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2018 Aerospace Medical Certification **Statistical Handbook**

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Final Report



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16. Abstract Introduction. The biennial Aerospace Medical Certification Statistical Handbook reports descriptive characteristics of all active U.S. civil aviation airmen and the aviation medical examiners (AMEs) that perform the required medical examinations. The 2018 handbook documents the most recent and most widely relevant data on active civil aviation airmen and AMEs. Methods. Medical certification records from 2013–2018 were selected from the Document Imaging Workflow System (DIWS), which is the Federal Aviation Administration’s (FAA’s) medical certification database. All medical data were abstracted from the most recent medical examinations, except for medical conditions that were historical and current. Only those with a non-expired medical certificate remained in the dataset. AME records were selected from the Designee Management System (DMS). Each AME’s status was determined as of December 31, 2018, retaining only those with an active status. Airman variables include age, issued and effective medical classes, height, weight, body mass index (BMI), gender, select medical conditions, special issuances, and FAA region of residence. AME variables include AME type, age, gender, medical specialty, senior examiner status, and region. Due to the implementation of BasicMed legislation starting in May 2017, a Section III was added to this biennial report to demonstrate changes in airmen trends among the third-class airman population after this period. Results. <i>Airmen:</i> As of December 31, 2018, there were 540,725 medically certified airmen age 16 and older, and 42.9%, 19.2%, and 37.9% were issued a first, second, and third-class medical certificate, respectively. Across all medical classes, the average age was 41.5 years, 92.8% were male, and 7.2% were female. . The mean BMI for both females and males was 24.1 kg/m2 and 27.1 kg/m2, respectively. Nearly 6% of issued certificates required a special issuance. The most commonly reported medical condition was hypertension with medication, at 8.3 <i>Aviation medical examiners:</i> Of the 2,962 active AMEs, 92.9% were civilian, 1.0% federal, 5.9% military, and 0.1% other. Of these, 47.1% reported their medical specialty as family practice. Their average age was 61.2 years, 87.4% were male, and 12.6% were female Summary. This report contains widely requested data on the active U.S. civil airman population. This report is updated biennially and is used by the aerospace community, including FAA leadership, aerospace researchers, advocacy groups, legislative staff, and the general public.					
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2018 Aerospace Medical Certification Statistical Handbook

Introduction

The biennial Aerospace Medical Certification Statistical Handbook reports descriptive characteristics of all active U.S. civil aviation airmen and the aviation medical examiners (AMEs) that perform the required medical examinations. The 2018 handbook documents the most recent and most widely relevant data on active civil aviation airmen and AMEs.

Methods

Medical certification records from 2013–2018 were selected from the Document Imaging Workflow System (DIWS), which is the Federal Aviation Administration's (FAA's) medical certification database. All medical data were abstracted from the most recent medical examinations, except for medical conditions that were historical and current. Only those with a non-expired medical certificate remained in the dataset.

AME records were selected from the Designee Management System (DMS). Each AME's status was determined as of December 31, 2018, retaining only those with an active status.

Airman variables include age, issued and effective medical classes, height, weight, body mass index (BMI), gender, select medical conditions, special issuances, and FAA region of residence. AME variables include AME type, age, gender, medical specialty, senior examiner status, and region. Due to the implementation of BasicMed legislation starting in May 2017, a Section III was added to this biennial report to demonstrate changes in airmen trends among the third-class airman population after this period.

Results

Airmen: As of December 31, 2018, there were 540,725 medically certified airmen age 16 and older, and 42.9%, 19.2%, and 37.9% were issued a first, second, and third-class medical certificate, respectively. Across all medical classes, the average age was 41.5 years, 92.8% were male, and 7.2% were female. . The mean BMI for both females and males was 24.1 kg/m² and 27.1 kg/m², respectively. Nearly 6% of issued certificates required a special issuance. The most commonly reported medical condition was hypertension with medication, at 8.3%.

AME: Of the 2,962 active AMEs, 92.9% were civilian, 1.0% federal, 5.9% military, and 0.1% other. Of these, 47.1% reported their medical specialty as family practice. Their average age was 61.2 years, 87.4% were male, and 12.6% were female.

Summary

This report contains widely requested data on the active U.S. civil airman population. This report is updated biennially and is used by the aerospace community, including

FAA leadership, aerospace researchers, advocacy groups, legislative staff, and the general public.

Section I. Aviation Medical Examiners

This section characterizes the aviation medical examiners (AMEs) during 2018. All analyses represent data through December 31, 2018. Data may fluctuate slightly by year from systematic changes and corrections to the records.

An AME is a physician authorized by the Federal Aviation Administration (FAA) to perform airmen physical examinations for issuing FAA medical certificates. These physicians are designated according to the geographical distribution of airmen. There are also military facilities (installations) designated to perform FAA airmen examinations of military personnel for issuance of second- and third-class certificates.

AME seminars are held in each region and at Oklahoma City's Civil Aerospace Medical Institute to acquaint these physicians with the regulations and procedures governing the issuance of FAA medical certificates.

Table 1. FAA Aviation Medical Examiners by AME Type

AME Type	2018 Number (Percent of Total)
Civilian	2,752 (92.9)
Federal	31 (1.0)
Military	175 (5.9)
Other	4 (0.1)
Total	2,962

Table 2. Designated FAA Aviation Medical Examiners for 2018 by Region

Region	Newly Appointed Number (Percent of Total)	All Active Number (Percent of Total)
Alaskan	3 (1.7)	53 (1.8)
Central	3 (1.7)	145 (4.9)
Eastern	11 (6.3)	318 (10.7)
Federal/Military/Official	41 (23.6)	206 (7.0)
Great Lakes	12 (6.9)	397 (13.4)
International	18 (10.3)	323 (10.9)
New England	2 (1.2)	83 (2.8)
Northwest Mountain	18 (10.3)	290 (9.8)
Southern	30 (17.2)	552 (18.6)
Southwest	19 (10.9)	336 (11.3)
Western-Pacific	17 (9.8)	259 (8.7)
Total	174	2,962

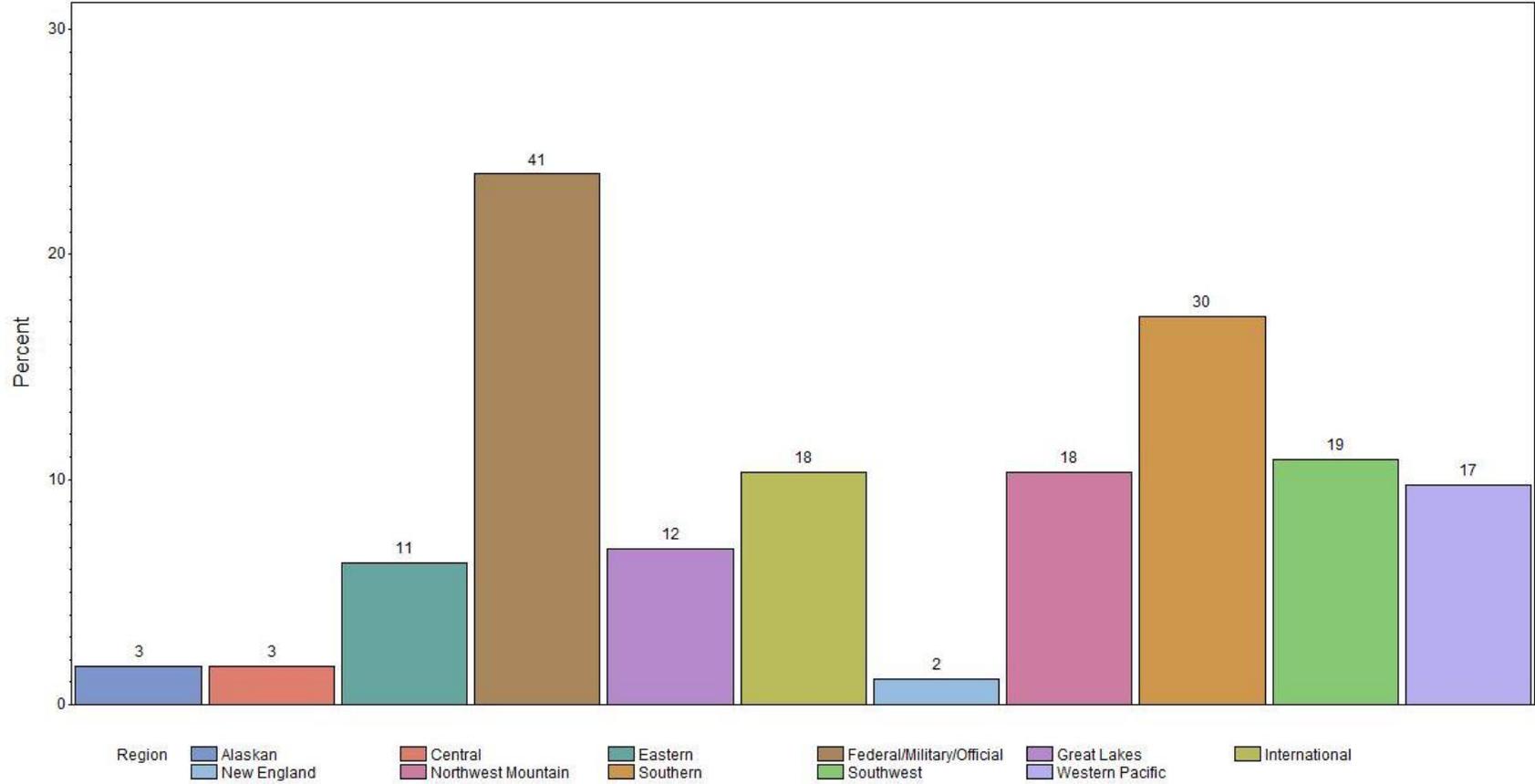


Figure 1. Distribution of Newly Appointed FAA Aviation Medical Examiners in 2018 by Region

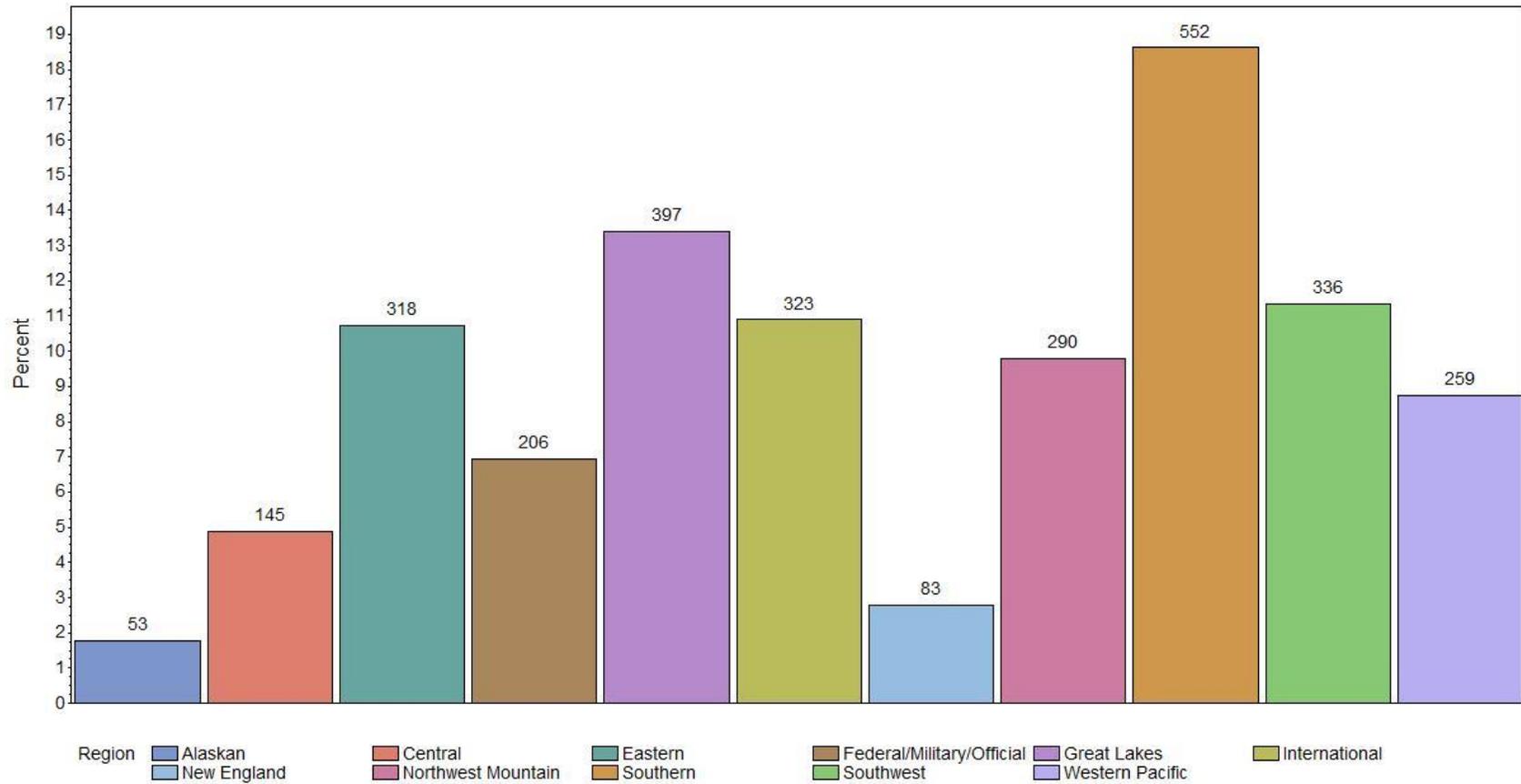


Figure 2. Distribution of Active FAA Aviation Medical Examiners in 2018 by Region

