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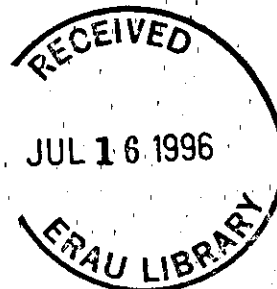
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Office of Aviation Medicine  
Washington, D.C. 20591

# Medically Disqualified Airline Pilots in Calendar Years 1987 and 1988

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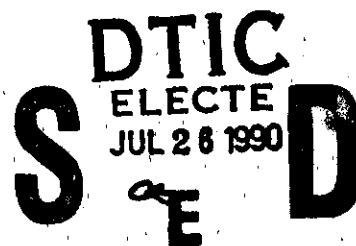
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Final Report



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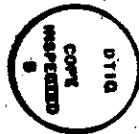
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16. Abstract <p>This study presents comprehensive data reflecting pertinent denial rates regarding the medical and general attributes of those airline pilots denied medical certification in calendar years 1987 and 1988.</p> <p>The overall annual denial rate of this group is 4.3 per 1,000 active airline pilots. Age-specific denial rates for airline pilots increase to the highest rate at age interval 55-59. The most significant causes for denial by pathology series are: (1) cardiovascular; (2) neuropsychiatric; and (3) the miscellaneous category. Denials for cardiovascular reasons account for 34% of all denials in this airline pilot group.</p> <p>The most significant causes for denial by specific pathology are: (1) coronary artery disease; (2) use of disqualifying medications; (3) psychoneurotic disorders; (4) myocardial infarction; and (5) disturbance of consciousness. These 5 specific causes account for 30% of all causes for denial.</p>					
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## MEDICALLY DISQUALIFIED AIRLINE PILOTS IN CALENDAR YEARS 1987 AND 1988

### INTRODUCTION

Federal Aviation Regulations (FARs) require that pilots for scheduled and nonscheduled airlines possess a first-class medical certificate to validate their air transport pilot certificate. Airline pilots are required to obtain a Federal Aviation Administration (FAA) medical examination at six-month intervals and must meet specific requirements for a first-class medical certificate as set forth in FAR 67.13 (b) through (f). If the medical standards are not met, the application for first-class certification is denied. This denial can result from any of several levels of certification review within the FAA, from the aviation medical examiner (AME) to the Federal Air Surgeon.

Federal Aviation Regulations, Part 67, specify that a medical certificate will be denied if an applicant has an established medical history or clinical diagnosis of any of the following conditions:

1. A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.
2. A psychosis.
3. Alcoholism, unless there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from alcohol for not less than the preceding 2 years. "Alcoholism" means a condition in which a person's intake of alcohol is great enough to damage physical health or personal or social functioning, or when alcohol has become a prerequisite to normal functioning.
4. Drug dependence.
5. Epilepsy.
6. A disturbance of consciousness without satisfactory medical explanation of the cause.
7. Myocardial infarction.
8. Angina pectoris.
9. Coronary heart disease that has required treatment or, if untreated, that has been symptomatic or clinically significant.
10. Diabetes mellitus, requiring insulin or other hypoglycemic drug for control.

Advances in aviation medicine and changes in FAA policies and procedures during recent years have resulted in the medical certification of pilots, who in earlier times, would have been denied. Persons diagnosed as having alcoholism, coronary heart disease, and various other diseases are, in many instances, now certified as a special issuance. For example, pilots with hypertension maintain their certificates while taking medication to control their blood pressure, and the time lapse has been reduced between myocardial infarction, bypass surgery, etc., and re-application for certification. This study presents comprehensive data that reflects pertinent denial rates regarding the medical and general attributes of those airline pilots denied medical certification in calendar years 1987 and 1988.

### METHODS

The Aeromedical Certification Division (AMCD) of the Civil Aeromedical Institute (CAMI) is the central screening facility and repository within the FAA for the collection, processing, adjudication, investigation, and analysis of medical data generated by the aeromedical certification and related programs.

The airline pilot denial data were obtained from the computer file as of July 1, 1989 for calendar years 1987 and 1988 applicants. The six-month time lapse was allowed to ensure

final certification action in the majority of cases. The active airline pilot population as of December 31, 1987 (the mid-period date), was used for rate computation and comparison.

Five-year age groupings, beginning with age 25 and ending with age 59, were utilized since they are closest to the age limits set by FARs 61.151 and 121.383(c) for holding an air transport pilot rating and engaging in air carrier operations.

