11.707	.167	0	120	

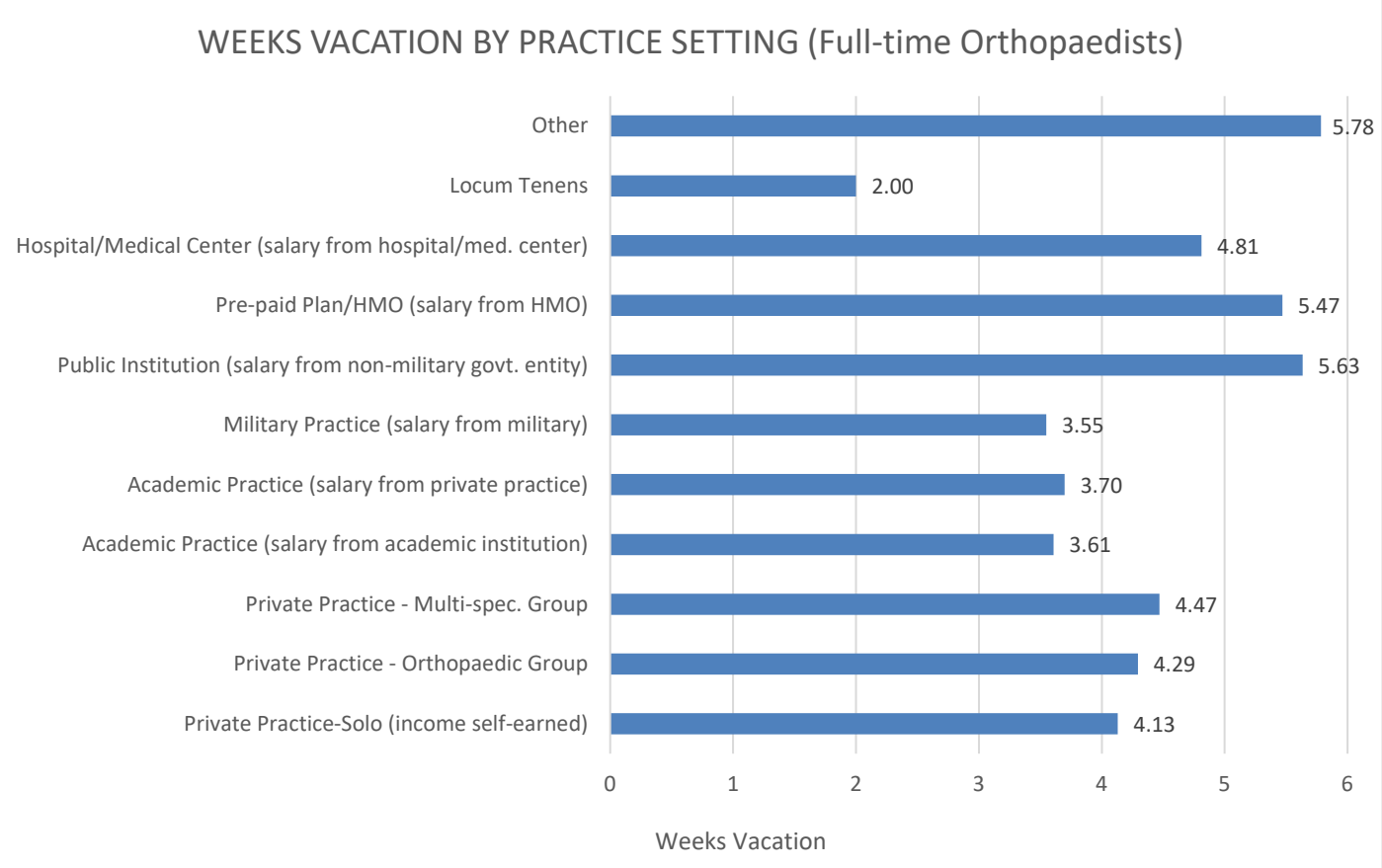
*Excludes On-call times

TIME AWAY FROM PRACTICE

WEEKS VACATION

Orthopaedists were asked to report the total number of weeks spent away from their practice for vacation. Full-time orthopaedists from public institutions and pre-paid plan/HMO settings had the most weeks of vacation (average 5.5 – 5.6 weeks). Respondents from military practice, academic practice, and private practice – *solo group* settings have an average of three to four weeks of vacation. Respondents from locum tenens had the least at 2 weeks. Differences between practice settings are statistically significant [F (10, 4906) = 8.573; p<.01].

Figure 33 - Weeks of Vacation by Practice Setting (Full-time Orthopaedists Only)



WEEKS VACATION BY GENDER

Full-time female orthopaedists spend an average of 4.15 weeks for vacation, while male orthopaedists spend an average of 4.31 weeks. However, the difference between gender is not statistically significant [F (1, 4921) = 0.729; p=0.393].

Figure 34 - Weeks of Vacation by Gender

Gender	N	Mean	Std. Dev.	Std. Error	Min	Max	95% CI (+/-)
Male	4,538	4.31	3.676	.055	0	53	0.26
Female	385	4.15	2.970	.151	0	46	0.11

WEEKS VACATION BY AGE GROUP

On average, full-time orthopaedic surgeons younger than 50 years old report the fewest number of weeks away from their practice for vacation (average 4 weeks or less). Those aged 70 and older report the greatest number of weeks away from their practice for vacation (average 6.15 weeks). Differences between age groups are statistically significant [F (4, 4900) = 28.901; p<.01].

Figure 35 - Weeks of Vacation by Age Group

Age Group	N	Mean	Std. Dev.	Std. Error	Min	Max	95% CI (+/-)
Under 40 yrs old	1,048	3.69	2.319	.072	0	46	0.14
40 to 49 yrs old	1,358	4.00	2.359	.064	0	48	0.13
50 to 59 yrs old	1,408	4.45	3.769	.100	0	53	0.20
60 to 69 yrs old	893	4.85	4.603	.154	0	50	0.30
70 and over yrs old	198	6.15	7.500	.533	0	50	1.05

DAYS AWAY FOR EDUCATION

On average, full-time orthopaedists spent 7.63 days away from their practice for orthopaedic education and training.