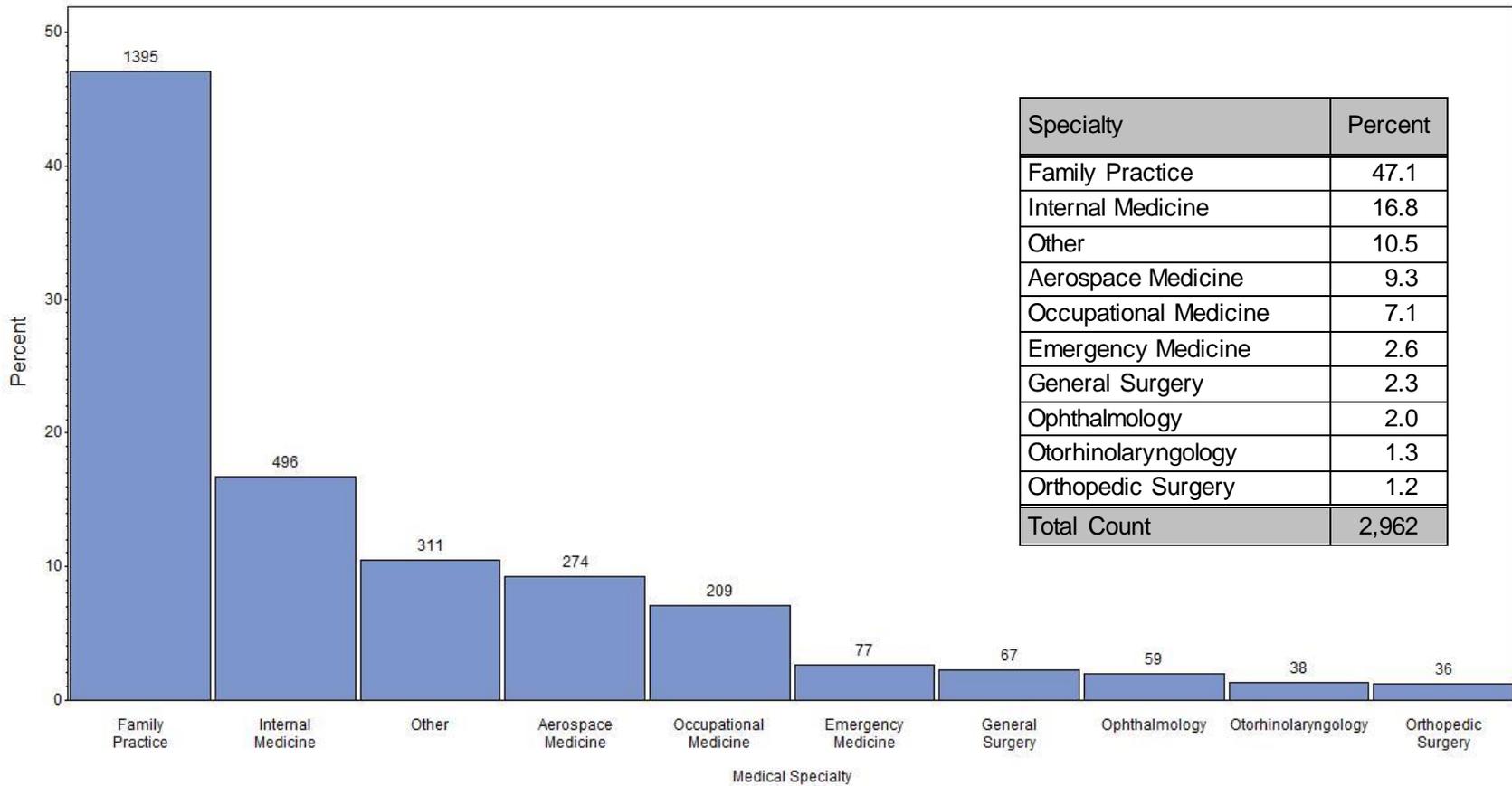


Figure 3. Medical Practice Specialty of Active FAA Aviation Medical Examiners

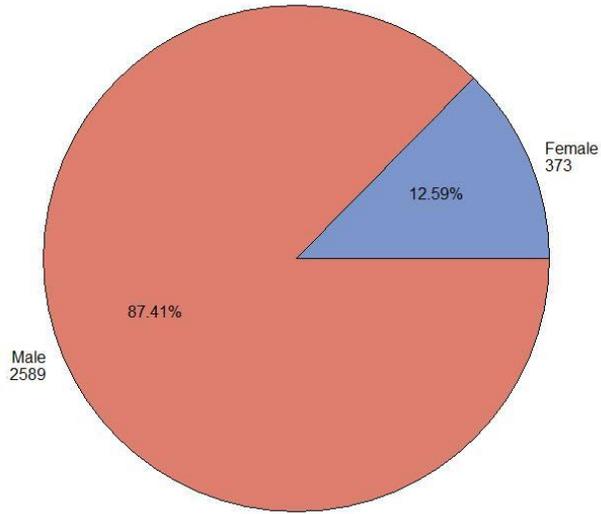


Figure 4. Gender Distribution of Active FAA Aviation Medical Examiners

Table 3. Senior Examiner Status of Active FAA Aviation Medical Examiners

Senior Examiner	Number (Percent)
Yes	2,023 (68.3)
No	939 (31.7)
Total	2,962

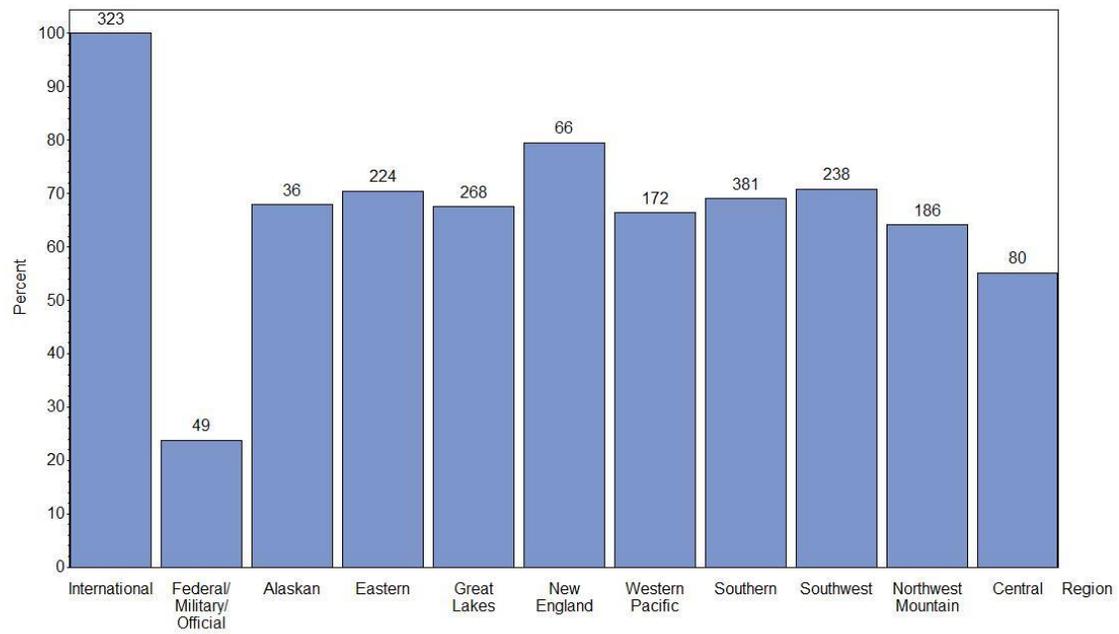


Figure 5. Senior Examiner Status of Active FAA Aviation Medical Examiners by Region

Table 4. Age (in Years) by Gender of Active FAA Aviation Medical Examiners

		Number	Mean Age	Median Age	Standard Deviation	Minimum Age	Maximum Age
Overall		2,960	61.2	62.1	11.6	29.0	95.4
Gender	Female	373	55.6	56.4	11.6	29.1	88.2
	Male	2,587	62.0	62.9	11.3	29.0	95.4

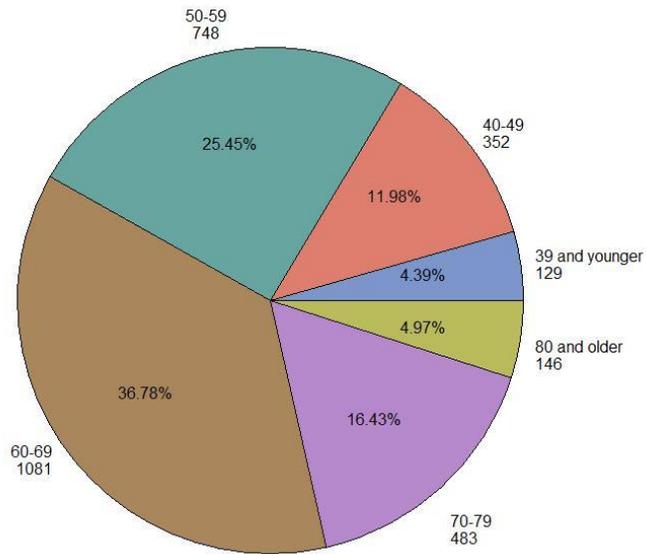


Figure 6. Age Group Distribution of Active FAA Aviation Medical Examiners

Section II. Airmen Medical Certification

The Aerospace Medical Certification Division is the central screening facility and repository within the FAA to collect, investigate, adjudicate, and analyze medical data.

Activities of the Aerospace Medical Certification Division are presented in this section. Data are presented by calendar year and represent the most recent medical examination data for all active civil aviation airmen in the United States and its territories, as of December 31, 2018. Data may slightly fluctuate annually from systematic changes and corrections to the records.

Class issued represents the medical class certificate that was issued at the time of the examination. As of July 24, 2008, if the airman is under age 40, first- and second-class certificates are valid for 1 year, and third-class certificates are valid for 5 years. If the airman is age 40 or older, first-class certificates are valid for 6 months, second-class for 1 year, and third-class for 2 years. The length of certificate validity varies for those requiring a special issuance.

Effective medical class is determined by class issued, the airman's age, time since the examination, and whether the airman had a time-limited certificate. A certificate can be issued as a higher class (e.g., first-class) and become valid as a lower class certificate (e.g., third-class) as the validity period expires for each higher class.

All medical data were abstracted from the most recent medical examinations, except for medical conditions. Medical conditions are determined by whether the airman has ever reported the condition on any past or current medical examination. Body mass index (BMI) classifications are as follows: *Underweight* (<18.5 kg/m²), *Normal* (18.5 to 24.9 kg/m²), *Overweight* (25 to 29.9 kg/m²), and *Obese* (≥30 kg/m²).

Table 5. Number of Medical Applications Processed by Year

Year	Number of Applications	Percent Change From Previous Year
2006	440,271	N/A
2007	452,594	2.8
2008*	425,275	-6.0
2009	397,180	-6.6
2010	394,727	-0.6
2011	400,137	1.4
2012	396,377	-0.9
2013	394,532	-0.5
2014	391,749	-0.7
2015	393,523	0.5
2016	398,398	1.2
2017	390,263	-2.0
2018	401,169	2.8

*Policy change July 24, 2008 lengthened the time of certificate validity for those under 40 years of age.
 Abbreviation: N/A, not applicable.

Table 6. Issued and Effective Medical Class by Region

Region*	First			Second			Third			Total Active Airmen				
	1st Class Certified	Effective Class			2nd Class Certified	Effective Class		3rd Class Certified	3	Total Airmen Certified	Percent of Total Airmen	Effective Class		
		1	2	3		2	3					1	2	3
Alaskan	2,425	1,830	193	402	1,770	1,185	585	2,909	2,909	7,104	1.3	1,830	1,378	3,896
Central	5,945	4,124	518	1,303	4,593	2,930	1,663	9,587	9,587	20,125	3.7	4,124	3,448	12,553
Eastern	21,901	15,593	1,587	4,721	10,625	6,294	4,331	23,074	23,074	55,600	10.3	15,593	7,881	32,126
Great Lakes	30,155	21,486	1,913	6,756	11,488	6,954	4,534	27,280	27,280	68,923	12.7	21,486	8,867	38,570
New England	6,568	4,777	505	1,286	2,853	1,732	1,121	7,919	7,919	17,340	3.2	4,777	2,237	10,326
Northwest-Mountain	25,252	18,160	1,919	5,173	13,203	7,539	5,664	21,177	21,177	59,632	11.0	18,160	9,458	32,014
Southern	56,666	39,944	4,638	12,084	22,384	14,108	8,276	42,800	42,800	121,850	22.5	39,944	18,746	63,160
Southwest	26,429	18,507	2,271	5,651	14,624	9,295	5,329	25,599	25,599	66,652	12.3	18,507	11,566	36,579
Western-Pacific	30,743	20,843	2,341	7,559	16,380	9,842	6,538	33,983	33,983	81,106	15.0	20,843	12,183	48,080
US Total	206,084	145,264	15,885	44,935	97,920	59,879	38,041	194,328	194,328	498,332	92.2	145,264	75,764	277,304
International	25,847	9,545	2,009	14,293	5,754	2,227	3,527	10,784	10,784	42,385	7.8	9,545	4,236	28,604
Total	231,931	154,809	17,894	59,228	103,674	62,106	41,568	205,112	205,112	540,717	100.0	154,809	80,000	305,908
Percent of Total Certified Airmen	42.9				19.2			37.9			100.0	28.6	14.8	56.6