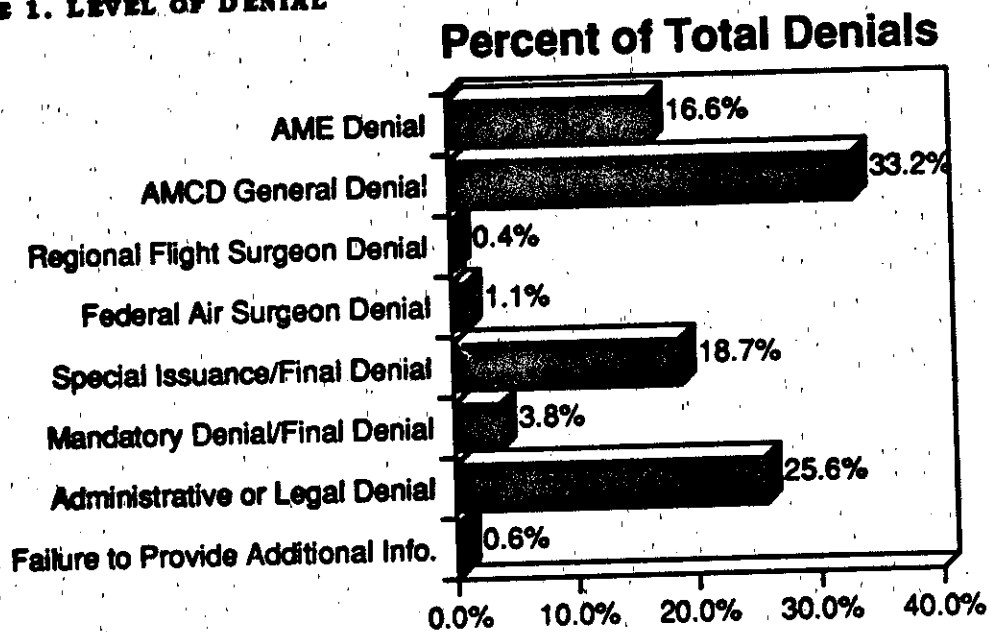
Prevalence data regarding pathology represent conditions cited as cause for denial -- not number of airline pilots. Annual rates were computed to provide data more useful for answering the many questions received concerning airmen denied medical certification.

## RESULTS AND DISCUSSION

Observations of the airline pilot group probably come closest to a true reflection of prevalence of disqualifying disease as is possible to observe. Prescreening by airline companies before employment and FAA requirements for issuance of a first-class medical certificate result in this group being essentially purged of disease prevalence that contributes to higher rates for other non-pilot groups.

Denials may occur at several different levels within the FAA and/or by the AME (see Figure 1). If an applicant was denied by the AME and did not request further reconsideration from the FAA, the AME denial was considered final. The final level of denial is, however, the one recorded on a pilot's medical record.

FIGURE 1. LEVEL OF DENIAL



As of December 31, 1987, there were 55,680 airmen between the ages of 25 to 59 who listed their occupation as airline pilot. Of this group, 537 were issued a denial during calendar years 1987 and 1988. Of those denied, 57 (10.6% of total denials) were subsequently issued a medical certificate and were excluded from this study. Of the remaining 480 denials, 4 were outside the 25 to 59 age range, and they were also excluded.

All further references in this study are based on 476 total denials, with a total of 726 disqualifying conditions. Therefore, the annual denial rate for airline pilots is 4.3 per 1,000 active airline pilots, increasing from a rate of 1.0 per 1,000 in the 25-29 age interval to 16.2