Figure 36 - Full-time Orthopaedists Only - Time Spent Away from Practice

	Valid N	Missing N	Mean	Std Dev	Min	Max	95% CI (+/-)
Days spent out of practice for CME	4,924	38	7.63	5.546	0	90	0.155

DAYS AWAY FOR EDUCATION BY PRACTICE SETTING

Full-time orthopaedists from the academic practice groups spent the most days away from practice for CME (including Annual Meeting – an average of 10.8 - 11.2 days). Orthopaedists from private practice (group) settings spent the least amount of days (6.58) away from practice for orthopaedic courses. Orthopaedists from other practice settings averaged seven to eight days spent for courses. Differences between groups are statistically significant [$F(10, 4908) = 44.88$; $p<.01$].

Figure 37 - Days Spent Away for Business Meetings/Education by Practice Setting

	Orthopaedic Courses – CME			
	N	Mean	Std. Dev	95% CI (+/-)
Private practice - Solo (income self-earned)	524	7.28	5.205	0.45
Private practice - Orthopaedic Group (income from group)	1837	6.58	4.224	0.19
Private practice - Multi-specialty Group (income from group)	445	6.58	4.108	0.38
Academic Practice (salary from academic institution)	721	10.80	7.645	0.56
Academic Practice (salary from private practice)	202	11.21	8.962	1.24
Military Practice (salary from military)	92	7.93	5.715	1.18
Public Institution (salary from non-military government entity)	51	8.22	6.008	1.69
Pre-paid Plan/HMO (salary from HMO	65	7.26	3.722	0.92
Hospital/Medical Center (salary from hospital/medical center)	893	7.10	4.465	0.29
Locum Tenens	1	7.00		7.00
Other (Please specify)	88	7.51	5.422	1.15

DAYS AWAY FOR EDUCATION BY AGE GROUP

Overall, there are significant differences between age groups in terms of days spent away from practice for orthopaedic courses [F (4, 4900) = 16.117; p<.01]. Full-time orthopaedic surgeons aged 60 to 69 years old (8.52 days) and those 70 years and older (9.46 days) spent more days away from practice for training and orthopaedic courses than did younger surgeons (under 60 years old).

Figure 38 - Days Away by Age Group

	Orthopaedic Courses - CME			
	N	Mean	Std. Dev	95% CI (+/-)
Under 40 yrs old	1,046	7.02	4.508	0.27
40 to 49 yrs old	1,361	7.25	5.005	0.27
50 to 59 yrs old	1,404	7.64	5.573	0.29
60 to 69 yrs old	898	8.52	6.252	0.41
70 and over yrs old	196	9.46	8.866	1.25

DAYS AWAY FOR EDUCATION BY SPECIALIZATION

Orthopaedic specialists reported the highest number of days away for education/training (8.28) compared to 6.58 days for generalists with specialty interest and 6.32 days for generalists. Differences between the three groups are statistically significant [F (2, 4910) = 60.302; p<.01].

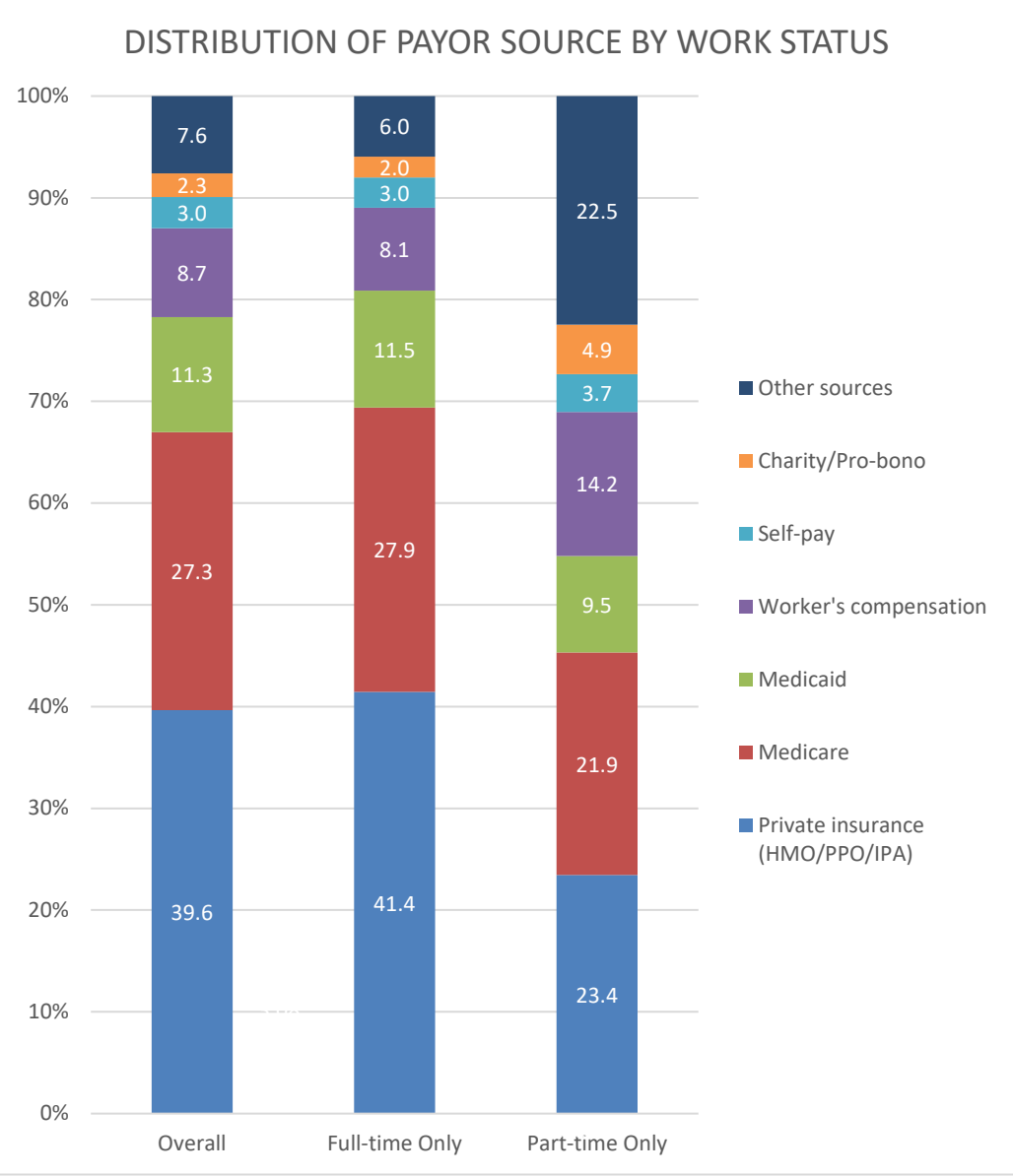
Figure 39 - Days Away by Specialization

	Orthopaedic Courses - CME			
	N	Mean	Std. Dev	95% CI (+/-)
General Orthopaedic Surgeon	555	6.32	4.189	0.35
General Orthopaedic Surgeon w/specialty interest	1233	6.58	4.072	0.23
Specialist within Orthopaedic Surgery	3125	8.28	6.130	0.22