*8 airmen with unknown region

Table 7. Issued Medical Class by State of Residence and Gender

State of Residence*	Issued Medical Class						Total Airmen	
	First		Second		Third		Female	Male
	Female	Male	Female	Male	Female	Male		
Alabama	85	1,478	69	2,118	195	2,638	349	6,234
Alaska	230	2,195	143	1,627	327	2,582	700	6,404
Arizona	596	7,830	233	3,173	516	6,429	1,345	17,432
Arkansas	58	1,042	35	1,235	137	1,852	230	4,129
California	1,404	15,696	800	9,618	2,194	21,950	4,398	47,264
Colorado	680	7,008	175	2,463	564	4,841	1,419	14,312
Connecticut	86	1,551	36	563	131	1,768	253	3,882
Delaware	41	525	9	196	35	364	85	1,085
District of Columbia	13	161	10	81	35	241	58	483
Florida	1,942	26,630	595	9,130	1,822	17,185	4,359	52,945
Georgia	494	8,271	140	2,612	429	5,366	1,063	16,249
Hawaii	230	1,613	77	650	81	492	388	2,755
Idaho	85	1,175	103	1,388	145	1,707	333	4,270
Illinois	491	6,119	151	1,872	360	4,563	1,002	12,554
Indiana	239	3,375	76	1,272	282	3,118	597	7,765
Iowa	42	802	45	880	132	1,928	219	3,610
Kansas	95	1,430	61	1,250	221	2,593	377	5,273
Kentucky	130	2,390	38	762	158	1,791	326	4,943
Louisiana	63	1,257	50	1,294	122	1,863	235	4,414
Maine	33	505	37	468	67	858	137	1,831
Maryland	119	1,969	105	1,377	377	2,884	601	6,230
Massachusetts	139	2,053	68	867	275	2,956	482	5,876
Michigan	414	4,822	100	1,671	321	4,242	835	10,735
Minnesota	425	4,934	120	1,651	270	3,569	815	10,154
Mississippi	62	1,114	28	909	118	1,500	208	3,523
Missouri	168	2,549	81	1,598	235	3,020	484	7,167
Montana	82	814	67	918	131	1,290	280	3,022
Nebraska	55	804	17	661	90	1,368	162	2,833
Nevada	233	2,936	136	1,550	195	1,867	564	6,353
New Hampshire	95	1,440	48	529	73	1,008	216	2,977
New Jersey	195	2,907	81	1,111	201	2,813	477	6,831
New Mexico	50	535	53	816	125	1,340	228	2,691
New York	370	4,735	148	2,119	493	5,400	1,011	12,254
North Carolina	323	5,265	118	2,218	343	4,680	784	12,163
North Dakota	68	1,241	37	752	77	984	182	2,977
Ohio	310	4,737	90	1,800	384	5,000	784	11,537
Oklahoma	123	1,770	105	1,929	281	3,107	509	6,806
Oregon	201	2,172	164	2,228	295	2,903	660	7,303
Pennsylvania	325	4,960	177	2,285	337	4,476	839	11,721
Rhode Island	19	306	7	95	38	335	64	736
South Carolina	110	2,366	49	1,066	177	2,336	336	5,768
South Dakota	31	433	23	565	59	725	113	1,723
Tennessee	264	4,788	121	2,015	292	3,311	677	10,114
Texas	1,136	20,395	516	8,591	1,329	15,443	2,981	44,429
Utah	287	4,273	139	1,903	117	1,712	543	7,888
Vermont	26	315	10	125	34	376	70	816
Virginia	368	4,760	150	2,379	412	4,302	930	11,441
Washington	713	7,453	263	2,997	612	6,041	1,588	16,491
West Virginia	24	347	25	290	43	588	92	1,225
Wisconsin	147	2,369	82	1,226	267	3,059	496	6,654
Wyoming	19	290	22	373	67	752	108	1,415
US Territories	66	1,077	36	561	64	699	166	2,337
International	1,561	24,286	347	5,407	716	10,068	2,624	39,761
Total	15,565	216,268	6,416	97,234	16,801	188,283	38,782	501,785

*158 airmen missing state

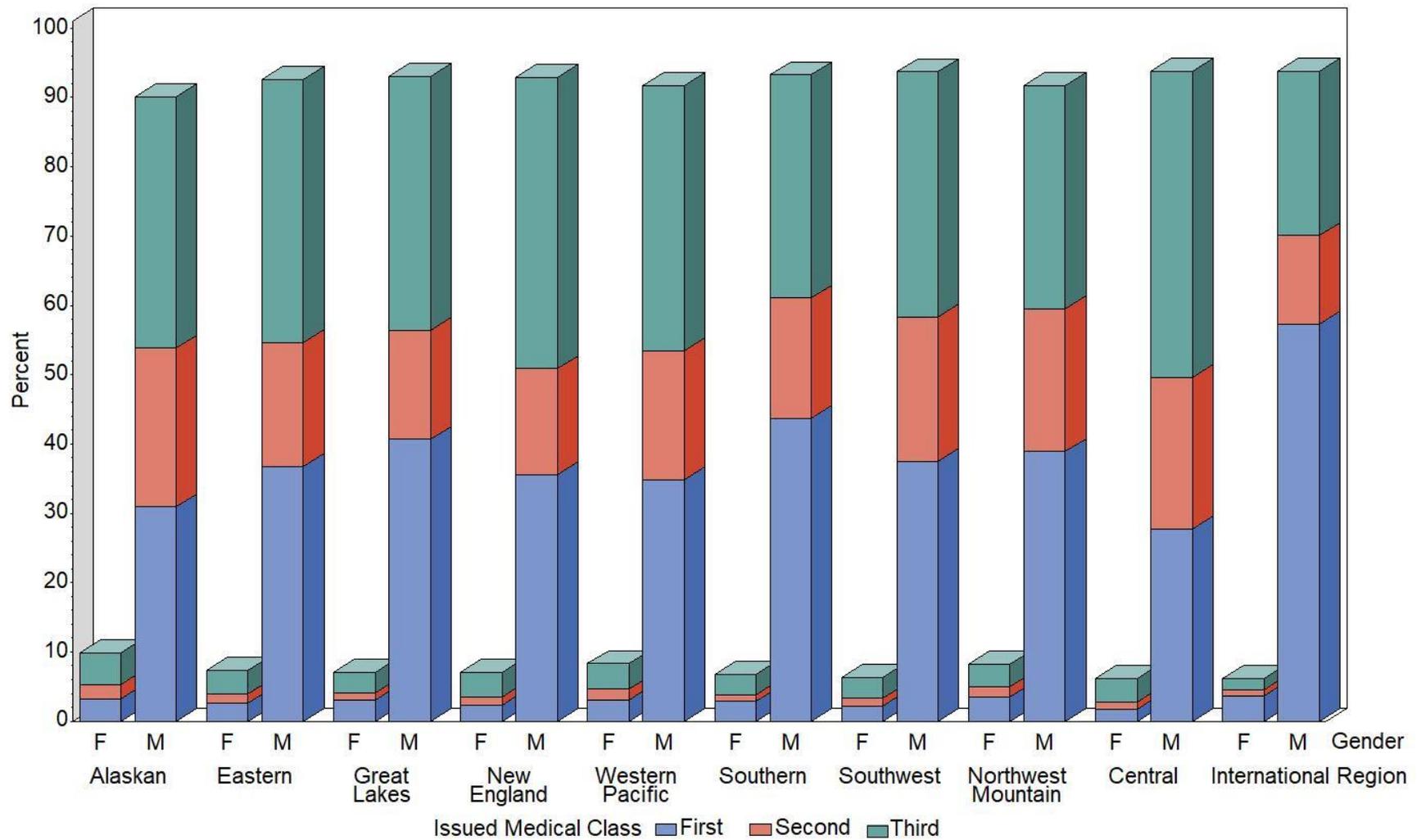


Figure 7. Issued Medical Class by Region and Gender

Table 8. Age (in Years) as of 12/31/2018 of All Active Airmen by Effective Medical Class

Effective Medical Class	Number of Airmen	Mean Age	Median Age	Standard Deviation
First	154,810	43.0	43.5	13.7
Second	80,002	50.1	50.7	13.8
Third	305,913	41.0	36.7	16.7
All Classes	540,725	42.9	41.2	15.8

Table 9. Age Groups of All Active Airmen by Effective Medical Class

Age Group in Years as of 12/31/2018	Effective Medical Class		
	Number (Percent)	Number (Percent)	Number (Percent)
	First	Second	Third
16-19	6,700 (4.3)	1,434 (1.8)	11,440 (3.7)
20-24	12,564 (8.1)	2,906 (3.6)	47,744 (15.6)
25-29	14,411 (9.3)	3,463 (4.3)	46,824 (15.3)
30-34	16,235 (10.5)	4,313 (5.4)	36,166 (11.8)
35-39	18,017 (11.6)	5,259 (6.6)	30,940 (10.1)
40-44	13,669 (8.8)	9,556 (11.9)	23,165 (7.6)
45-49	16,174 (10.5)	11,420 (14.3)	16,351 (5.3)
50-54	19,335 (12.5)	11,130 (13.9)	17,827 (5.8)
55-59	19,815 (12.8)	10,425 (13.0)	20,709 (6.8)
60-64	14,542 (9.4)	8,211 (10.3)	20,088 (6.6)
65+	3,348 (2.2)	11,885 (14.9)	34,659 (11.3)
Total	154,810	80,002	305,913

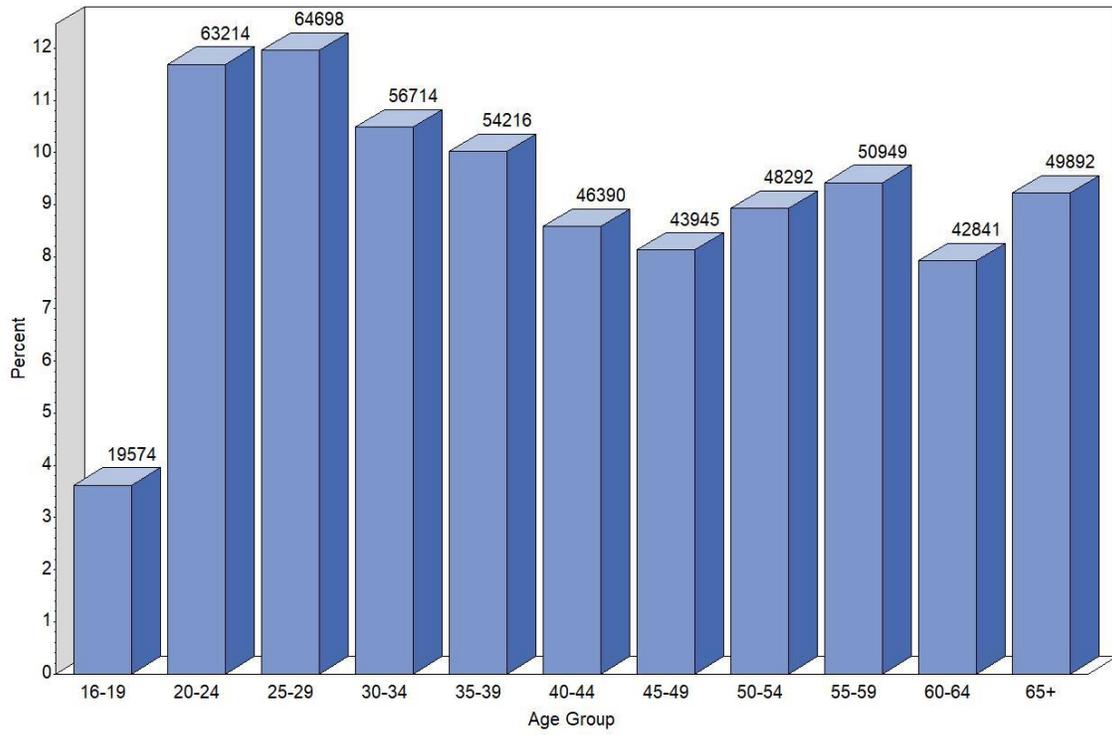


Figure 8. Age Group Distribution as of 12/31/2018 of All Active Airmen

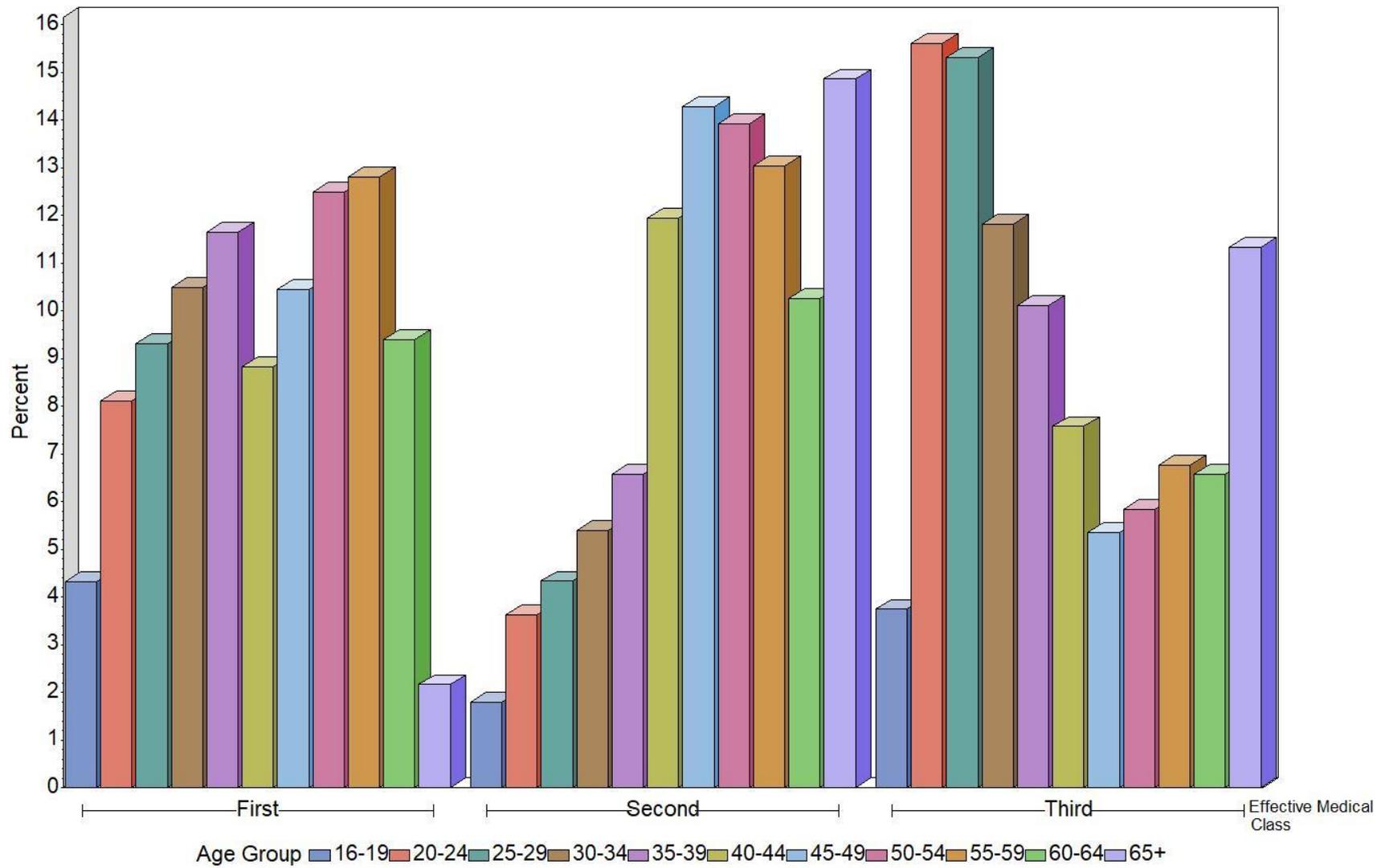


Figure 9. Age Group Distribution as of 12/31/2018 by Effective Medical Class for All Active Airmen

Table 10. Age at Exam Summary Statistics for Active Airmen by Issued Medical Class