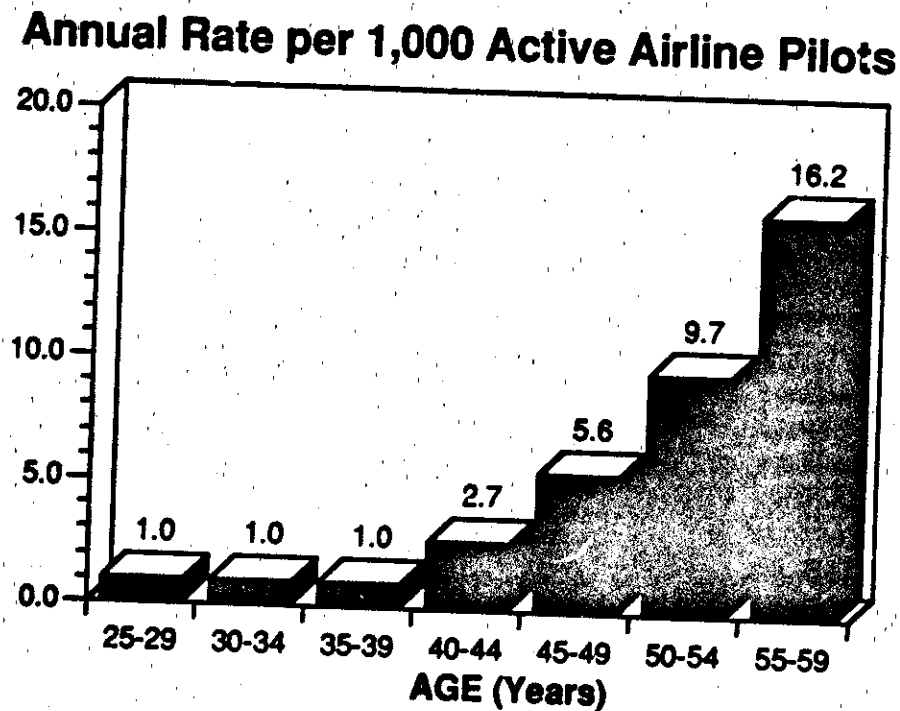
per 1,000 in the 55-59 age interval (see Table I and Figures 2 and 3). Of the 476 airline pilot denials, almost half were either general denials issued by the AMCD or AME denials. In a previous study (1) concerning calendar years 1983 and 1984, the annual denial rate was 4.7 per 1,000 active airline pilots; thus, the rate has decreased slightly since then.

**TABLE I. AGE DISTRIBUTION OF AIRLINE PILOTS**

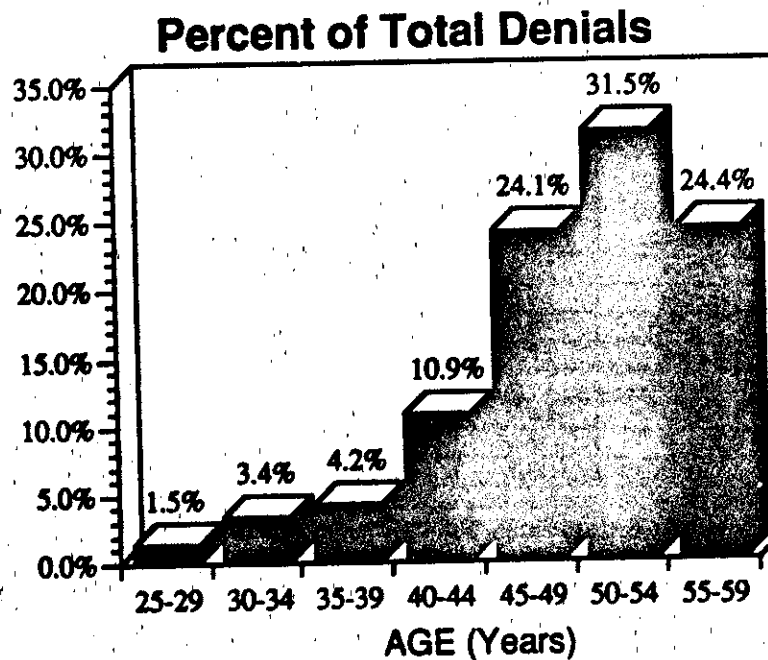
Age Groups	Active Airline Pilots	Percent of Active Airline Pilots	Denied Airline Pilots	Percent of Total Denials	Annual Age-Specific Denial Rate*
25-29	5,698	10.2	7	1.5	1.0
30-34	8,809	15.8	16	3.4	1.0
35-39	10,005	18.0	20	4.2	1.0
40-44	9,544	17.2	52	10.9	2.7
45-49	10,288	18.5	115	24.1	5.6
50-54	7,760	13.9	150	31.5	9.7
55-59	3,576	6.4	116	24.4	16.2
<b>TOTAL</b>	<b>55,680</b>	<b>100.0</b>	<b>476</b>	<b>100.0</b>	<b>4.3</b>

\*Annual rates per 1,000 active airline pilots.