PATIENTS BY PAYOR SOURCE

Orthopaedic surgeons were asked to approximate the distribution of their patients by payor source. Overall, the highest percentage of orthopaedists payor source is made up of private insurance (39.6%) followed next by Medicare at 27.3%. There were significant differences found between full-time and part-time orthopaedists for all payor source categories. Verbatim responses for "other sources" can be found in Appendix C, Table 4.

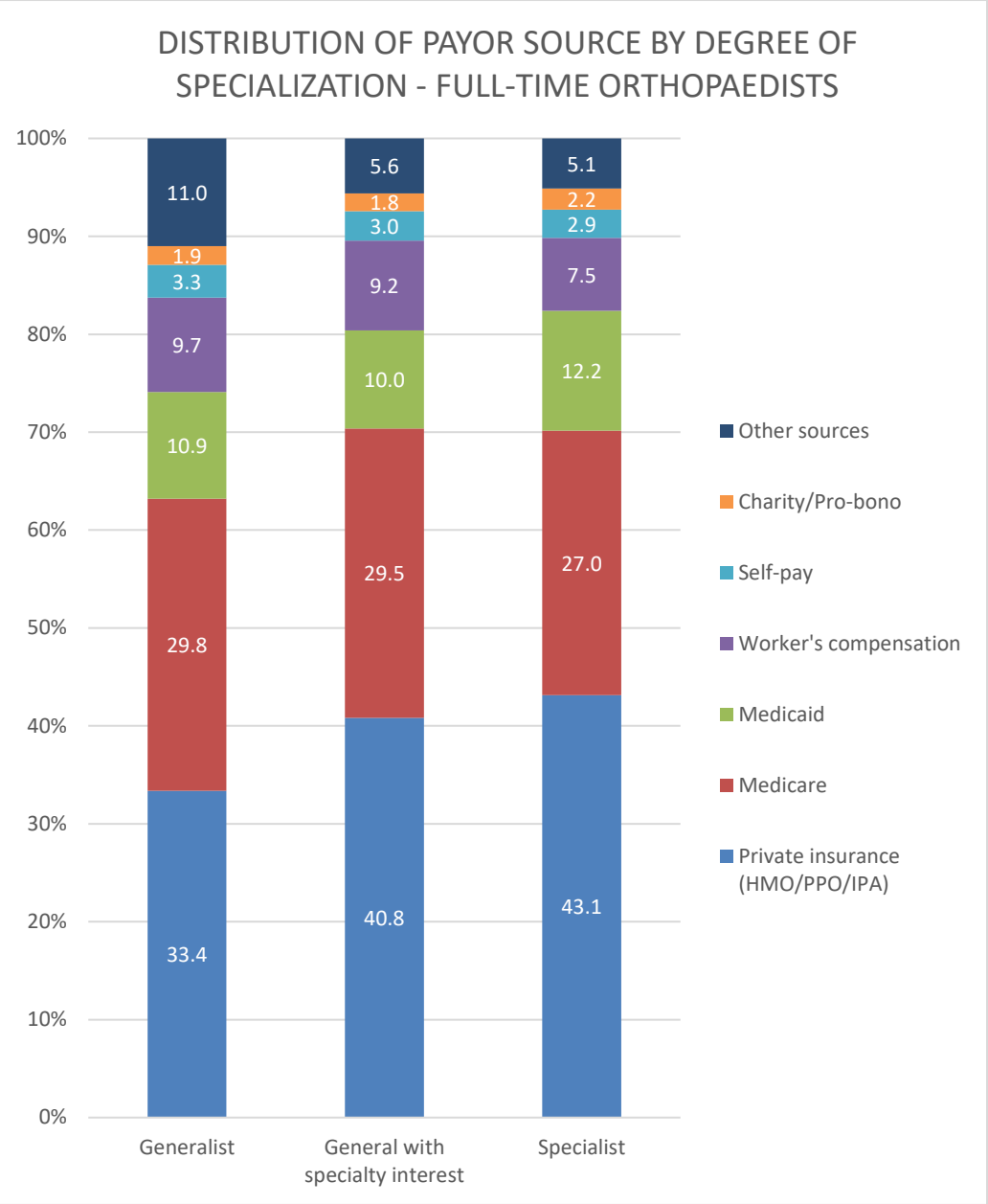
Figure 40 - Distribution of Payor Source by Work Status



PAYOR SOURCE BY DEGREE OF SPECIALIZATION: FULL-TIME ORTHOPAEDISTS ONLY

Aside from self-pay and charity/pro-bono, statistically significant differences were found between generalists, general orthopaedic surgeons with specialty interest, and specialists for all other payor sources. In all three groups, the top two payor sources were private insurance and Medicare.