Issued Medical Class	Number of Airmen	Mean Age	Median Age	Standard Deviation
First	231,934	39.7	38.5	14.6
Second	103,677	43.9	43.2	16.3
Third	205,144	42.4	39.4	17.8
All Classes	540,725	41.5	39.6	16.3

Table 11. Age Groups for All Active Airmen by Issued Medical Class

Age Group in Years at Time of Exam	Issued Medical Class Number (Percent)		
	First	Second	Third
16-19	21,041 (9.1)	6,224 (6.0)	17,278 (8.4)
20-24	28,379 (12.2)	10,006 (9.7)	29,476 (14.4)
25-29	25,920 (11.2)	9,886 (9.5)	21,332 (10.4)
30-34	24,615 (10.6)	10,290 (9.9)	18,976 (9.3)
35-39	22,330 (9.6)	10,690 (10.3)	18,817 (9.2)
40-44	18,291 (7.9)	7,690 (7.4)	9,082 (4.4)
45-49	21,719 (9.4)	9,219 (8.9)	13,554 (6.6)
50-54	23,977 (10.3)	9,544 (9.2)	15,641 (7.6)
55-59	23,258 (10.0)	9,577 (9.2)	17,719 (8.6)
60-64	17,630 (7.6)	8,240 (8.0)	16,686 (8.1)
65+	4,774 (2.1)	12,311 (11.9)	26,553 (13.0)
Total	231,934	103,677	205,114

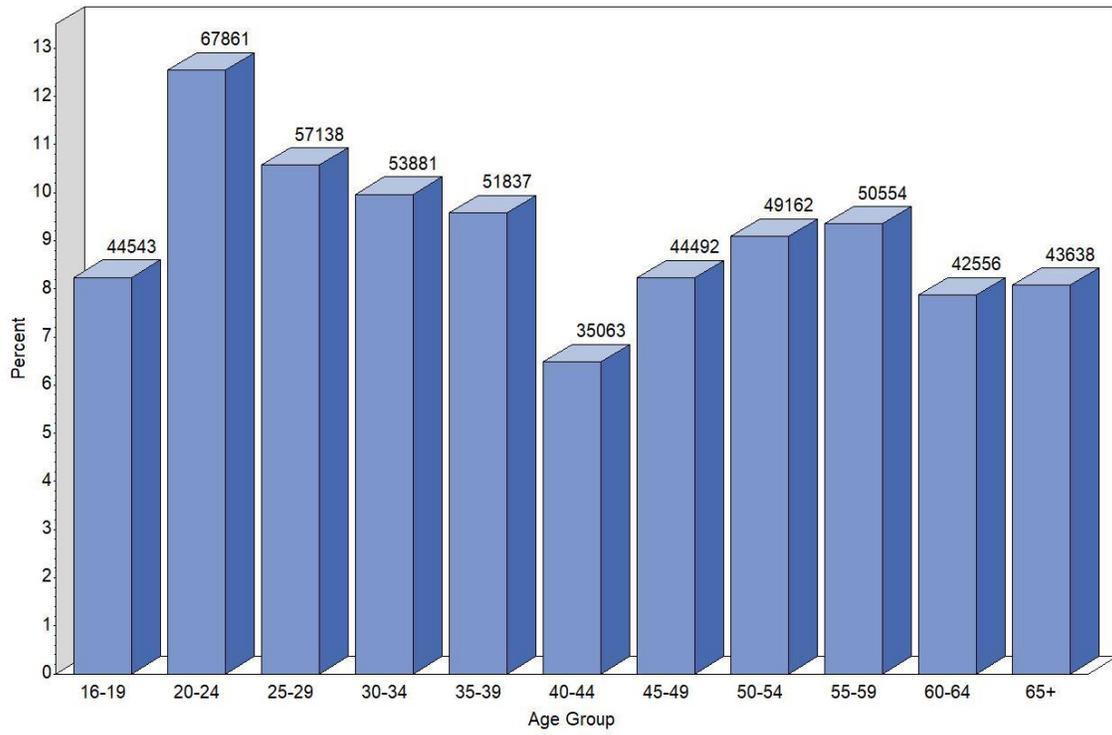


Figure 10. Age Group Distribution of All Active Airmen at Time of Exam

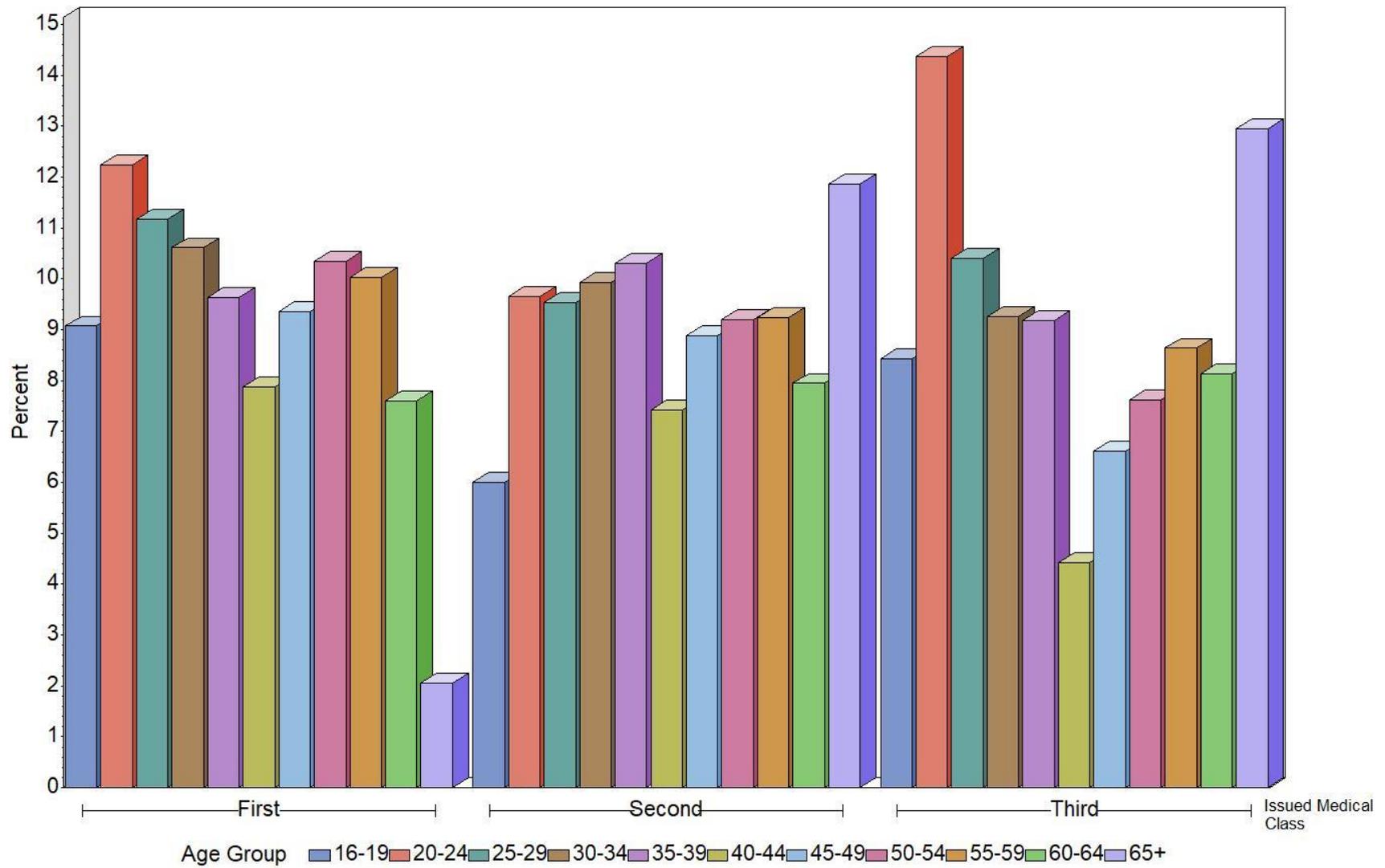


Figure 11. Age Group Distribution by Issued Medical Class for All Active Airmen at Time of Exam

Table 12. Age at Time of Exam by Issued Medical Class and Gender

Age Group in Years	Issued Medical Class						Total Airmen	
	First		Second		Third		Female	Male
	Female	Male	Female	Male	Female	Male	Female	Male
16-19	2,620	18,421	805	5,419	2,695	14,583	6,120	38,423
20-24	2,742	25,637	943	9,063	3,616	25,860	7,301	60,560
25-29	2,481	23,439	894	8,992	2,226	19,106	5,601	51,537
30-34	1,820	22,795	838	9,452	1,792	17,184	4,450	49,431
35-39	1,396	20,934	807	9,883	1,398	17,419	3,601	48,236
40-44	1,079	17,212	426	7,264	609	8,473	2,114	32,949
45-49	1,080	20,639	442	8,777	808	12,746	2,330	42,162
50-54	1,064	22,913	395	9,149	924	14,717	2,383	46,779
55-59	830	22,428	360	9,217	986	16,733	2,176	48,378
60-64	418	17,212	272	7,968	803	15,883	1,493	41,063
65+	43	4,731	236	12,075	945	25,608	1,224	42,414
Total	15,573	216,361	6,418	97,259	16,802	188,312	38,793	501,932

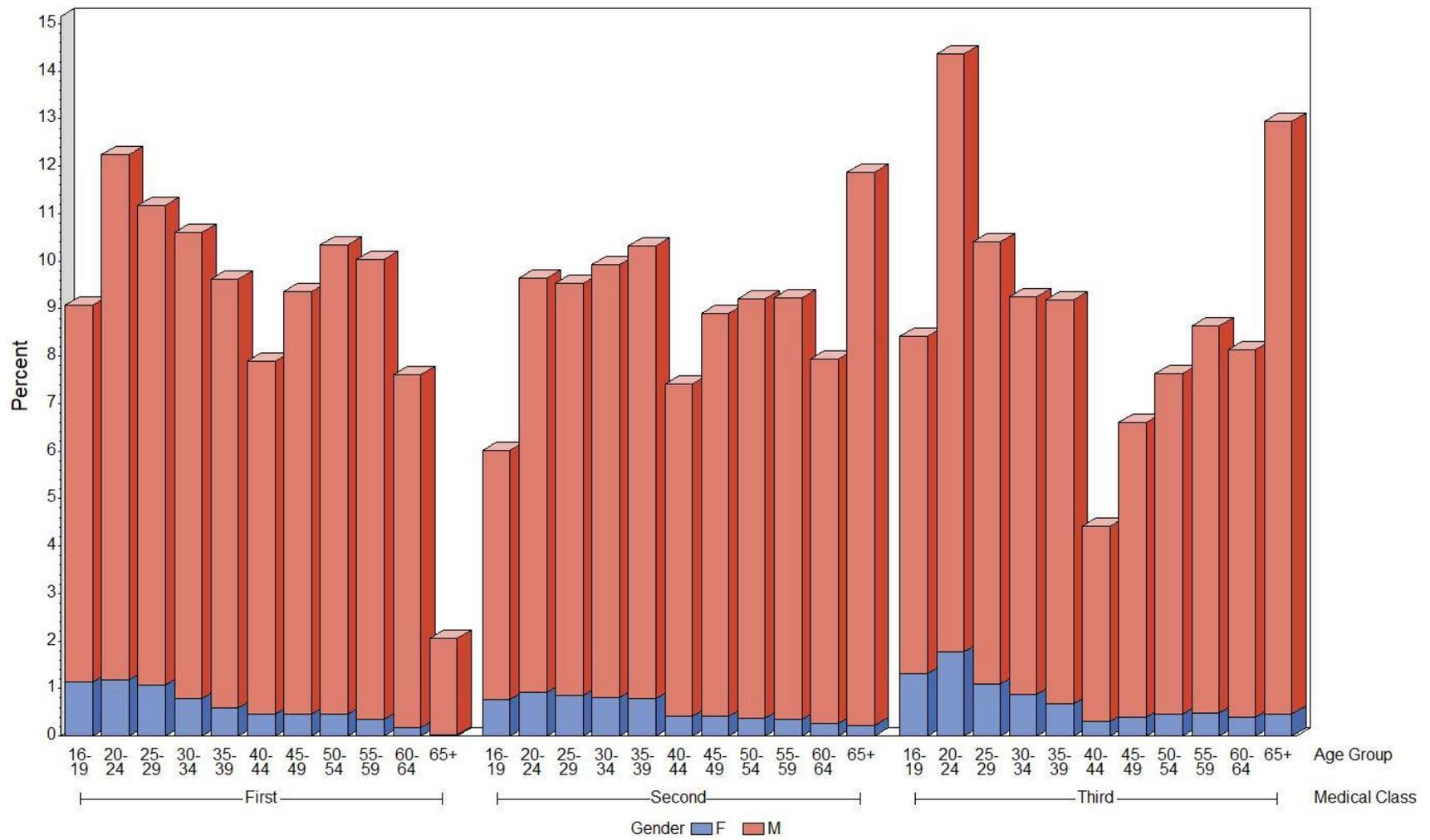


Figure 12. Age Group Distribution at Time of Exam by Gender and Issued Medical Class

Table 13. Height of All Active Airmen by Gender and Issued Medical Class

Issued Medical Class*		Number of Airmen	Mean Height in Inches	Median Height in Inches	Standard Deviation in Inches
First	Females	15,572	65.3	65.0	2.6
	Males	216,358	70.5	71.0	2.7
Second	Females	6,418	65.3	65.0	2.7
	Males	97,259	70.5	70.0	2.7
Third	Females	16,799	65.2	65.0	2.8
	Males	188,308	70.5	71.0	2.8
All Classes	Females	38,789	65.3	65.0	2.7
	Males	501,925	70.5	71.0	2.7