**FIGURE 2. AGE-SPECIFIC DENIAL RATE**

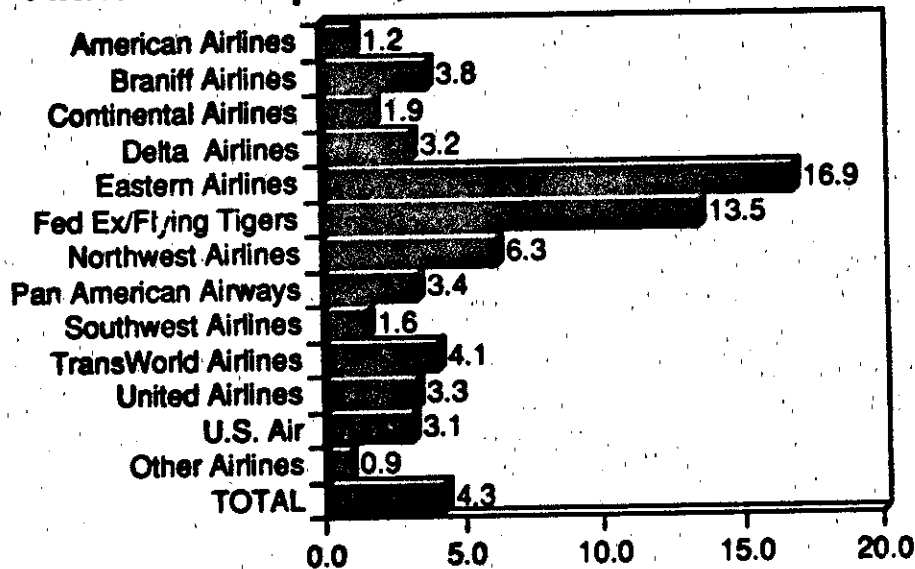


**FIGURE 3. AIRLINE PILOT DENIALS BY AGE**



**FIGURE 4. DENIALS BY EMPLOYER**

**Annual Rate per 1,000 Active Airline Pilots**



Data on denials by airline employers provide some interesting insight, even though fraught with limitations that make comparison difficult, i.e., small numbers substantially affect comparison (see Figure 4). Of the 476 denials included in this study, 141 were airline pilots employed by Eastern Airlines. It is possible that some of these denials were associated with financial and management/union difficulties being experienced by Eastern Airlines during the study period. The majority of these denials were for 1) use of disqualifying

medications (about 65% of the disqualifying medications are directly related to cardiovascular diseases); 2) spinal cord disease (ruptured disc, spinal fusion, etc.); 3) other ear pathology (vertigo, labyrinthitis, inner ear pathology); 4) hypertension with medication; and 5) psychoneurotic disorders (anxiety, depression, obsessive compulsive behavior, phobias, etc.). Of the 141 denied Eastern Airlines pilots, 18 (12.8%) were less than age 45; 37 (26.2%) were in the 45-49 age range; 47 (33.3%) were in the 50-54 age range; and 39 (27.7%) were in the 55-59 age range. Flying Tiger Lines, purchased by Federal Express near the end of the study period, was attributed with 20 denials. The majority of denials were in the neuropsychiatric and cardiovascular pathology categories and within the age range of 40-54. It is also possible that some of these denials were associated with financial difficulties before the merger with Federal Express.

Annual age-cause-specific denial rates increase to the highest rate at age interval 55-59 (16.2 per 1,000 active airline pilots) (see Table I). The rate of medical disqualification is minimal before the age of 45 years but increases rapidly thereafter (see Table I). The mean age of active (issued) airline pilots is 41.0, compared to a mean age of 49.4 for denied airline pilots. In the previous study, the mean age of active (issued) airline pilots was 41.8, compared to a mean age of 48.6 for denied airline pilots (1). Therefore, it is observed that the mean age of active airline pilots is decreasing, while the mean age of denied airline pilots is increasing.

Observed in the age-cause-specific annual denial rates is an increase of cardiovascular denials after age 50. Neuropsychiatric disease is the major cause for denial in the 30-34, 35-39, 40-44, and 45-49 age intervals. Cardiovascular disease is the most prevalent cause for denial in the 50-54 and 55-59 age intervals. Denial rates begin to increase rapidly in the 45-49 age interval with neuropsychiatric disease highest, followed closely by cardiovascular disease, with the miscellaneous pathology category third (see Table II).

