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# **AMSARA**

**Accession Medical Standards  
Analysis and Research Activity**

## **2005 Annual Report**

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## Executive Summary

The Accession Medical Standards and Research Activity (AMSARA) has completed its ninth year of providing the DoD with evidence-based evaluations of accession standards. Preliminary findings of the ongoing prospective multisite field study, the Assessment of Recruit Motivation and Strength (ARMS), are presented along with descriptive statistics that AMSARA compiles annually and publishes for historical and reference value. The descriptive statistics are for applicants who enlisted in 2004. Data are collected while the recruits remain on active duty for their first year (during 2005 for this report). The data are then collated, cleaned, and analyzed during the first half of the subsequent year (2006 for this report). By convention, the annual report is dated for the last year of data on which the analyses were performed.

Approximately 257,000 active, reserve, and guard enlisted applicants were examined for medical fitness at Military Entrance Processing Stations (MEPS) in 2004, and ~20% of applicants were initially disqualified for service because of temporary or permanently disqualifying conditions. More than 7,000 enlisted applicants entered active duty in 2004 with waivers for permanently disqualifying conditions. More than 5,900 recruits received discharges for conditions existing prior to service (EPTS) in 2004. Previous studies have shown that an EPTS discharge rarely occurs among those who have been granted waivers for the same condition. AMSARA evaluates accession standards and retention programs to improve military readiness by maximizing both the accession and retention of motivated and highly capable recruits.

For most of 2005, AMSARA concentrated on ARMS. This study pilots the use of physical performance screening of Army applicants at six MEPS locations (Atlanta, Buffalo, Chicago, Sacramento, San Antonio, and San Diego). The performance test originally consisted of three components: a 5-minute step test, pushups, and the incremental dynamic lift. The lift was dropped in January 2006 because it did little to separate subjects (pass rate was >90%) and to streamline the process at the MEPS sites. Phase I of ARMS consisted of training staff and establishing testing sites. Phase II began in May 2004 with all Army applicants at the six sites undergoing ARMS testing without any impact on application status. Active enrollment of Phase II and Phase III remained ongoing for 2005. In Phase III, which was added in February 2005, overweight Army applicants who failed to meet body fat standards were eligible for an automatic waiver onto active duty if they successfully completed ARMS testing (maximum body fat eligibility of 35% for females and 30% for males). Beginning in January 2006, Phase III was modified to increase the female body fat ceiling to 36%, in addition to eliminating the dynamic lift. From February 2005 through December 2005, 14,951 ARMS tests were performed on 13,611 individuals. Of ~6,100 who shipped to initial entry training, more than 1,100 were over body fat and could ship under an automatic ARMS waiver per Phase III.

Preliminary attrition among the ARMS fully qualified and over body fat cohorts, demographics of the ARMS cohort, and results of the ARMS test components by gender and MEPS sites are reported. Analyses of subjects enrolled during Phase II (recruits who are fully qualified) indicated that those who could pass all components of the ARMS test and joined the Army had significantly lower attrition than those who failed ARMS and enlisted. This

finding, which was consistent across subject groups (gender, test sites, etc.) and various lengths of follow-up, supports the concept of using the ARMS test as a means to detect fitness and motivation among individuals exceeding the traditional body weight/fat standards.

Some questions from the field that were addressed concern the variable pass rate among the MEPS sites and the need for step height to be adjusted by gender, in particular whether these factors relate to the likelihood of subsequent attrition. Preliminary analysis reveals no significant difference in attrition between subjects getting an ARMS waiver from the MEPS sites with high pass rates and those from sites with lower pass rates. Also based on preliminary results, step height does not appear to affect step test pass rate by gender.

Preliminary analysis indicates that attrition among females who exceeded the allowable percent body fat and passed ARMS was not statistically different from that among fully qualified females. Attrition among males who exceeded the body fat standards and passed the ARMS test was slightly increased relative to fully qualified males. Morbidity (specifically injury) is not reported, but other preliminary analyses reveal that males who exceed the body fat standards and receive a waiver onto active duty based on ARMS performance are more likely to be injured than their within body fat standard counterparts. No increased risk of injury was noted among females, although the power to detect a difference at this time is limited by small sample size.

ARMS investigators highlight the preliminary nature of the results in terms of sample size and length of follow-up for both attrition and injury. Before definitive recommendations can be made to add ARMS to the MEPS qualifying process, further data collection and analyses must be completed over the next 2–3 years.

AMSARA is committed to further development of evidence-based medical accession standards to enable the DoD to enlist the highest quality applicants in a cost-effective manner, thereby ensuring a healthy, fit, and effective force. The following recommendations are based on 10 years of research.

