



**U. S. Army Aviation Epidemiology Data Register:  
Population Demographics and Aeromedical Disqualifications  
Among Female U.S. Army Flight Surgeons  
and  
Aeromedical Physician Assistants  
for Calender Years 1986 to 1995.**

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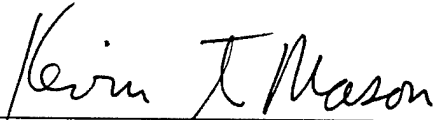
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19. Abstract (Continued):

The most common medical disqualifications were a failure to meet vision and anthropometry standards. This finding is similar to the medical disqualification trends among female applicants to U.S. Army aviator training. While many medically disqualified applicants received waivers for the medical disqualifications, those with anthropometric deficiencies often were restricted to backseat flying duties only (restricted from aircraft control).

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### Military relevance

The U.S. Army Aeromedical Center (USAAMC) requested an expeditious descriptive analysis of the demographics of U.S. Army female flight surgeons and aeromedical physician assistants. The data was to be used for the Women in Army Aviation Symposium, Fort Rucker, Alabama, on 21-23 February 1996. Since the demographics of U.S. Army aviation medicine personnel are unknown for both genders, the U.S. Army Aviation Epidemiology Data Register (AEDR) was queried to provide an estimate to USAAMC.

### Method

The AEDR was queried for all flying duty medical examinations (FDME) for female flight surgeons (FS) and aeromedical physician assistants (APA) for the period 1 January 1986 to 31 December 1995, 10 calendar years. The FDMEs included applicants to aviation medicine training and annual FDMEs of trained FSs and APAs. Social Security number, gender, component of service, date of birth, date of FDME, rank, purpose of examination, and unit were retained for analysis in an Access™ 2.0 relational database. The components were combined into four categories, active duty (AD), Army Reserve and Individual Ready Reserve (USAR), Army National Guard (ARNG), and Uniformed Services University of Health Sciences (USUHS). USUHS students are in the reserves, but were not double-counted as USAR. The purpose of examination codes were combined into FS and APA.

The final cohort of 141 individuals was cross-referenced with an AEDR database domain, the waiver and suspense file, by Social Security number to determine their aeromedical disposition. The cohort was cross-referenced by Social Security to the U.S. Army School of Aviation Medicine, Fort Rucker, Alabama, course attendance file (Q&A™ database) to determine who had attended the Army Flight Surgeon Primary Course.

Analyses were completed using crosstab functions in Excel™ 5.0. Relative risk with 95 percent confidence intervals was calculated using the method of Katz (Kahn and Sempos, 1989).

### Results

As shown in Table 1, 73.7 percent (70 of 95) of female flight surgeons attending the flight surgeon's course were active duty, followed by 14.7 percent for the ARNG (14 of 95), and 8.4 percent for the USAR (8 of 95). This is expected based on the distribution of the population they serve, U.S. Army aviators (Mason and Shannon, 1994; Shannon and Mason, 1995). Aeromedical physician assistant applicants were just as likely as flight surgeons to attend the U.S. Army Flight Surgeon Primary Course, (Relative risk<sub>(Katz)</sub>=1.06, CI<sub>0.95</sub>=0.81,1.39).

Table 1.  
Aviation service designation stratified by component of service.

Component	Flight surgeons			Aeromedical physician assistants		
	Attended FS course		N	Attended FS course		N
	Yes	No		Yes	No	
AD	70	17	87	8	0	8
USAR	8	4	12	0	0	0
ARNG	14	4	18	4	3	7
USUHS	3	6	9	*	*	*
N	95	31	126	12	3	15

\* USUHS flight surgeon course applicants are medical students.

Table 2 shows the duration of aviation service during calendar years 1986 to 1995, following application to the U.S. Army Flight Surgeon Primary Course. The determination was made by looking at the number and date of FDMEs, and unit of assignment during the FDME. Those with zero years of service did not attend the U.S. Army Flight Surgeon Primary Course. Those with 1 year of service did attend the course, but it could not be determined from available records if they were utilized as FSs and APAs after training. Some attendees take the course for continuing military medical education only. Most graduates serve for a minimum of 2 years after training. Those with more than one year of service likely were in active aviation service, thus requiring multiple FDMEs.

Table 2.  
Duration of aviation service for calendar years 1986 to 1995.

Status	Duration of aviation service in years										N
	0*	1	2	3	4	5	6	7	8	9	
FS	31	36	16	20	6	4	5	3	3	2	126
APA	3	4	7	0	1	0	0	0	0	0	15
N	34	40	23	20	7	4	5	3	3	2	141

\* Applicants only, no evidence of attending FS/APA training.

Table 3 shows the number of FSs and APAs in aviation service by calendar year. This was based on graduation from the Army Flight Surgeon Primary Course and undergoing an FDME in that calendar year. They are presumed to be in aviation service if an FDME is required. The declining numbers after 1992 are likely the result of the Army's post-Cold War force reduction program.

Table 3.  
Number of female FSs and APAs in aviation service by calendar year.