**TABLE II. DENIAL RATES OF AIRLINE PILOTS BY CAUSE/MAJOR BODY SYSTEM AND AGE\***

Cause for Denial (Pathology)	Age (Years)							Total Annual Rate**
	25-29 Rate**	30-34 Rate**	35-39 Rate**	40-44 Rate**	45-49 Rate**	50-54 Rate**	55-59 Rate**	
Eye	-	-	-	0.1	0.3	0.9	0.8	0.3
Ear, Nose, Throat	-	-	0.1	0.3	0.5	1.2	1.3	0.4
Respiratory	-	-	-	0.1	0.2	0.2	1.1	0.2
Cardiovascular	0.1	0.1	0.1	0.9	2.7	5.2	11.9	2.2
Abdominal (mostly GI, GU)	0.1	-	-	0.1	0.2	0.6	1.1	0.2
Neuropsychiatric	0.5	0.7	0.7	1.4	2.9	3.5	4.6	1.8
Bones & Joints	-	-	0.0	0.3	0.8	0.8	1.0	0.3
Muscles	-	-	-	0.0+	0.0+	0.2	-	0.0+
Miscellaneous	0.2	0.4	0.6	0.8	1.5	1.6	3.8	1.1
<b>TOTAL</b>	<b>0.9</b>	<b>1.2</b>	<b>1.5</b>	<b>4.0</b>	<b>8.9</b>	<b>14.2</b>	<b>25.6</b>	<b>6.5</b>

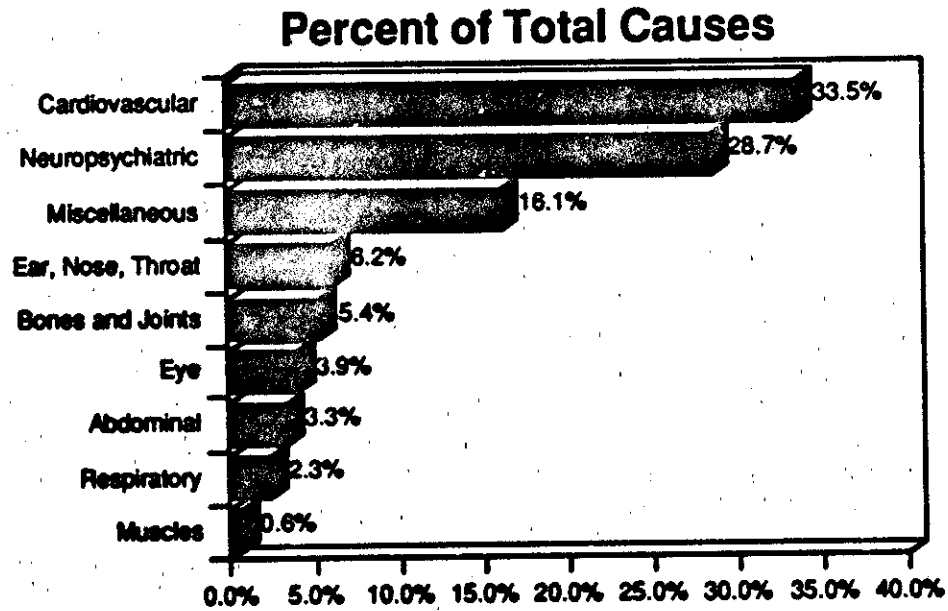
\*Refers to distinct pathological conditions cited as cause/causes for denial. These figures do not represent applicants. Two hundred and eighty-seven applicants were denied for a single cause; 139 for 2 causes; 39 for 3 causes; 9 for 4 causes; 1 for 5 causes; and 1 for 6 causes.

\*\*Annual rates per 1,000 active airline pilots.

The overall highest causes for denial by pathology series are: 1) cardiovascular; 2) neuropsychiatric diseases (convulsive reactions, disturbance of consciousness, neuroses, alcoholism, etc.); and 3) the miscellaneous pathology category (endocrinopathies, general systemic conditions, use of disqualifying medications, and denials for failure to provide additional medical information), with annual rates per 1,000 active airline pilots of 2.2, 2.0, and 1.9 respectively (see Figure 5). These causes are unchanged from the previous study (1).