Figure 41 - Distribution of Payor Source by Degree of Specialization



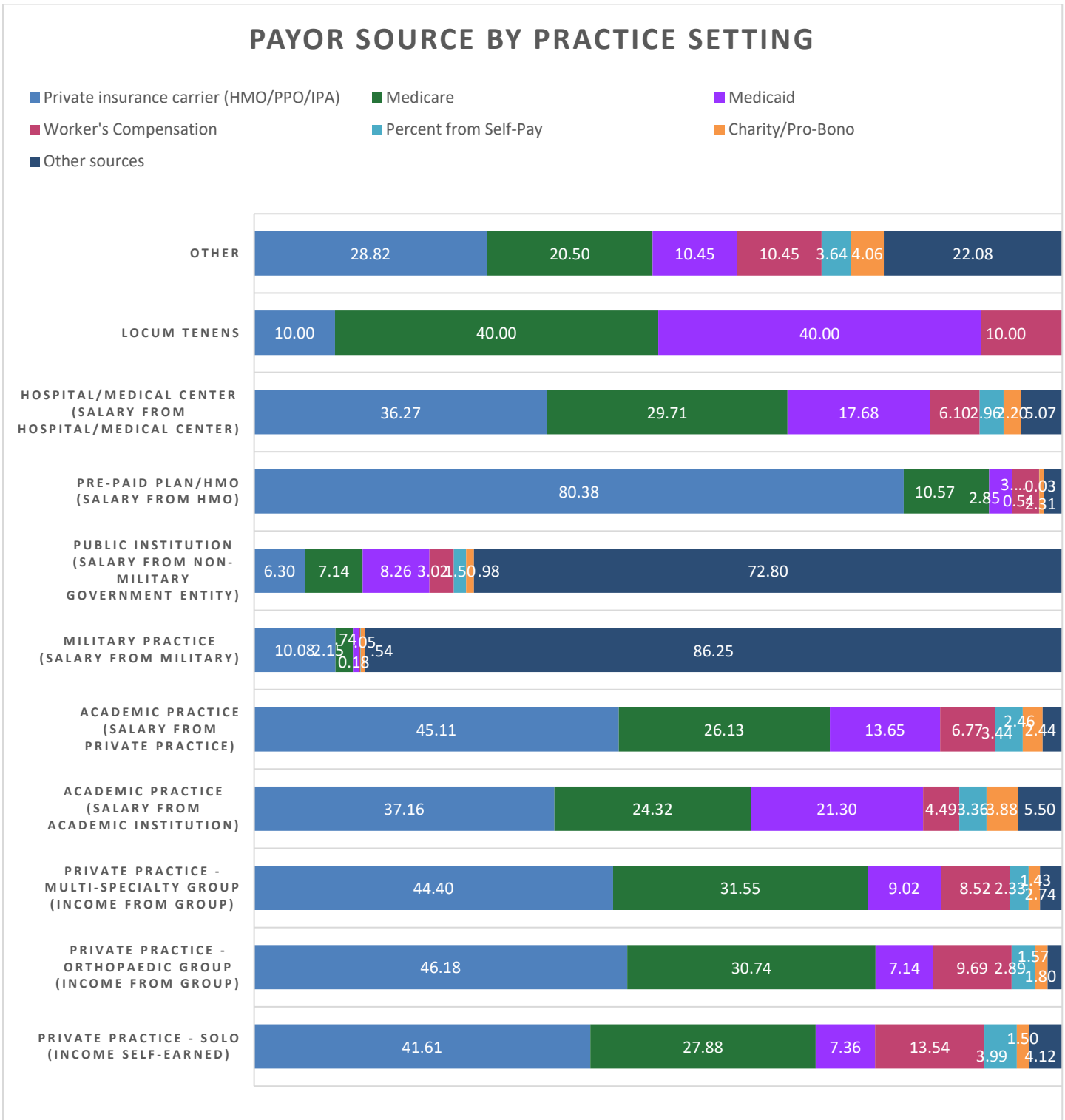
PAYOR SOURCE BY PRACTICE SETTING

Among full-time orthopaedic surgeons, statistically significant differences were found between practice setting groups in terms of payor sources. Aside from those in military practice, public institutions and locum tenens (temporary substitutes), orthopaedists in other practice settings had private insurance and Medicare as their top payor sources.

Figure 42 - Payor Source by Practice Setting

	Private insurance carrier (HMO/PPO/IPA)	Medicare	Medicaid	Worker's Compensation	Self-Pay	Charity/Pro-Bono	Other sources
Private practice - Solo (income self-earned)	41.61	27.88	7.36	13.54	3.99	1.50	4.12
Private practice - Orthopaedic Group (income from group)	46.18	30.74	7.14	9.69	2.89	1.57	1.80
Private practice - Multi-specialty Group (income from group)	44.40	31.55	9.02	8.52	2.33	1.43	2.74
Academic Practice (salary from academic institution)	37.16	24.32	21.30	4.49	3.36	3.88	5.50
Academic Practice (salary from private practice)	45.11	26.13	13.65	6.77	3.44	2.46	2.44
Military Practice (salary from military)	10.08	2.15	.74	0.18	.05	.54	86.25
Public Institution (salary from non-military government entity)	6.30	7.14	8.26	3.02	1.50	.98	72.80
Pre-paid Plan/HMO (salary from HMO)	80.38	10.57	2.85	3.32	0.03	0.54	2.31
Hospital/Medical Center (salary from hospital/medical center)	36.27	29.71	17.68	6.10	2.96	2.20	5.07
Locum Tenens	10.00	40.00	40.00	10.00	0.00	0.00	0.00
Other (Please specify)	28.82	20.50	10.45	10.45	3.64	4.06	22.08

Figure 43 - Payor Source by Practice Setting (Graph)



NUMBER OF SURGICAL PROCEDURES PERFORMED PER MONTH

Overall, orthopaedists perform an average of 30 procedures per month, with full-time orthopaedists performing 32 procedures per month, and part-timers performing 7 procedures per month. There are significant differences between the full-time and part-time group in the number of procedures they perform per month [F (1, 5412) = 924.459; p<.01].

Figure 44 - Procedures Performed per Month by Work Status

	N	Mean	Std. Deviation	95% CI (+/-)
Full-time	4,909	32.14	17.961	0.51
Part-time	505	7.25	12.299	1.07
Total	**5,414**	**29.81**	**18.946**	**0.50**

NUMBER OF SURGICAL PROCEDURES PER MONTH BY PRACTICE TYPE

Looking at full-time orthopaedists only, *specialists* average 34 procedures a month, *generalists with specialty interests* average 31 procedures per month, and *generalists* average 25 procedures per month. There are significant differences between groups in the number of procedures they perform per month [F (2, 4899) = 60.45; p<.01].

Figure 45 - Procedures Performed by Month by Practice Type

	N	Mean	Std. Deviation	95% CI (+/-)
General orthopaedic surgeon	546	25.14	16.032	1.35
Generalist with an area of specialty interest	1,233	30.87	16.251	0.90
Specialist within orthopaedic surgery	3,123	33.86	18.554	0.65

NUMBER OF SURGICAL PROCEDURES PER MONTH BY PRACTICE SETTING

Looking at full-time orthopaedists only, those in private practice – ortho group and academic practice (salary from private practice) average nearly 36 procedures per month. Orthopaedists in military practice and public institution settings tend to perform the fewest – averaging approximately 20 procedures per month. There are significant differences between groups in the number of procedures they perform per month [F (9, 4894) = 25.134; p<.01].