Status	Calendar year									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995*
FS	10	22	29	33	38	32	33	24	22	16
APA	0	0	1	5	3	4	3	0	3	3
N	10	22	30	38	41	36	36	24	25	19

\* Data from 1995 is not complete.

Table 4 shows the aeromedical disposition of the 34 applicants to the Army Flight Surgeon Primary Course who did not attend the course. Over half (55.9%) were aeromedically disqualified. The reasons why the qualified and waived applicants did not attend the flight surgeon training course are unknown.

Table 4.  
Aeromedical disposition of applicants who did not attend the Army Flight Surgeon Primary Course.

Aeromedical status	Qualified	Waiver recommended	Disqualified	N
FS	7	7	17	31
APA	1	0	2	3
N	8	7	19	34

Table 5 shows the aeromedical disposition of the remaining 107 who attended the Army Flight Surgeon Primary Course. The period of observation for this group included all years of aviation service during the study. Many required a waiver for medical disqualifications (42.1%). FSs were more likely than APAs to require a waiver, but not significantly (Relative risk<sub>(Katz)</sub>=2.75, CI<sub>0.95</sub>=0.76,9.91). One was medically suspended from aviation service due to chronic depression.



Table 5.

Aeromedical disposition of applicants who did attend the Army Flight Surgeon Primary Course.

Aeromedical status	Qualified	Waiver recommended	Suspended	N
FS	51	43	1	95
APA	10	2	0	12
N	61	45	1	107

Table 6 shows the disqualifying medical conditions for which the waivers were granted. A waiver allows the officer to remain in aviation service despite the medical disqualification. A failure to meet vision standards and anthropometry standards were the most common causes for medical disqualification. This is similar to the pattern of medical disqualifications for female Army aviator training applicants (Mason, 1995). Most of the backseat flying duty only restrictions (no flying at the controls of the aircraft) were for female flight surgeons who did not meet the anthropometry standards (six of seven restrictions).

#### Summary

This was a descriptive study to meet the short-notice requirements of the U.S. Army Aeromedical Center in support of the Women in Army Aviation Symposium in February 1996. Analysis of available data in the Aviation Epidemiology Data Register and school records at the U.S. Army School of Aviation Medicine provided a better understanding of the age distribution, numbers, retention, and aeromedical disposition outcomes of female Army flight surgeons and aeromedical physician assistants for the period 1986 to 1995.

Among a cohort of 141 female applicants, 107 attended the Army Flight Surgeon Primary Course. Aeromedical physician assistant applicants were just as likely as flight surgeons to attend the U.S. Army Flight Surgeon Primary Course, (Relative risk<sub>(Katz)</sub>=1.06, CI<sub>0.95</sub>=0.81,1.39). Many attending the course required a waiver for their medical disqualifications (42.1%). Flight surgeons were more likely than aeromedical physician assistants to require a waiver, but not significantly (Relative risk<sub>(Katz)</sub>=2.75, CI<sub>0.95</sub>=0.76,9.91).

The most common medical disqualifications were a failure to meet vision and anthropometry standards. This finding is similar to the medical disqualification trends among female applicants to U.S. Army aviator training. While many medically disqualified applicants received waivers for the medical disqualifications, those with anthropometric deficiencies were often restricted to backseat flying duties only (restricted from aircraft control).

Table 6.  
Aeromedical disqualifications of trained female flight surgeons requiring waiver.

Aeromedical disqualification	N*
Allergic rhinitis	8
Anthropometry	13
Asthma	3
Decompression illness	1
Depression, resolved	1
Derangement of knee	1
Endometriosis	1
Esophageal reflux	1
Headaches, non-migraine	2
Hearing loss	1
Herniated nucleus pulposus	1
Hypothyroidism	1
Lumbar fracture	1
Melanoma	1
Myopia	17
Ocular motility disorders, depth perception	6
Osteomyelitis	1
Otosclerosis	1
Premature ventricular contractions	1
Presbyopia	2
Reiter's syndrome	1
Restricted to back seat duties only	7

\* Some individuals have more than one of these medical conditions.

## References

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- Shannon, S. G., and Mason, K. T. 1995. U.S. Army Aviation Epidemiology Data Register: Trends in the age distribution of U.S. Army aviators stratified by gender and component, 1986 to 1992. Fort Rucker, AL: U.S. Army Aeromedical Research Laboratory. USAARL Report No. 95-2.

Appendix A.  
Other data tables.

Table A-1.  
Age distribution on application to the Army Flight Surgeon Primary Course.

Age	Flight surgeon	Aeromedical physician assistant	N
Unknown	2	0	2
24	1	0	1
25	5	0	5
26	8	0	8
27	18	0	18
28	8	1	9
29	5	0	5
30	12	0	12
31	7	0	7
32	7	3	10
33	10	5	15
34	4	0	4
35	3	1	4
36	7	2	9
37	3	1	4
38	2	0	2
39	2	0	2
40	0	1	1
41	2	0	2
42	2	0	2
43	4	0	4
44	3	0	3
45	3	0	3
47	2	0	2
49	0	1	1
51	1	0	1
53	1	0	1
55	1	0	1
57	1	0	1
60	2	0	2
<b>N</b>	<b>126</b>	<b>15</b>	<b>141</b>