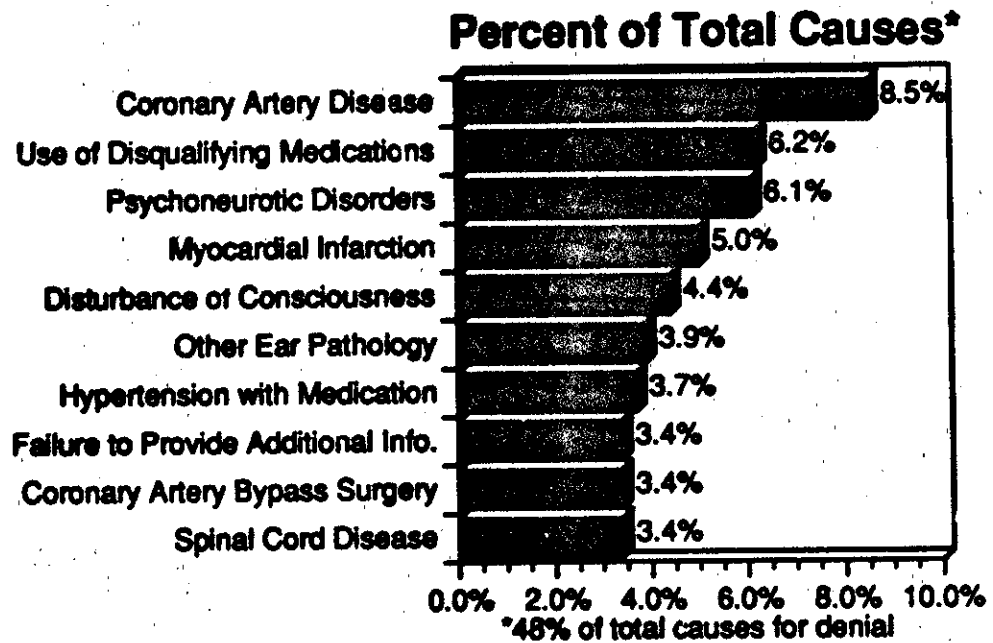


**FIGURE 5. CAUSE FOR DENIAL/BODY SYSTEM**



The highest causes for denial by specific pathology are: 1) coronary artery disease; 2) use of disqualifying medications; 3) psychoneurotic disorders; 4) myocardial infarction; and 5) disturbance of consciousness. These five specific causes account for 30% of all causes for denial (see Figure 6).

**FIGURE 6. MOST FREQUENT CAUSES OF DENIAL**



These causes are somewhat different from those in the previous study. At that time, the highest causes for denial by specific pathology were: 1) and 2) were equal; failure to provide additional information and use of disqualifying medications; 3) coronary artery disease; 4) hypertension with medication; and 5) psychoneurotic disorders (1).

Sixty-two airline pilots were denied for coronary artery disease; 19 had also suffered a prior myocardial infarction, 13 had also undergone coronary artery bypass surgery, and an additional 3 had suffered a prior myocardial infarction and undergone coronary artery bypass surgery.

Two hundred and eighty-seven airline pilots were denied for a single cause, 139 pilots for 2 causes, 39 pilots for 3 causes, 9 pilots for 4 causes, 1 pilot for 5 causes, and 1 pilot for 6 causes.

## **SUMMARY**

The annual denial rate for airline pilots is 4.3 per 1,000 active airline pilots, increasing from a rate of 1.0 per 1,000 in the 25-29 age interval to 16.2 per 1,000 in the 55-59 age interval.

Cardiovascular, neuropsychiatric, and the miscellaneous pathology category comprise 78% of the causes for medical disqualification. These problems rarely result in disqualification before the age of 45 years, while above this age, the rate increases rapidly, primarily because of cardiovascular disease. The mean age of active airline pilots is decreasing, while the mean age of denied airline pilots is increasing.

The overall highest causes for denial by pathology series are: 1) cardiovascular; 2) neuropsychiatric; and 3) the miscellaneous pathology category, with annual denial rates per 1,000 active airline pilots of 2.2, 1.8, and 1.1 respectively. The highest causes for denial by specific pathology are: 1) coronary artery disease; 2) use of disqualifying medications; 3) psychoneurotic disorders; 4) myocardial infarction; and 5) disturbance of consciousness.

Neuropsychiatric disease is the major cause for denial in the 30-34, 35-39, 40-44, and 45-49 age intervals. Cardiovascular disease is the most prevalent cause for denial in the 50-54 and 55-59 age intervals.

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1. Dark S. *Medically Disqualified Airline Pilots*. Washington, DC: Federal Aviation Administration, Office of Aviation Medicine, No. FAA-AM-86-7, 1986.

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