*11 airmen missing height

Table 14. Height by Issued Medical Class and Gender

Height in Inches*	Issued Medical Class						Total Airmen	
	First		Second		Third		Total Airmen	
	Female	Male	Female	Male	Female	Male	Female	Male
<59	75	130	42	88	148	157	265	375
59	65	50	37	44	95	83	197	177
60	305	108	125	89	384	181	814	378
61	524	90	232	57	617	164	1,373	311
62	1,135	199	480	114	1,362	279	2,977	592
63	1,611	472	694	223	1,767	605	4,072	1,300
64	2,299	1,526	981	668	2,349	1,465	5,629	3,659
65	2,214	3,419	903	1,505	2,413	3,037	5,530	7,961
66	2,339	8,008	916	3,528	2,406	7,029	5,661	18,565
67	1,956	13,599	759	6,015	2,035	11,800	4,750	31,414
68	1,340	20,487	496	9,320	1,377	17,722	3,213	47,529
69	817	26,538	358	12,135	909	22,145	2,084	60,818
70	516	32,636	203	14,909	512	28,791	1,231	76,336
71	230	29,073	98	13,277	229	25,831	557	68,181
72	94	31,502	61	14,279	122	27,403	277	73,184
73	32	18,963	17	8,351	39	16,230	88	43,544
74	14	14,632	11	6,361	17	12,406	42	33,399
75	3	7,866	4	3,233	7	6,538	14	17,637
76	1	4,513	0	1,941	9	3,908	10	10,362
77	1	1,567	0	662	1	1,429	2	3,658
78+	1	980	1	460	1	1,105	3	2,545
Total	15,572	216,358	6,418	97,259	16,799	188,308	38,789	501,925

*11 airmen missing height

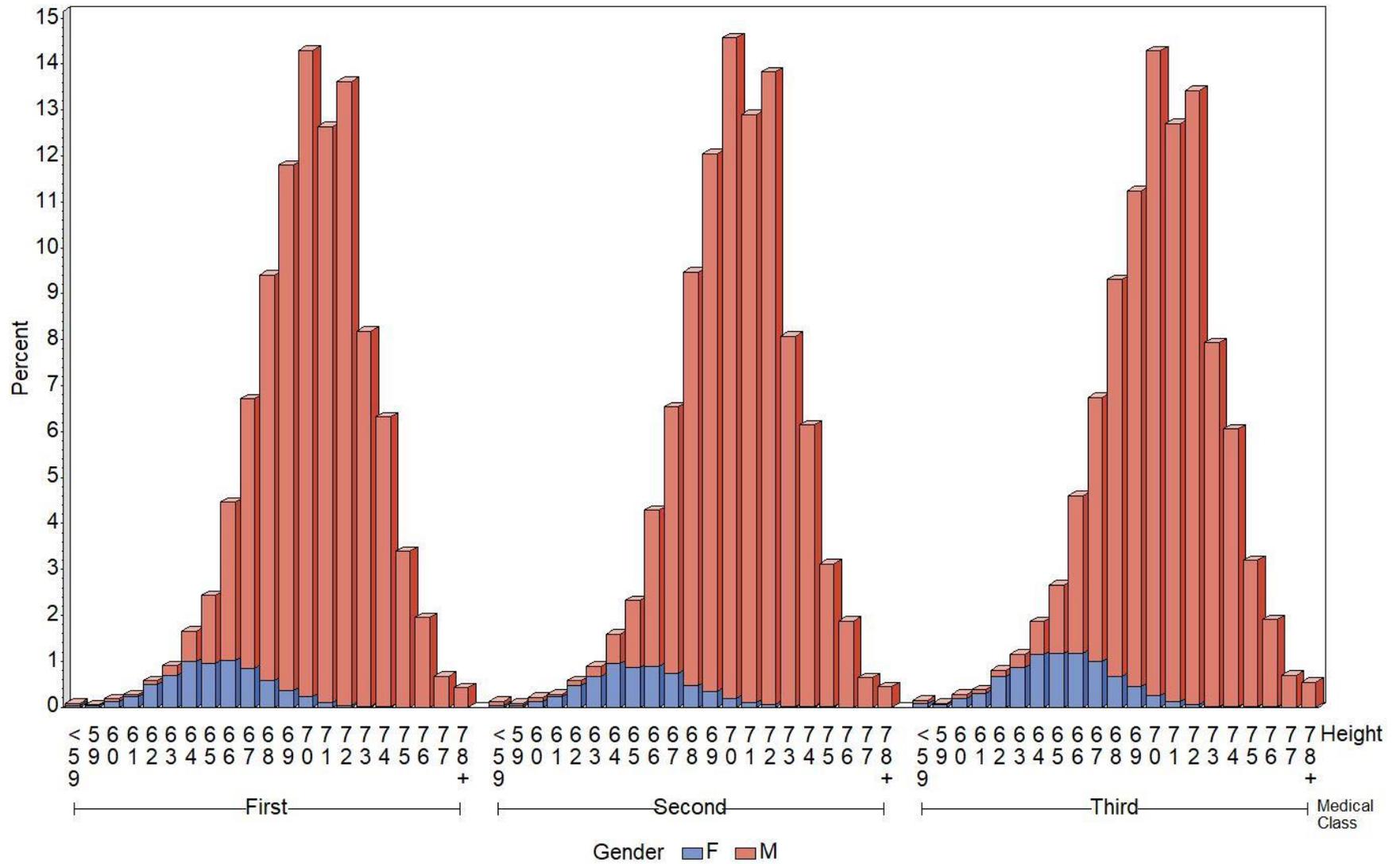


Figure 13. Height (Inches) by Gender and Issued Medical Class

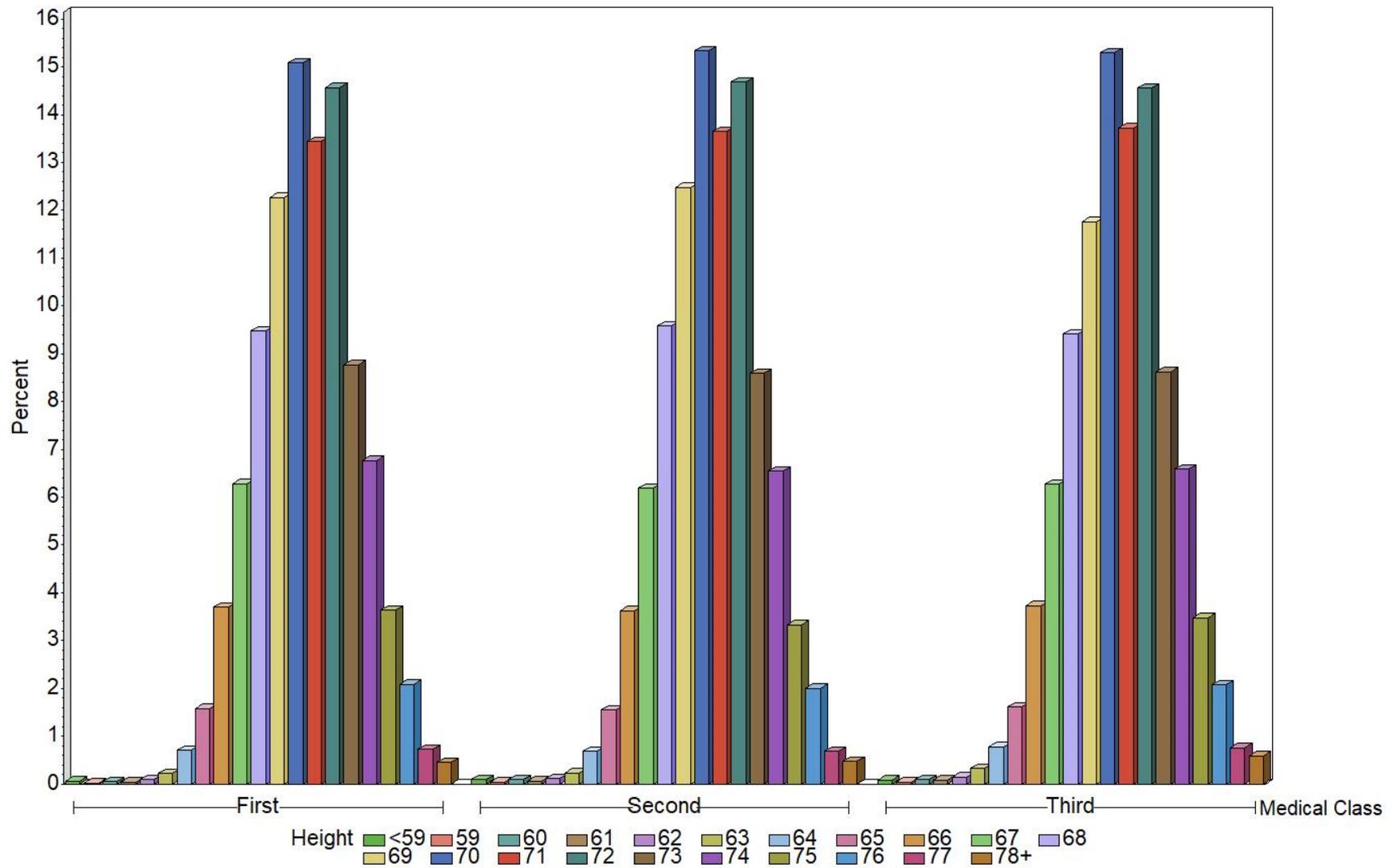


Figure 15. Height (Inches) by Issued Medical Class – Males Only

Table 15. Weight of All Active Airmen by Gender and Issued Medical Class

Issued Medical Class*		Number of Airmen	Mean Weight in Pounds	Median Weight in Pounds	Standard Deviation in Pounds
First	Females	15,571	146.0	140.0	29.7
	Males	216,349	190.5	187.0	34.2
Second	Females	6,418	149.5	143.0	32.0
	Males	97,252	195.6	192.0	35.0
Third	Females	16,799	145.6	140.0	28.7
	Males	188,293	192.2	189.0	35.2
All Classes	Females	38,788	146.4	140.0	29.7
	Males	501,894	192.1	189.0	34.8

*43 missing weight

Table 16. Weight by Issued Medical Class and Gender

Weight in Pounds*	Issued Medical Class						Total Airmen	
	First		Second		Third		Female	Male
	Female	Male	Female	Male	Female	Male		
<100	159	61	47	22	190	63	396	146
100-109	644	208	274	73	660	162	1,578	443
110-119	1,513	944	520	268	1,547	713	3,580	1,925
120-129	2,483	2,630	918	815	2,622	2,092	6,023	5,537
130-139	2,688	5,856	1,045	2,055	2,915	4,812	6,648	12,723
140-149	2,288	10,293	945	3,635	2,624	8,562	5,857	22,490
150-159	1,770	16,509	749	6,031	2,039	13,614	4,558	36,154
160-169	1,268	21,900	529	8,583	1,340	18,617	3,137	49,100
170-179	825	26,600	406	10,926	961	22,717	2,192	60,243
180-189	606	28,177	298	12,426	647	24,349	1,551	64,952
190-199	410	25,442	197	11,654	416	21,887	1,023	58,983
200-209	284	21,245	141	10,275	243	18,764	668	50,284
210-219	175	16,894	95	8,475	167	14,567	437	39,936
220-229	140	12,621	92	6,676	129	11,239	361	30,536
230-239	127	8,831	42	4,890	107	8,178	276	21,899
240-249	77	6,127	35	3,422	63	5,740	175	15,289
250-259	38	4,158	27	2,342	53	3,982	118	10,482
260-269	28	2,749	22	1,603	29	2,740	79	7,092
270-279	16	1,721	10	1,042	11	1,830	37	4,593
280+	32	3,383	26	2,039	36	3,665	94	9,087
Total	15,571	216,349	6,418	97,252	16,799	188,293	38,788	501,894