Figure 46 - Procedures Performed per Month by Practice Setting

	N	Mean	Std. Deviation	95% CI (+/-)
Private practice – solo (income self-earned)	521	28.07	19.678	1.69
Private practice - Orthopaedic Group (income from group)	1834	35.91	18.724	0.85
Private practice - Multi-specialty Group (income from group)	442	31.94	16.113	1.51
Academic Practice (salary from academic institution)	722	30.03	18.346	1.34
Academic Practice (salary from private practice)	200	35.67	18.351	2.56
Military Practice (salary from military)	92	20.24	8.685	1.80
Public Institution (salary from non-military gov't. entity)	52	19.92	11.822	3.29
Pre-paid Plan/HMO (salary from HMO)	65	26.26	9.244	2.29
Hospital/Medical Center (salary from hospital/medical center)	891	30.74	14.537	0.96
Other	85	24.93	19.421	4.19

NUMBER OF SURGICAL PROCEDURES PER MONTH BY AGE GROUP

Looking at full-time orthopaedists only, orthopaedists between 40 to 59 years old perform an average of 35 procedures per month. Orthopaedists 70 years old and over perform the fewest – averaging approximately 20 procedures per month. There are significant differences between groups in the number of procedures they perform per month [F (4, 4885) = 69.812; p<.01].

Figure 47 - Procedures Performed per Month by Age Group

	N	Mean	Std. Deviation	95% CI (+/-)
Under 40 years old	1050	29.08	13.420	0.81
40 to 49 years old	1356	35.57	17.425	0.93
50 to 59 years old	1403	35.48	19.421	1.02
60 to 69 years old	896	27.79	18.368	1.20
70 years old and over	185	20.04	18.631	2.70

NUMBER OF SURGICAL PROCEDURES PERFORMED PER MONTH BY DIVISION

Overall, the number of monthly procedures performed by full-time orthopaedists varies a bit by census division [F (9, 4876) = 12.766; p<.01]. On average, orthopaedists in the East South Central division (37) perform a higher number of monthly procedures than do orthopaedists in the Pacific division (27).

Figure 48 - Surgical Procedures per Month by Census Division

	N	Mean	Std. Deviation	95% CI (+/-)
New England	261	31.64	28.117	3.43
Mid Atlantic	666	30.38	18.823	1.44
East North Central	699	33.65	16.112	1.19
West North Central	428	34.96	16.228	1.54
South Atlantic	987	32.18	17.214	1.08
East South Central	262	37.15	16.930	2.06
West South Central	474	33.15	18.647	1.69
Mountain	361	34.39	17.648	1.83
Pacific	740	27.28	14.745	1.06

SPECIFIC PROCEDURES PERFORMED PER MONTH – OVERALL

Orthopaedic surgeons were asked to estimate the number of procedures performed per month for 11 pre-selected ICD-10-CM procedure codes. Overall, arthroscopy of the knee was the most frequently performed procedure (average of 4.73 per month). The least frequently performed procedures are replacement/revision of spinal disc (average of 0.21 procedures per month), revision of hip replacement (average of 0.39), and revision of the knee (average of 0.50).

Figure 49 - Specific Procedures Performed per Month (Full-time and Part-time combined)

	OVERALL	OVERALL	OVERALL	OVERALL
	N Valid	Mean	Std Dev	95% CI (+/-)
Release of carpal tunnel	4,991	2.64	8.509	0.24
Knee arthroscopy	5,096	4.73	8.150	0.22
Spinal fusion/re-fusion	4,727	1.35	7.086	0.20
Other repair/construction of the ACL	4,895	1.26	6.018	0.17
Total hip replacement	4,940	2.96	7.016	0.20
Partial hip replacement	4,802	0.82	1.981	0.06
Revision of hip replacement	4,736	0.39	1.353	0.04
Total knee replacement (UNI compartmental)	4,715	1.02	4.563	0.13
Total knee replacement (BI/TRI compartmental)	4,967	4.23	8.317	0.23
Revision of the knee	4,779	0.50	1.964	0.06
Replacement/revision of the spinal disc	4,654	0.21	1.453	0.04

SPECIFIC PROCEDURES PERFORMED PER MONTH: FULL-TIME VS PART-TIME

Full-time orthopaedists perform arthroscopy of the knee (average of 5.05 procedures per month) and bi/tri-compartmental total knee replacement (4.56) most often. The top procedures are the same for part-time orthopaedists with arthroscopy of the knee averaging 1.47 procedures per month and bi/tri-compartmental total knee replacement at 0.86 procedures.

The most infrequent procedure performed by full-time and part-time orthopaedists is replacement and/or revision of the spinal disc (0.23 and 0.06 respectively). Other infrequent procedures include revision of hip replacement and revision of the knee.

There were significant differences found between full-time and part-time surgeons in terms of number of procedures performed per month for each of the listed procedures.

Figure 50 - Specific Procedures Performed per Month - Full-time vs Part-time

	FULL TIME				PART TIME			
	N Valid	Mean	Std Dev	95% CI (+/-)	N Valid	Mean	Std Dev	95% CI (+/-)
Release of carpal tunnel	4,524	2.82	8.884	0.259	464	0.90	2.441	0.222
Knee arthroscopy	4,631	5.05	8.275	0.190	461	1.47	5.893	0.538
Spinal fusion/re-fusion	4,279	1.47	7.425	0.250	448	0.20	1.338	0.124
Other repair/construction of the ACL	4,443	1.37	6.304	0.110	450	0.11	0.476	0.044
Total hip replacement	4,479	3.19	7.295	0.140	460	0.68	2.167	0.198
Partial hip replacement	4,354	0.85	1.978	0.070	448	0.49	1.977	0.183
Revision of hip replacement	4,288	0.43	1.410	0.070	448	0.08	0.478	0.044
Total knee replacement (UNI compartmental)	4,266	1.08	4.748	0.110	448	0.38	2.006	0.186
Total knee replacement (BI/TRI compartmental)	4,507	4.56	8.612	0.190	459	0.86	2.716	0.249
Revision of the knee	4,328	0.54	2.053	0.060	451	0.10	0.496	0.046
Replacement/revision of the spinal disc	4,210	0.23	1.514	0.120	444	0.06	0.615	0.057

SPECIFIC PROCEDURES PERFORMED PER MONTH: FULL-TIME ORTHOPAEDISTS ONLY BY DEGREE OF SPECIALIZATION

Statistically significant differences were found in the number of procedures performed by full-time orthopaedists across degree of specialization for all procedures except total hip replacement, total knee replacement (uni-compartmental) and other repair/construction of the ACL.