*43 airmen missing weight

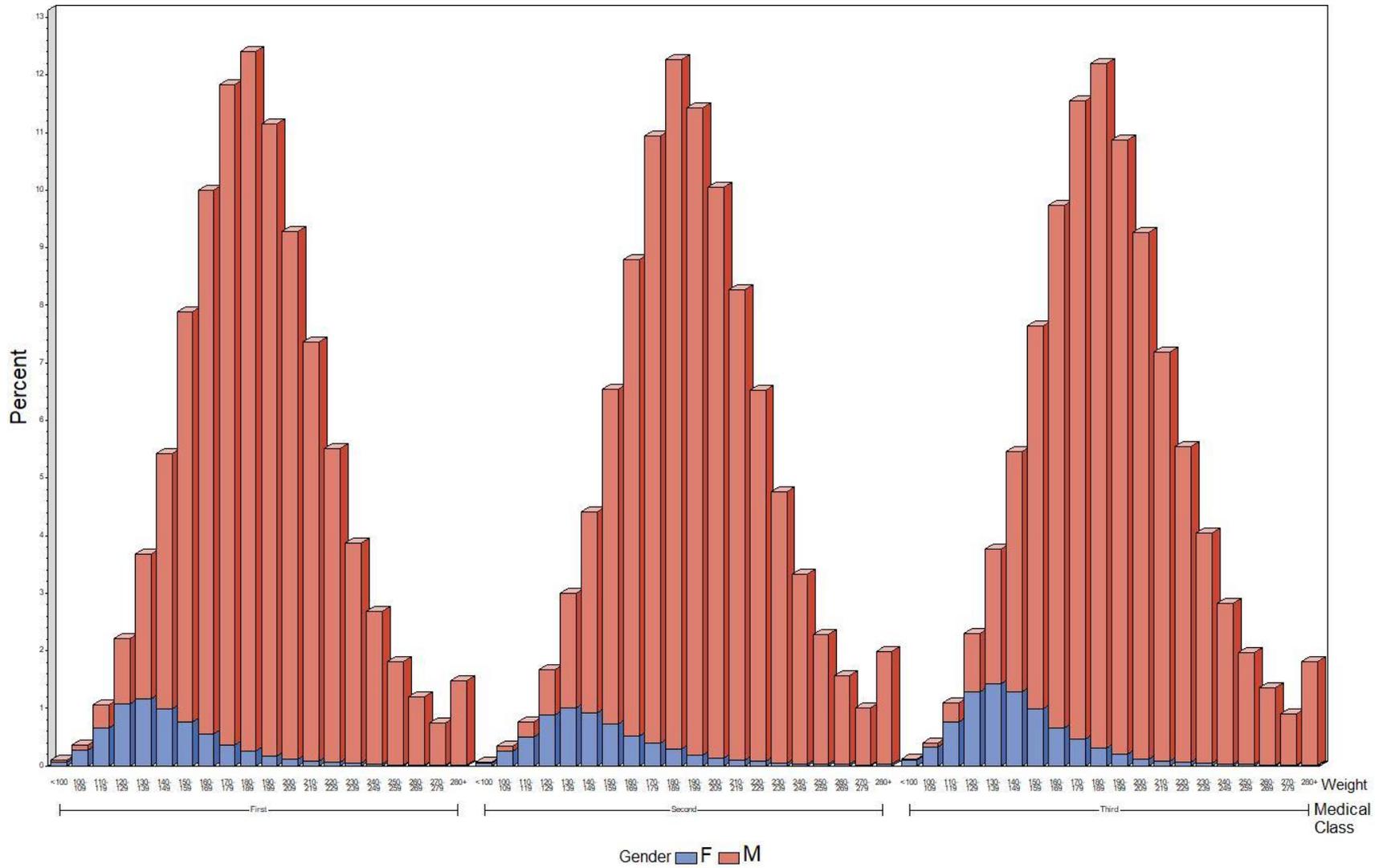


Figure 16. Weight (Pounds) by Gender and Issued Medical Class

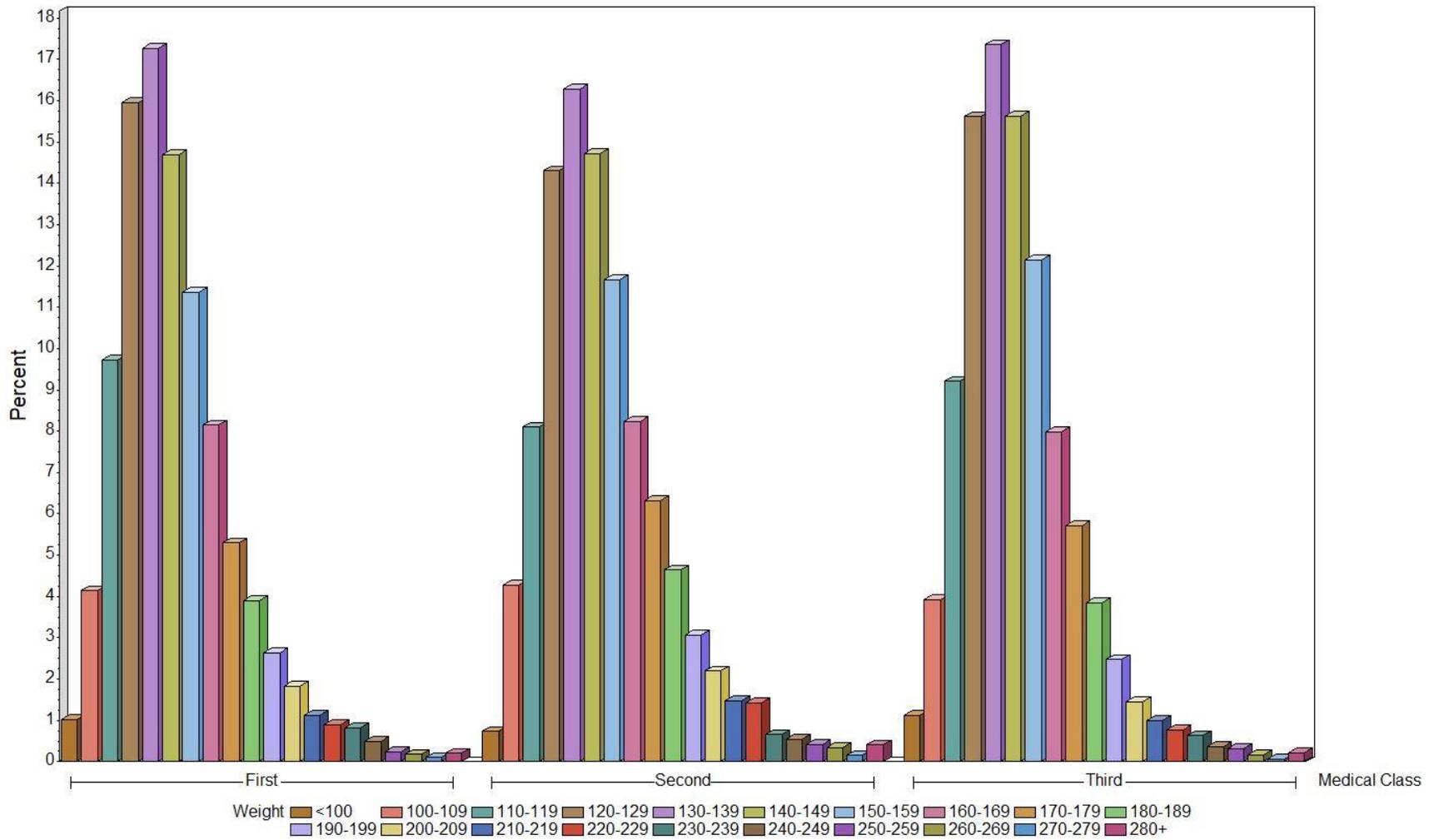


Figure 17. Weight (Pounds) by Issued Medical Class – Females Only

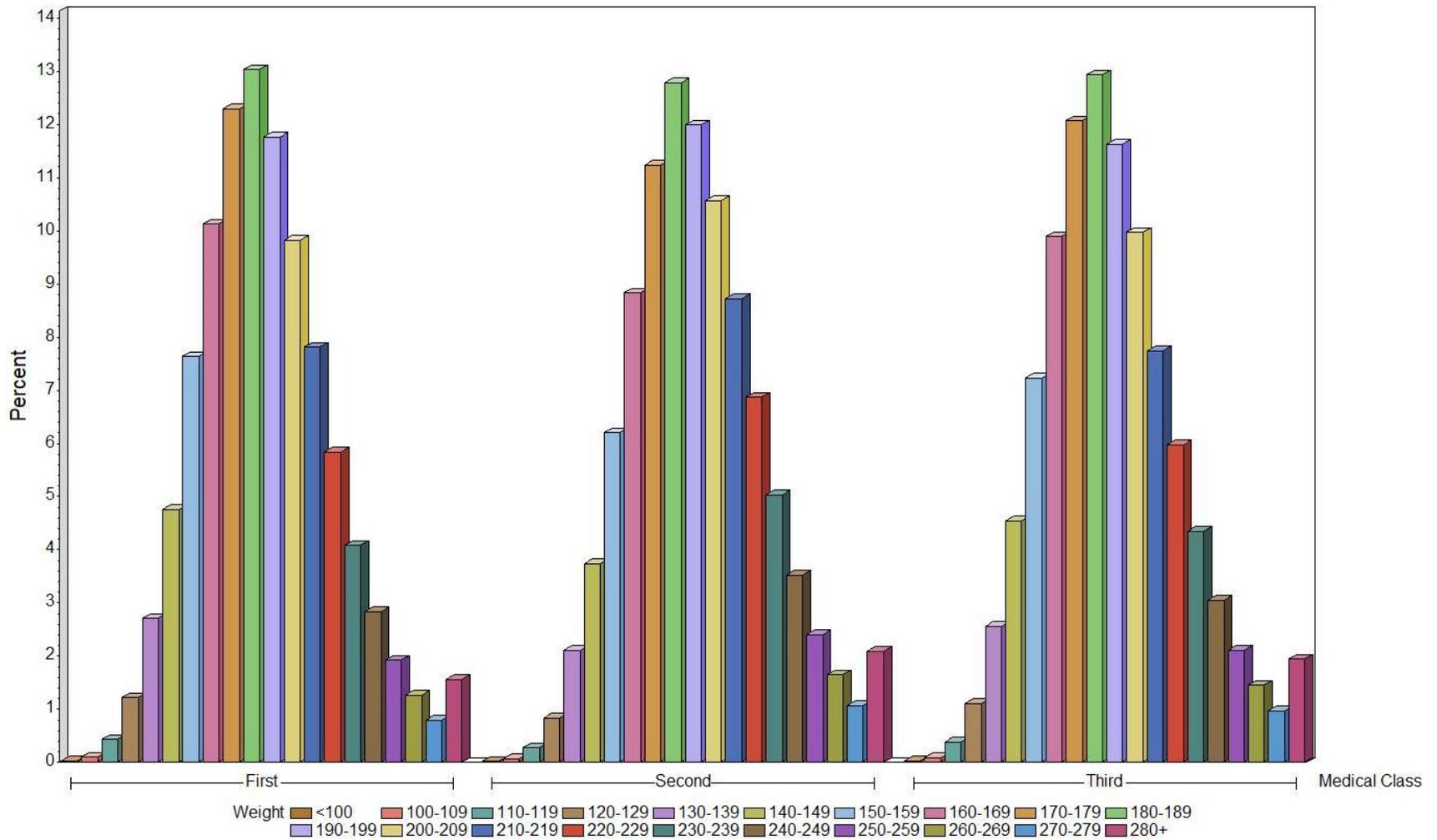


Figure 18. Weight (Pounds) by Issued Medical Class – Males Only

Table 17. BMI of all Active Airmen by Gender and Issued Medical Class

Issued Medical Class*		Number of Airmen	Mean BMI in kg/m ²	Median BMI in kg/m ²	Standard Deviation in kg/m ²
First	Females	15,570	24.0	23.0	4.5
	Males	216,346	26.9	26.4	4.3
Second	Females	6,418	24.7	23.6	5.0
	Males	97,252	27.6	27.2	4.5
Third	Females	16,796	24.1	23.2	4.5
	Males	188,289	27.1	26.6	4.5
All Classes	Females	38,784	24.1	23.2	4.6
	Males	501,887	27.1	26.6	4.4

*54 airmen missing BMI
 Abbreviation: BMI, body mass index.

Table 18. BMI Category by Issued Medical Class and Gender

BMI Category*	Issued Medical Class						Total Airmen	
	First		Second		Third			
	Female	Male	Female	Male	Female	Male	Female	Male
Underweight	728	2,358	249	735	740	1,944	1,717	5,037
Normal	9,903	72,951	3,777	27,050	10,601	60,891	24,281	160,892
Overweight	3,382	97,251	1,536	43,990	3,851	83,000	8,769	224,241
Obese	1,557	43,786	856	25,477	1,604	42,454	4,017	111,717
Total	15,570	216,346	6,418	97,252	16,796	188,289	38,784	501,887

*54 airmen missing BMI
 Abbreviation: BMI, body mass index.

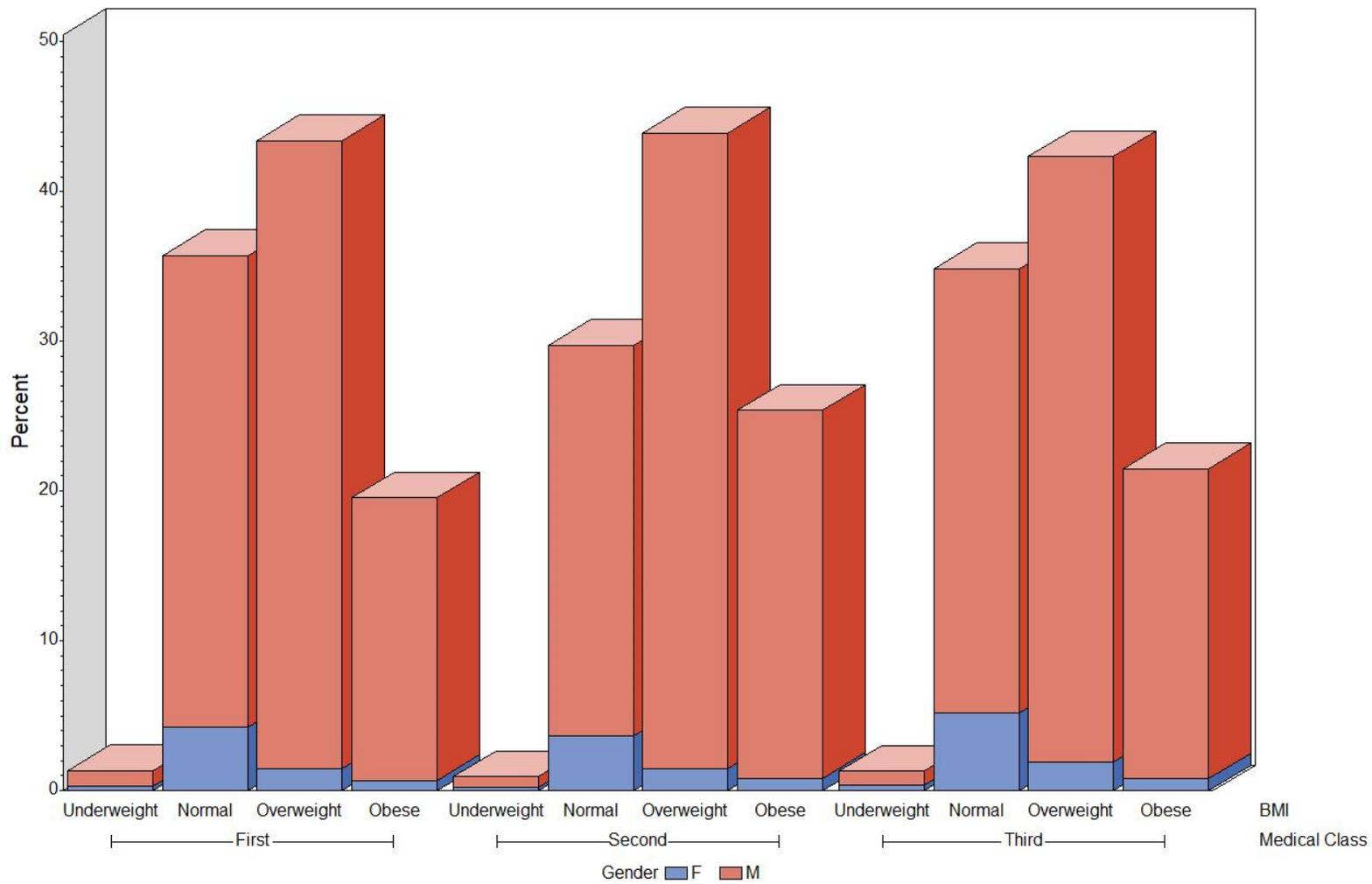


Figure 19. BMI Category by Gender and Issued Medical Class

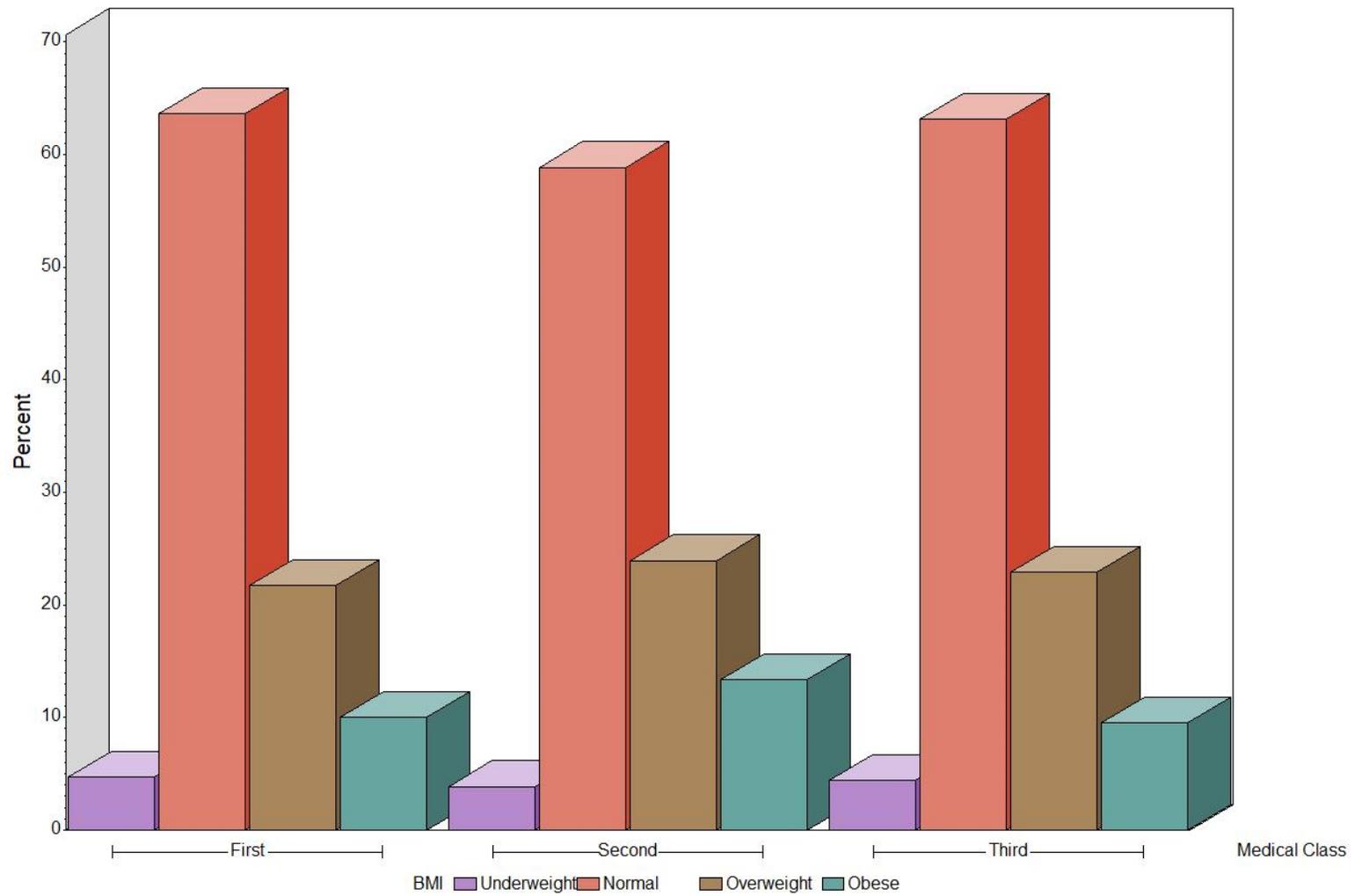


Figure 20. BMI Category by Issued Medical Class – Females Only

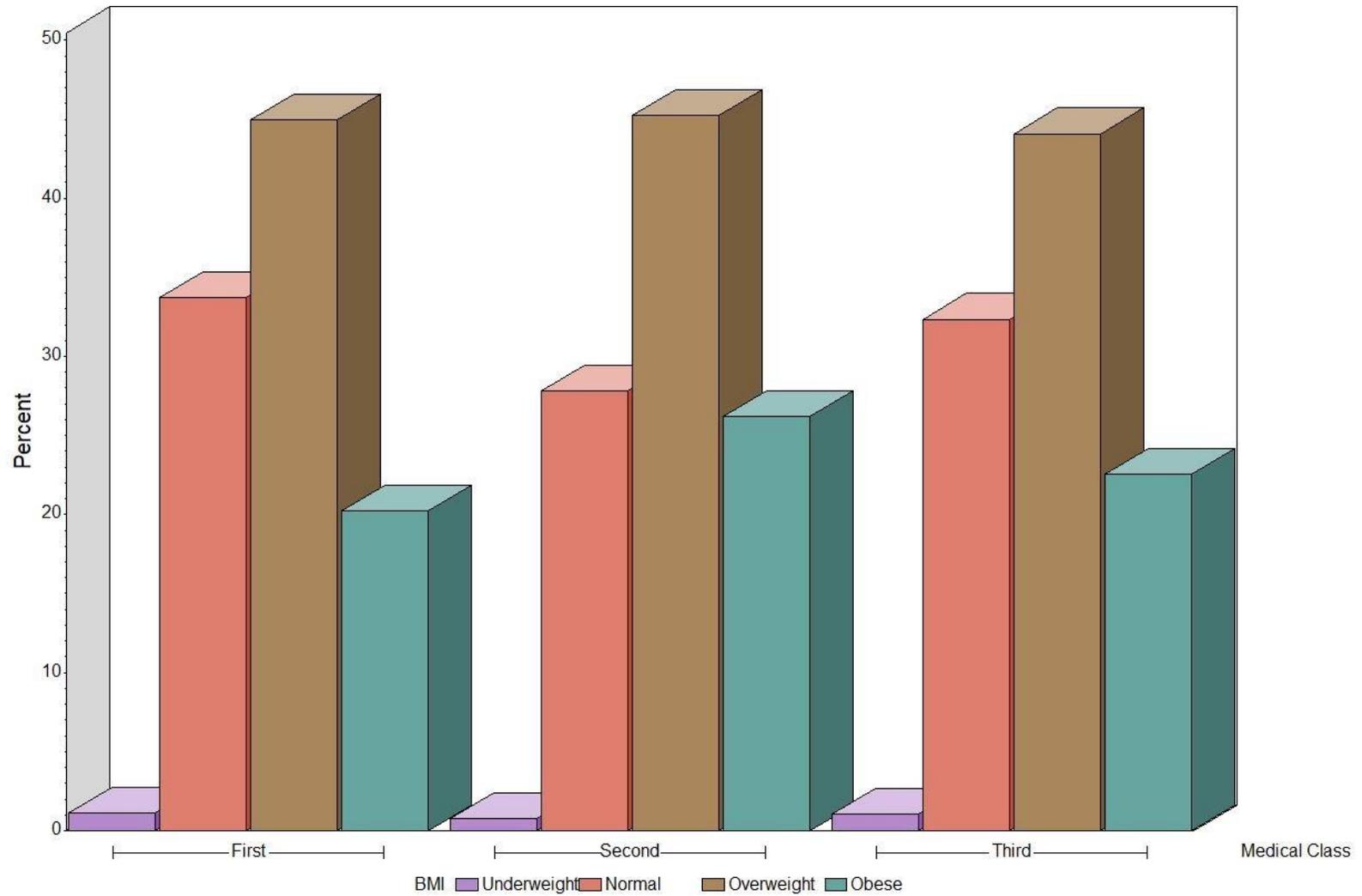


Figure 21. BMI Category by Issued Medical Class – Males Only

Table 19. Special Issuance by Issued Medical Class, Gender, Age, and BMI

		Special Issuance	
		Yes (Percent)	No (Percent)
Class Issued	First	12,591 (5.4)	219,343 (94.6)
	Second	6,230 (6.0)	97,447 (94.0)
	Third	11,933 (5.8)	193,181 (94.2)
Gender	Female	1,017 (2.6)	37,776 (97.4)
	Male	29,737 (5.9)	472,195 (94.1)
Age at Exam	16-19	565 (1.3)	43,978 (98.7)
	20-24	692 (1.0)	67,169 (99.0)
	25-29	795 (1.4)	56,343 (98.6)
	30-34	1,071 (2.0)	52,810 (98.0)
	35-39	1,465 (2.8)	50,372 (97.2)
	40-44	1,714 (4.9)	33,349 (95.1)
	45-49	2,748 (6.2)	41,744 (93.8)
	50-54	4,016 (8.2)	45,146 (91.8)
	55-59	5,269 (10.4)	45,285 (89.6)
	60-64	5,419 (12.7)	37,137 (87.3)
	65+	7,000 (16.0)	36,638 (84.0)
BMI* (kg/m ²)	Underweight	131 (1.9)	6,623 (98.1)
	Normal	5,799 (3.1)	179,374 (96.9)
	Overweight	13,311 (5.7)	219,699 (94.3)
	Obese	11,511 (10.0)	104,223 (90.0)
Total		30,754 (5.7)	509,971 (94.3)

*54 airmen missing BMI

Abbreviation: BMI, body mass index.