The most frequently performed procedures among *generalists* are arthroscopy of the knee (average of 6.33 procedures per month) and bi/tri-compartmental total knee replacement (4.32 procedures). Their least frequently performed procedures are replacement of spinal disc (0.02 procedures), spinal fusion/re-fusion (0.03), revision of hip replacement (0.21), and revision of the knee (0.29).

The top procedures *generalists with specialty interest* perform are arthroscopy of the knee (average of 7.45 procedures per month) and bi/tri-compartmental total knee replacement (5.87 procedures). Their least frequently performed procedures are replacement of spinal disc (0.04 procedures), spinal fusion/re-fusion (0.19), revision of hip replacement (0.30), and revision of the knee (0.45).

The top procedures *specialists* perform are bi/tri-compartmental total knee replacement (average of 4.05 procedures per month) and arthroscopy of the knee (3.78 procedures). Their least frequently performed procedure is replacement/revision of the spinal disc (0.34 procedures per month).

Figure 51 - Procedures Performed per Month - Full-time Only by Degree of Specialization

	General orthopaedic surgeon	General orthopaedic surgeon w/ specialty interest	Specialist within orthopaedic surgery
Release of carpal tunnel	2.71	2.31	3.06
Knee arthroscopy	6.33	7.45	3.78
Spinal fusion/re-fusion	.03	.19	2.20
Other repair/construction of the ACL	0.98	1.68	1.31
Total hip replacement	2.62	3.27	3.26
Partial hip replacement	1.20	1.21	0.64
Revision of hip replacement	.21	.30	.51
Total knee replacement (UNI compartmental)	1.26	1.26	.98
Total knee replacement (BI/TRI compartmental)	4.32	5.87	4.05
Revision of the knee	.29	0.45	.62
Replacement/revision of the spinal disc	.02	.04	.34

VI. APPENDIX A: 2018 SURVEY QUESTIONNAIRE

Please enter the SURVEY ID provided to you in your email invitation. _____

Q1 Race/Ethnicity

- ○ African American
- ○ Asian
- ○ Caucasian
- ○ Hispanic/Latino
- ○ Multi-racial
- ○ Native American
- ○ Other _____

Q2 Sex:

- ○ Male
- ○ Female

Q3 I am a member of: (Check all that apply.)

- ☐ American College of Surgeons
- ☐ American Medical Association
- ☐ State Medical Society
- ☐ State Orthopaedic Society

Q4 Year you began your orthpaedic career (1st year of practice).
Please answer in XXXX format. Example: 1970, 1984, etc.

_____

Q5 Work Status:

- ○ Full-time
- ○ Part-time
- ○ Retired

Q6 Which category best describes you?

- ○ General orthopaedic surgeon
- ○ General orthopaedic surgeon with an area of specialty interest
  (at least 25% but less than 75% of practice committed to an area of specialty interest)
- ○ Specialist within orthopaedic surgery
  (75% or more of practice committed to an area of specialty interest)

Q7 Which setting listed below best describes your practice?

- ○ Private Practice - Solo (income self-earned)
- ○ Private Practice - Orthopaedic Group (income from group)
- ○ Private Practice - Multi-spec. Group (income from group)
- ○ Academic Practice (salary from academic institution)
- ○ Academic Practice (salary from private practice)
- ○ Military Practice (salary from military)
- ○ Public Institution (salary from non-military govt. entity)
- ○ Pre-paid Plan/HMO (salary from HMO)
- ○ Hospital/Medical Center (salary from hospital/med. center)
- ○ Locum Tenens
- ○ Other _____

Q7a Number of Orthopaedic surgeons in your group: _____
(Q7a asked if Q7 response = Private Practice - Orthopaedic Group OR Private Practice - Multi-spec. Group)

Q8 Your PRIMARY SPECIALTY AREA is in:

- ○ Adult hip
- ○ Adult knee
- ○ Adult spine
- ○ Arthroscopy
- ○ Disability/legal ortho
- ○ Foot & ankle
- ○ Hand
- ○ Non-operative practice
- ○ Orthopaedic oncology
- ○ Pediatric orthopaedics
- ○ Pediatric spine
- ○ Rehab, prosthe/orthotics
- ○ Shoulder & elbow
- ○ Sports medicine
- ○ Total joint
- ○ Trauma
- ○ I don't have a specialty area
- ○ Other _____

Q9 Not including your primary specialty, what are your OTHER SPECIALTY AREAS if applicable (Check all that apply.)

- [ ] Adult hip
- [ ] Adult knee
- [ ] Adult spine
- [ ] Arthroscopy
- [ ] Disability/legal ortho
- [ ] Foot & ankle
- [ ] Hand
- [ ] Non-operative practice
- [ ] Orthopaedic oncology
- [ ] Pediatric orthopaedics
- [ ] Pediatric spine
- [ ] Rehab, prosthe/orthotics
- [ ] Shoulder & elbow
- [ ] Sports medicine
- [ ] Total joint
- [ ] Trauma
- [ ] I don't have a specialty area
- [ ] Other _____

Q10 Average work hours per week (exclude on-call time). (Please enter the numeric amount only.)

Q11 Weeks of vacation per year. (Please enter the numeric amount only.)

Q12 Days spent out of practice for CME (including Annual Meeting). (Please enter numeric amount only.)

Q13 What is the approximate distribution of patients by payer source? (Answers must add up to 100%)

a) Private insurance carrier (HMO/PPO/IPA): _____

b) Medicare: _____

c) Medicaid: _____

d) Worker's Compensation: _____

e) Percent from Self-Pay: _____

f) Charity/Pro-Bono: _____

g) Other sources: _____

Q14 Number of procedures you do in a typical month: (Please enter the numeric amount only.)

Q15 Approximately how many of the following procedures do you do a month?