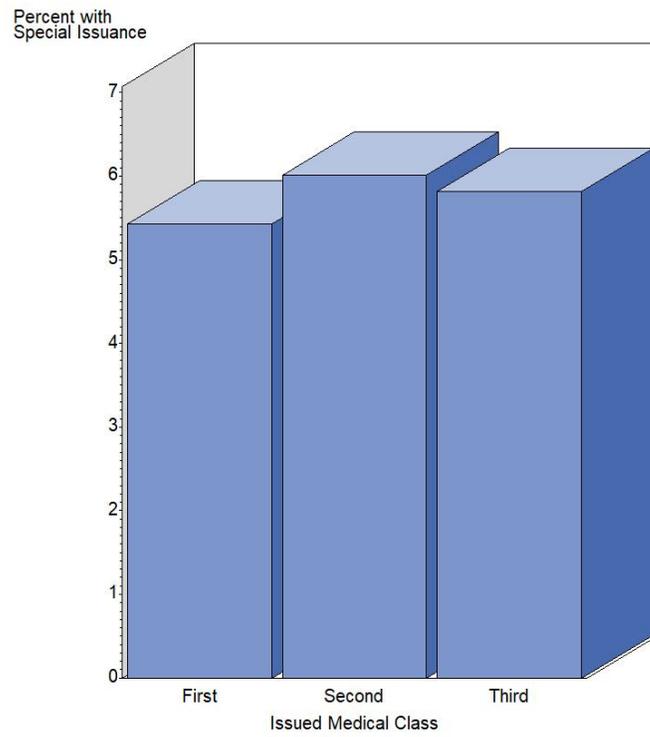


Figure 22. Special Issuance by Issued Medical Class

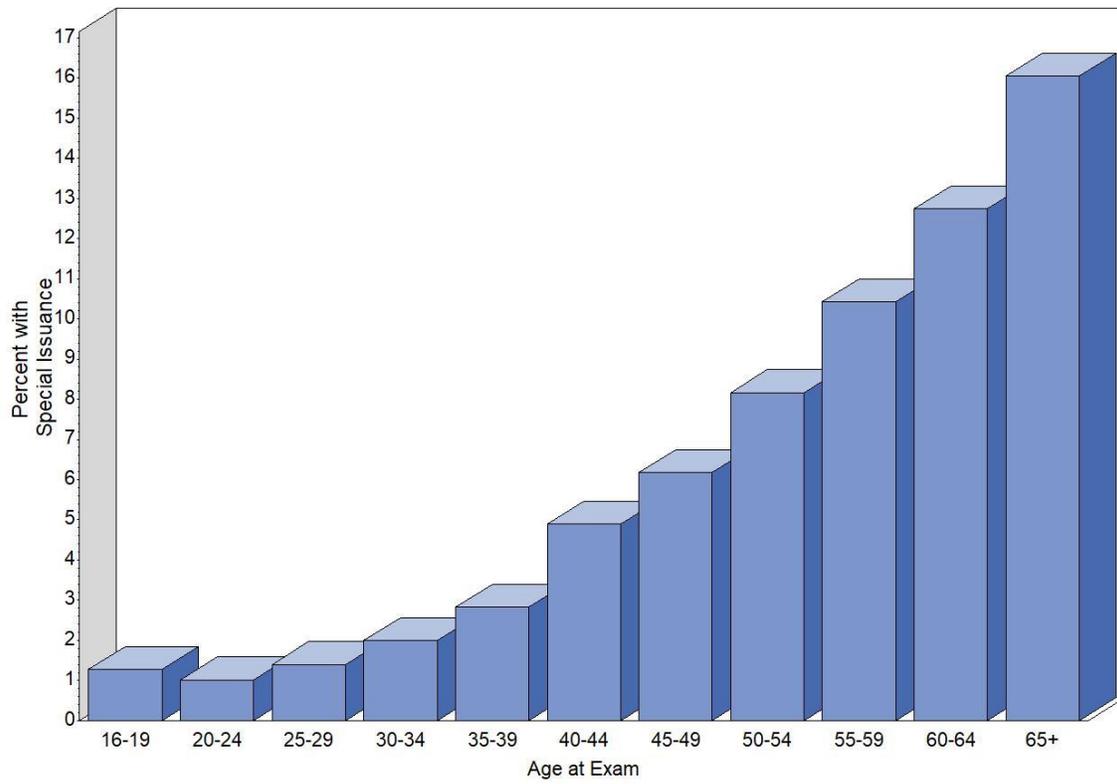


Figure 23. Special Issuance by Age Group at Time of Exam

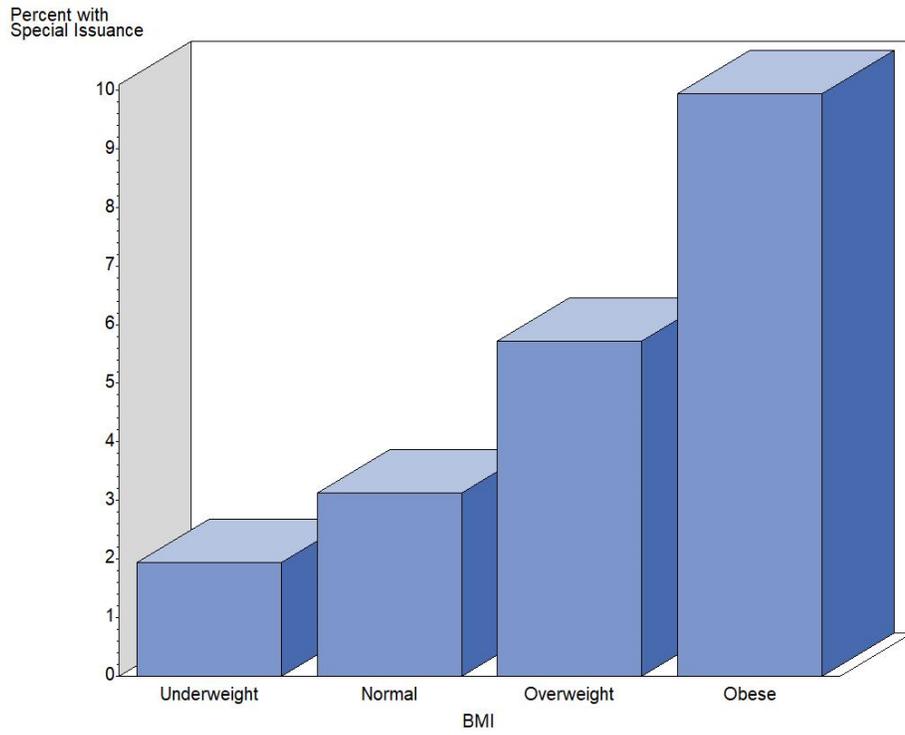


Figure 24. Special Issuance by BMI Category

Table 20. Top 15 Reported Medical Conditions

Pathology Description	Number	Percent
Hypertension with medication	44,618	8.3
Other miscellaneous allergic conditions*	30,636	5.7
Hernias – inguinal, femoral, umbilical, hiatal	21,310	3.9
Urolithiasis – stones or calculus of kidney, ureter, bladder	17,690	3.3
Other esophagus, stomach, and duodenal conditions – severe gastritis, esophageal reflux, achalasia, GERD, gastroplasty, dysphagia, dyspepsia, thrombus abdomen aorta [#]	17,374	3.2
Other lower extremities conditions – operations, fractures, dislocation, knee replacement, knee reconstruction, ACL reconstruction [§]	15,210	2.8
Male genital system – prostatic, varicocele, hydrocele, TURP, spermatocele, BPH	14,574	2.7
Other skin conditions – includes acne, abnormal pigmentation, vitiligo, psoriasis, keratosis, neurofibroma (basal cell carcinoma), adenoma, ganglioneuroma, fibroma, fibroadenoma, neuroma, Morton’s neuroma, hemangioma [‡]	13,059	2.4
Ruptured intervertebral disk, nucleus pulposus, spinal fusion, laminectomy and spinal stenosis, compression disc, other back surgeries	11,258	2.1
Hayfever	10,853	2.0
Asthma	10,373	1.9
Sleep apnea, restless leg syndrome	10,006	1.9
Other general heart pathology (abnormal ECG, open-heart surgery, etc.). Wolff-Parkinson-White syndrome, ablation, AV block, right bundle branch block, left bundle branch block [†]	9,886	1.8
Other shoulder conditions – operations, trauma, recurrent dislocations, frozen shoulder, rotator cuff surgery, etc.	9,308	1.7
Hypothyroidism, underactive thyroid, euthyroid, Hashimoto	8,888	1.6

* Excludes hayfever and asthma

[#] Excludes ulcers, gastrectomy, lap-band staple bypass, gastric bypass, hernias, esophageal varices

[‡] Excludes dermatitis, pilonidal cyst, significant scarring, melanoma, squamous cell carcinoma

[§] Excludes deformity of toes, foot, or leg, diseases (synovitis, arthritis, bursitis, osteomyelitis, neoplasms, polymyalgia rheumatica, etc.), rheumatoid arthritis, unstable knee (locked knee, herniated meniscus, no patella)

[†] Excludes cardiomyopathy, pacemaker, cardiac stents, cardiac angioplasty

Abbreviations: AV, atrioventricular; BPH, benign prostatic hypertrophy; ECG, electrocardiogram; GERD, gastroesophageal reflux disease; TURP, transurethral resection of the prostate.

Table 21. Medical Conditions by Issued Medical Class

		Issued Medical Class (percent)			Total
		First	Second	Third	
Vision	Color vision deficiency [‡]	1,830 (0.79)	1,405 (1.36)	4,384 (2.14)	7,619 (1.41)
	Monocular vision	281 (0.12)	389 (0.38)	688 (0.34)	1,258 (0.23)
Transplants	Lung transplant	1 (0.00)	0 (0.00)	1 (0.00)	2 (0.00)
	Heart transplant	0 (0.00)	0 (0.00)	5 (0.00)	5 (0.00)
	Liver transplant	6 (0.00)	9 (0.01)	13 (0.01)	28 (0.01)
	Kidney transplant	47 (0.02)	20 (0.02)	56 (0.03)	123 (0.02)
Cardiac	Myocardial infarction	736 (0.32)	343 (0.33)	947 (0.46)	2,026 (0.37)
	Coronary angioplasty with a stent	1,032 (0.44)	473 (0.46)	1,505 (0.73)	3,010 (0.56)
	Coronary angioplasty procedure	318 (0.14)	153 (0.15)	619 (0.30)	1,090 (0.20)
	Coronary artery bypass surgery	362 (0.16)	173 (0.17)	643 (0.31)	1,178 (0.22)
	Implanted pacemaker	111 (0.05)	61 (0.06)	191 (0.09)	363 (0.07)
	Aortic valve conditions*	772 (0.33)	306 (0.30)	687 (0.33)	1,765 (0.33)
	Mitral valve conditions [#]	837 (0.36)	360 (0.35)	706 (0.34)	1,903 (0.35)
	Hypertension with medication	15,970 (6.89)	10,002 (9.65)	18,646 (9.09)	44,618 (8.25)

Table 21. (Cont.) Medical Conditions by Issued Medical Class

		Medical Class Issued (percent)			Total
		First	Second	Third	
Alcohol and Drugs	Alcohol abuse/dependence	2,777 (1.20)	1,021 (0.98)	1,275 (0.62)	5,073 (0.94)
	Drug abuse/dependence	1,168 (0.50)	506 (0.49)	641 (0.31)	2,315 (0.43)
	Alcohol/Drug case monitored	1,708 (0.74)	166 (0.16)	139 (0.07)	2,013 (0.37)
	Alcohol-related offense [‡]	11,837 (5.10)	6,343 (6.12)	10,119 (4.93)	28,299 (5.23)
	Drug-related offense/misuse [§]	915 (0.39)	551 (0.53)	860 (0.42)	2,326 (0.43)
Other conditions of interest	Sleep apnea	4,340 (1.87)	2,397 (2.31)	3,452 (1.68)	10,189 (1.88)
	Applied for SSRI use	305 (0.13)	113 (0.11)	389 (0.19)	807 (0.15)
	SSRI special issuance	174 (0.08)	20 (0.02)	102 (0.05)	296 (0.05)
	Diabetes [†]	1,783 (0.77)	1,436 (1.39)	2,861 (1.39)	6,080 (1.12)

* Color vision deficiency at initial screening test

* Includes aortic valvular disease, aortic stenosis, aortic regurgitation, aortic insufficiency, bicuspid aortic valve, also replacement, ruptured aorta or lacerated, aortic bruit

Includes mitral valve disease, mitral stenosis, mitral regurgitation, mitral insufficiency. Does not include valve replacement.

‡ Includes DUI, DWI, public intoxication, wet/reckless, .04-.09 blood alcohol level.

§ Includes drug offenses and positive drug test other than Drug Industry Program (Failed Drug Testing)

† Controlled by hypoglycemic drugs or insulin

Abbreviations: DUI, driving under the influence; DWI, driving while intoxicated; SSRI, selective serotonin reuptake inhibitor.

Section III. Transition to BasicMed

In the process of completing the 2018 Statistical Handbook, the demographics of the third-class active airmen changed drastically from 2016 to 2018. This period featured a significant disappearance of third-class airmen, especially those with special issuances and critical pathology codes. While airmen come and go from the certificated population routinely, the number of airmen lost to follow-up increased sharply relative to our 2016 Handbook. Many of these airmen have notified the FAA of their intention to fly under BasicMed (14 CFR 68). BasicMed was enacted to comply with the FAA Extension, Safety, and Security Act of 2016 and provides for the operation of certain small aircraft without a medical certificate. These airmen may operate aircraft authorized to carry no more than six occupants and maximum take-off weight of 6,000 pounds for noncommercial purposes. Airmen must possess a valid U.S. driver's license, complete an online medical self-assessment course biennially, and complete a physical examination with any state-licensed physician using a Comprehensive Medical Examination Checklist every four years. Airmen with specific listed medical conditions, including many listed in Table 21, must complete a one-time special issuance before exercising these privileges. BasicMed became effective May 1, 2017, and this section demonstrates the impact to the active third-class airmen population as a subset has transitioned to BasicMed.

For this specific cohort of airmen, medical certificate validity was determined as of December 31, 2016, and again as of December 31, 2018. Those airmen that held a valid medical certificate at the end of 2016 but not in 2018 were considered no longer active. This group of non-active airmen was then merged with the FAA Civil Aviation Registry Airmen Certification Branch dataset to determine who had declared the intention to fly under BasicMed. This section focuses specifically on this inactive third-class portion of this population that declared the intention to fly BasicMed.

The charts below give the number and percentage of active airmen as of December 31 for each respective year. The BasicMed population are those airmen among the third-class population that were active as of December 31, 2016, but not active as of December 31, 2018, and have declared the intention to fly BasicMed. Although not included in this section's primary analysis of airmen transitioning to BasicMed, we also included active airmen in 2017 in the table to understand the decreasing trend more accurately.

In 2016, there were 243,400 active third-class airmen with an average age of 44.7 (standard deviation [SD]=18.0). In 2018, the number of active airmen decreased to 205,144, with an average age of 42.4 (SD=17.8). Of those active in 2016, 101,317 (41.6%) were no longer active in 2018. Of these airmen, 25,923 (25.6%) declared the intention to fly under BasicMed, with an average age of 61.0 years (SD=11.4). In contrast, the remaining group that became inactive and did not declare intentions to fly under BasicMed had an average age of 48.8 years (SD=18.1). Table 22 illustrates the changes in special issuances over time, and Table 23 gives the change in the number of airmen with the medical conditions referenced in Table 21.

A significant portion of the loss of the active airmen in 2018 can be attributed to the transition to BasicMed. Specifically, airmen declaring BasicMed comprise most of the loss of active airmen with the conditions listed in Table 21. This occurrence is illustrated by examining the loss of active third-class airmen from 2016 to 2018 and comparing that loss with the number of airmen who declared their BasicMed intentions in the tables below. While the 2018 population is not the exact population from 2016 due to airmen either coming into the system for the first time or coming back into the system after some inactivity during this period, this comparison demonstrates where the airmen have shifted.

Table 22. Special Issuance of Active Third Class and BasicMed Airmen by Year

	2016 Number (percent)	2017 Number (percent)	2018 Number (percent)	BasicMed Number (percent)
Yes	18,758 (7.7)	13,810 (6.2)	11,933 (5.8)	7,113 (27.4)
No	224,642 (92.3)	208,689 (93.8)	193,181 (94.2)	18,810 (72.6)

Table 23. Medical Conditions of Active Third Class and BasicMed Airmen by Year

		Third Class Only			
		2016 Number (percent)	2017 Number (percent)	2018 Number (percent)	BasicMed Number (percent)
Vision	Color vision deficiency*	5,493 (2.25)	4,921 (2.21)	4,384 (2.14)	796 (3.07)
	Monocular vision	1,042 (0.43)	834 (0.37)	688 (0.34)	212 (0.82)
Transplants	Lung transplant	2 (0.00)	2 (0.00)	1 (0.00)	1 (0.00)
	Heart transplant	4 (0.00)	5 (0.00)	5 (0.00)	1 (0.00)
	Liver transplant	23 (0.01)	16 (0.01)	13 (0.01)	9 (0.03)
	Kidney transplant	93 (0.04)	66 (0.03)	56 (0.03)	36 (0.14)
Cardiac	Myocardial infarction	1,798 (0.74)	1,185 (0.53)	947 (0.46)	894 (3.45)
	Coronary angioplasty with a stent	2,829 (1.16)	1,928 (0.87)	1,505 (0.73)	1,434 (5.53)
	Coronary angioplasty procedure	770 (0.32)	697 (0.31)	619 (0.30)	381 (1.47)
	Coronary artery bypass surgery	1,326 (0.54)	861 (0.39)	643 (0.31)	680 (2.62)
	Implanted pacemaker	361 (0.15)	251 (0.11)	191 (0.09)	163 (0.63)
	Aortic valve conditions*	1,225 (0.50)	867 (0.39)	687 (0.33)	495 (1.91)
	Mitral valve conditions#	1,433 (0.59)	954 (0.43)	706 (0.34)	550 (2.12)
	Hypertension with medication	31,343 (12.88)	23,803 (10.70)	18,646 (9.09)	9,053 (34.92)

Table 23. (Cont.) Medical Conditions of Active Third Class and BasicMed Airmen by Year

		Third Class Only			
		2016 Number (percent)	2017 Number (percent)	2018 Number (percent)	BasicMed Number (percent)
Alcohol and Drugs	Alcohol abuse/dependence	1,614 (0.66)	1,432 (0.64)	1,275 (0.62)	239 (0.92)
	Drug abuse/dependence	734 (0.30)	687 (0.31)	641 (0.31)	74 (0.29)
	Alcohol/Drug case monitored	16 (0.01)	26 (0.01)	139 (0.07)	3 (0.01)
	Alcohol-related offense [‡]	12,061 (4.96)	11,048 (4.97)	10,119 (4.93)	1,171 (4.52)
	Drug-related offense/misuse [§]	974 (0.40)	937 (0.42)	860 (0.42)	80 (0.31)
Other conditions of interest	Sleep apnea	4,720 (1.94)	3,728 (1.68)	3,452 (1.68)	1,706 (6.58)
	Applied for SSRI use	488 (0.20)	455 (0.20)	389 (0.19)	112 (0.43)
	SSRI special issuance	115 (0.05)	111 (0.05)	102 (0.05)	37 (0.14)
	Diabetes [†]	4,659 (1.91)	3,360 (1.51)	2,861 (1.39)	1,926 (7.43)

*Color vision deficiency at initial screening test

*Includes aortic valvular disease, aortic stenosis, aortic regurgitation, aortic insufficiency, bicuspid aortic valve, also replacement, ruptured aorta or lacerated, aortic bruit

#Includes mitral valve disease, mitral stenosis, mitral regurgitation, mitral insufficiency. Does not include valve replacement.

‡Includes DUI, DWI, public intoxication, wet/reckless, .04-.09 blood alcohol level.

§Includes drug offenses and positive drug test other than Drug Industry Program (Failed Drug Testing)

†Controlled by hypoglycemic drugs or insulin

Abbreviations: DUI, driving under the influence; DWI, driving while intoxicated; SSRI, selective serotonin reuptake inhibitor.