_____ a) Release of carpal tunnel

_____ b) Knee arthroscopy

_____ c) Spinal fusion/re-fusion

_____ d) Other repair/construction of ACL

_____ e) Total hip replacement

_____ f) Partial hip replacement

_____ g) Revision of hip replacement

_____ h) Total knee replacement (unicompartmental)

_____ i) Total knee replacement bi/tri compartmental

_____ j) Revision of knee

_____ k) Replacement/revision of spinal disc

Q16 Amount paid for your current professional liability coverage:
(Please enter the numeric amount only. No letters, commas, or symbols. Example: 3000000)

Q17 GROSS income in 2017:
(Please enter the numeric amount only. No letters, commas, or symbols. Example: 3000000)

Q18 NET income in 2017:
(Please enter the numeric amount only. No letters, commas, or symbols. Example: 3000000)

Thank you for taking time to complete the 2018 Census

VII. APPENDIX B: US CENSUS DIVISIONS

1 New England	CT	Connecticut	6 East South Central	AL	Alabama
	MA	Massachusetts		KY	Kentucky
	ME	Maine		MS	Mississippi
	NH	New Hampshire		TN	Tennessee
	RI	Rhode Island	7 West South	AR	Arkansas
	VT	Vermont		LA	Louisiana
2 Mid Atlantic	NJ	New Jersey		OK	Oklahoma
	NY	New York		TX	Texas
	PA	Pennsylvania	8 Mountain	AZ	Arizona
3 East North Central	IL	Illinois		CO	Colorado
	IN	Indiana		ID	Idaho
	MI	Michigan		MT	Montana
	OH	Ohio		NM	New Mexico
	WI	Wisconsin		NV	Nevada
4 West North Central	IA	Iowa		UT	Utah
	KS	Kansas		WY	Wyoming
	MN	Minnesota	9 Pacific	AK	Alaska
	MO	Missouri		CA	California
	ND	North Dakota		HI	Hawaii
	NE	Nebraska		OR	Oregon
	SD	South Dakota		WA	Washington
5 South Atlantic	DC	District of Columbia			
	DE	Delaware			
	FL	Florida			
	GA	Georgia			
	MD	Maryland			
	NC	North Carolina			
	SC	South Carolina			
	VA	Virginia			
	WV	West Virginia			

VIII. APPENDIX C: OPEN ENDED RESPONSES

Table 1 - Other Race Reported

		Frequency
1	Arabic	2
2	Armenian	3
3	Asian Indian	4
4	Cuban	1
5	Egyptian	2
6	Indian	17
7	Iranian	8
8	Italian	3
9	Jewish	3
10	Middle Eastern	6
11	Native American	3
12	Pakistani	3
13	Scandinavian	6
15	Sri Lankan	2
16	Turkish	1

Table 2 - Other Practice Setting Reported

		Frequency
1	Academic Practice	5
2	Administrative	1
3	Big Orthopaedic group but income dependant on self productivity	1
4	Charity hospital	1
5	combination academic and private practice	2
6	combination academic and public institution	1
7	Community clinics	1
8	Consulting	3
9	Contractor	2
10	CURE missionary orthopedic surgeon	1
11	Dept of Veterans Affairs	1
12	doing independent medical examinations	1
13	Employed by a nationwide multi specialty corporation	1
14	Employed by health system reimbursed by rv	1
15	employee - d_ury Center	1
16	evaluations only	1
17	Exam only independent contractor	1
18	Expert witness	1
19	Forensic	3
20	Group practice	1
21	Health system employed	5

22	HospitalSystem Based Medical Group, rvu based, not salary	1
23	IME	3
24	income from Foundation	1
25	Independent contractor as Orthopaedic hospitalist	1
26	independent contractor for hospital	1
27	Independent contractor for Orthopaedic group	1
28	Insurance company (Unum)	1
29	Insurance evaluations	1
30	Insurance medical director	1
31	insurance review	1
32	Kaiser	2
33	Management Consultant not practicing	1
34	Med-Legal	3
35	Medical Consultant	1
36	Medical Director	1
37	Medical group	1
38	Medical Management	1
39	Medical Mission work	2
40	Medical-Legal Consultant	2
41	military contractor	1
42	Multiple sources	1
43	NGO	1
44	Not in clinical practice	2
45	Ortho group	5
46	ortho hospitalist	1
47	ortho ime's ortho peer review	1
48	OrthoNet/ United Health Care employed medical director	1
49	ORTHOPAEDIC LLC hired by hospital RVU	1
50	Orthopaedic Missionary	1
51	orthopaedic trauma hospitalist	1
52	Orthopedic Consultant	1
53	Orthopedic disability exams	1
54	orthopedic independent exams	1
55	Part time ortho group/part time Veterans Administration	1
56	part time surgical assist, consulting	1
57	part time, just office, no surgery	1
58	Private 501(c)(3)corp indirectly affiliated with hospital	1
59	Private academic	3
60	Private group academic practice	1
61	Private group-income self earned	1
62	Private Practice	10
63	Professional services agreement at small hospital working for a wRVU rate	1
64	PSA	2
65	QME	1
66	Quality Consultant/Utilization Review/ Legal	1
67	Salaried employee of a pediatric subspecialty hospital	1
68	Salaried physician in an orthopedic group	1
69	Salary from a non-profit private	1
70	Salary from non-clinical insurance contractor	1

71	self employed as a consultant	1
72	Semi-retired; QME only	1
73	Shriners	2
74	Single specialty group private practice self earned income	1
75	subcontract for multispecialty group	1
76	Surgicalist	1
77	synergy/delphi model, similar to locum but ongoing	1
78	Teaching and consulting	1
79	Team Health	1
80	Transitioning from academic to private practice	1
81	Utilization Review	2
82	Utilization Review, Associate Medical Director Insuror	1
83	VA	1
84	VA + PP ortho group	1
85	VA part time	1
86	VA/Academic	1
87	Veterans Administration	3
88	Volunteer	6
89	work for Ins Co - review disability claims	1
90	Worker Comp injury rating	1
91	Worker's Comp Review Corporation	1

Table 3 - Other Primary Specialty Areas Reported

		Frequency
1	Administrative	3
2	Adult & Ped Spine	1
3	Adult and Pediatric Spine and Scoliosis	1
4	Adult Hip and Knee	5
5	Adult Reconstruction	2
6	adult reconstructive surgery and joint replacement	1
7	All areas running clinical trials	1
8	all ortho	1
9	also working wound clinic	1
10	applications of ultrasound	1
11	Assist	3
12	Clinical research	1
13	CMO	1
14	currently administrative	1
15	doing independent medical evaluations	1
16	Elbow, hand, Microvascular	1
17	exam police officers	1
18	Forensic orthopedics	3
19	General ortho	4
20	Geriatrics	1
21	Hand & upper extremity	1
22	Hand & Upper Extremity	1
23	Hand and Elbow	1
24	Hand and Shoulder	2

25	Hand foot general ortho	1
26	Hip Arthroscopy	2
27	Hip, Knee and Shoulder Recon	1
28	imes	1
29	Independent Medical Exams	1
30	Insurance Disability Review	1
31	Knee and Shoulder	5
32	lower extremity	1
33	Medical legal	4
34	Medical management	1
35	Missionary orthopedics	1
36	Multiple	1
37	musculoskeletal ultrasound	1
38	Nothing clinical at this time, just 8 hr / week teaching med school	1
39	Occupational orthopaedics	1
40	ortho imes peer review mal practice defense expert	1
41	orthopaedic reconstruction and limb lengthening	1
42	Orthopedic general consultation	1
43	Osteoporosis	1
44	part time academic	1
45	patellofemoral disorders	1
46	Pediatric hand	2
47	Pediatric Sports Medicine	2
48	Pediatric upper extremity	1
49	peer review	1
50	Performing arts medicine	1
51	Problems of the shoulder and spine	1
52	QME - Medico-legal CA	1
53	reconstruction	1
54	Shoulder	5
55	Shoulder, Elbow, Hand	2
56	Spine	6
57	Spine adult and pediatric	1
58	Upper Extremity	7
59	utilization review	1
60	variety	1
61	Workers Comp care consultant	1
62	wound care	1

Table 4 – Other Payor Sources

		Frequency
1	ACAA	2
2	Academic stipend(donated back to university)	1
3	accident cases	1
4	Active Duty Military, dependents, and retirees	1
5	Administration	1
6	affordable care	1
7	Alaska IHS	1
8	All through health plan	1
9	All, do not know payer mix as employer is not transparent re: payer, charges, collections, etc.	1
10	Assist surgeons	1
11	Attorney	6
12	Auto	17
13	Auto PIP, LOP	1
14	Auto/pip	1
15	CHIPS	2
16	COMMERCIAL INSURANCES	3
17	contract/consulting	11
18	Corrections	1
19	County system	5
20	Department of Corrections	1
21	Direct benefit - PHS	1
22	Disability	3
23	DOING IME AND PRIVATE NO FAULT INSURANCE	1
24	DONT SEE PT MED STUDENTS ONLY	1
25	Evaluations	4
26	Exam contractor (QTC)	1
27	Federal government	4
28	FEDERAL GOVT ORTHO IME'S NON FEDERAL IME'S PEER REVIEW MEDICAL SOCIETY BOARD ACTIVITY (NO INCOME)	1
29	foreign	1
30	forensic	1
31	government-TriCare, VA, TriWest, DOD	1
32	Health system insurance i.e. EA Health	1
33	highschool insurance	1
34	HMO	2
35	Hospital	3
36	Hospital charity	2
37	Hospital Insurance	3

38	House call nursing homes	1
39	humana HMO(medicare HMO)	1
40	I am not sure the distribution but it's over 50% medicaid	1
41	IHS	4
42	IME	4
43	IME company	1
44	IME's	2
45	IME/Medical-Legal	1
46	IME/SMO	1
47	IMEs	1
48	IMES	1
49	Independent medical exams	1
50	Indian nation	1
51	Indigent insurance	2
52	Industry	2
53	injured police officers	1
54	ins evaluations	1
55	insurance	1
56	insurance c0mpanies	1
57	Insurance reviews	1
58	Insurance, Texas Medical Board, Utilization Review	1
59	Insurer medical Director/Consulting	1
60	International	3
61	jail	1
62	Kaiser Permanent	1
63	I&I	1
64	Lawyers/IME Vendors	1
65	Lebanese national security (like medicaid)	1
66	Legal	16
67	LEGAL AND WORK COMP	1
68	legal IME	1
69	Legal/car insurance	2
70	Legal/Injury Compensation	1
71	Lein	4
72	Liability	2
73	managed care	1
74	MC like with va and tricare	1
75	Medicaid HMO	1
76	Medical Director IME	1
77	Medical Legal	3
78	medico legal and insurance	1

79	Medico-Legal	17
80	Military	36
81	Military / VA	1
82	Military and dependents	1
83	Military Beneficiaries	2
84	Military Health System	2
85	Military Medicine	1
86	Military Tricare	7
87	Motor Vehicle	3
88	MVA	6
89	mva/legal	1
90	MVC	1
91	NJ Health (40%), No fault (6%)	1
92	No Fault	27
93	No patient care	1
94	No-Fault MVA/PIP	1
95	None- no longer clinical	4
96	Per Diem	1
97	Personal injury	6
98	Personal Injury	6
99	personal injury atty's	1
100	Personal Injury/LOP	1
101	PIP	3
102	PIP, IMEs	1
103	Private insurance	1
104	private, self pay, charity, other	1
105	PSA	1
106	QME	2
107	Referee exams	1
108	Regular insurance	1
109	retirement income	1
110	review company	1
111	Risk	1
112	RVU INCOME FROM MY HOSPITAL/MED CTR	1
113	Salary	3
114	salary administrator	1
115	Salary for Utilization Review	1
116	second opinions	1
117	self pay - fee-for-svc	1
118	Shriners Hospitals	2
119	Social Security	3

120	Sports organizations	1
121	state funded clinic	1
122	SUBCONTRACTOR FOR CUSTODY PTS	1
123	Texas Prison	1
124	Third Party	3
125	Third party/ MVA	1
126	Trade	1
127	Trauma	1
128	Tricare	32
129	TriCare	19
130	Tricare (3%), Auto (1%)	1
131	Tricare/Military	3
132	Tricare/triwest	1
133	Tricare/VA/Military	1
134	Unknown	89
135	US gov.referee,SSI,VR,witness	1
136	utillzation review	1
137	VA insurance system	1
138	VA medical center	2
139	VA patients	4
140	VA programs	1
141	VA salary	1
142	VA/Tricare	1
143	VAMC	1
144	VETERAN EVALS	1
145	Veterans Administration	11
146	Veterans Affairs	46
147	Veterans Health Care	3
148	Veterans Hospital	5
149	WI Dept of Corrections	1
150	Work Comp Med Legal	2
151	Worker Compensations insurers	1

IX. APPENDIX D: TABLE OF FIGURES

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