1. Various databases must be improved. For example, waiver data do not provide sufficient clinical detail to allow analyses of waiver decision criteria.
2. EPTS reporting from the initial entry training sites to MEPCOM, which is still passive, should be mandated by DoD regulation and be converted from paper to digital.
3. AMSARA should develop expertise in cost-benefit analyses so that the full staff and fiscal implications of an accession policy change can be considered by policymakers. AMSARA is limited by lack of staffing to expand analysis to include the reserve component and officer accession and attrition. AMSARA should be fully resourced to meet its total force mission.
4. AMSARA must continue prospective studies similar to the ARMS that challenge current accession standards. MEPS-based studies that are outcome oriented (to include morbidity, job performance, deployability, and attrition) in the area of physical and mental fitness including motivation to serve should be prioritized and funded.

# Introduction

The Medical-Personnel Executive Steering Committee (formerly the Accession Medical Standards Steering Committee) was established by the Undersecretary of Defense (Personnel and Readiness) to integrate the medical and personnel communities so they could provide policy guidance and establish standards for accession requirements. These standards would stem from evidence-based information provided by analysis and research. The committee is co-chaired by the Deputy Assistant Secretary of Defense (Military Personnel Policy) and the Deputy Assistant Secretary of Defense (Clinical and Program Review) and comprises representatives from the Office of the Assistant Secretary of Defense (Force Management Policy), Office of the Assistant Secretary of Defense (Health Affairs), Office of the Assistant Secretary of Defense (Reserve Affairs), Offices of the Service Surgeons General, Offices of the Service Deputy Chiefs of Staff for Personnel, and Office of Personnel and Training (Headquarters, U.S. Coast Guard).

The Accession Medical Standards Working Group is a subordinate working group that reviews accession medical policy issues contained in DoD Instruction 6130.4, entitled “Medical Standards for Appointment, Enlistment, or Induction in the Armed Forces.” This group is composed of representatives from each of the offices listed above.

AMSARA was established in 1996 within the Division of Preventive Medicine at Walter Reed Army Institute of Research to support the efforts of the Accession Medical Standards Working Group. The mission of AMSARA is to support the development of evidence-based accession standards by guiding the improvement of medical and administrative databases, conducting epidemiologic analyses, and integrating relevant operational, clinical, and economic considerations into policy recommendations. AMSARA has the following seven key objectives:

1. Validate current and proposed standards utilizing existing databases (e.g., should asthma as a child be disqualifying?);
2. Incorporate prospective research studies to challenge selected standards (e.g., are body weight standards adequate measures of fitness?);
3. Validate assessment techniques (e.g., improve current screening tools);
4. Perform quality assurance (e.g., monitor geographic variation);
5. Optimize assessment techniques (e.g., develop attrition and morbidity prediction models);
6. Track impact of policies, procedures, and waivers;
7. Recommend changes to enhance readiness, protect health, and save money.

Military staffing to support this effort includes the Deputy Director, Division of Preventive Medicine, LTC David W. Niebuhr, and the Chief, AMSARA, COL Christine T. Scott, and CPT Amy Millikan.

AMSARA is augmented with contract support through Allied Technology Group. Current staff includes Project Manager, Timothy Powers; Senior Biostatistician, Dr. Yuanzhang Li; Senior Analyst, Timothy Powers and Hailiang Wang; Statistician, Weiwei Han; Analysts, Natalya Weber; Data Manager, Janice Gary; Program Data Assistant, Vielka Rivera; Editor, Therese Grundl.

# 1. ASSESSMENT OF RECRUIT MOTIVATION AND STRENGTH (ARMS)

## Introduction

The global war on terrorism dictates a sustained need for personnel to serve in the military. One important and sensible strategy is to remove unnecessary barriers for those who wish to join. Each year, the Army medically delays or disqualifies over 20% of its applicants, resulting in eventual loss of thousands of individuals who wish to serve. Although some of these actions are best for the individual's health and safety and for the military, a sizeable number might be unnecessary.

The military's accession medical standards have historically been a means to screen out applicants who might not be able to meet the physical demands of military service. Some of these standards, such as that for body weight and composition, are used as surrogate measures of the individual's physical fitness. However, it is unclear whether these surrogate measures accurately indicate an individual's fitness for service is unclear.

The purpose of the Assessment of Recruit Motivation and Strength (ARMS) study is to determine whether a simple, direct assessment of an individual's physical fitness and motivation could be used to identify viable applicants who would otherwise be delayed or denied entry under the current standards. This change from a screening out mentality to a screening in approach could add hundreds, if not thousands, of qualified new enlistees each year, which in turn can help reduce recruitment costs.

### ***Three Component Test***

The ARMS is a battery of straightforward tests intended to identify qualified recruits, encourage physical training before shipping, and potentially indicate recruit motivation.

*Step Test.* The step test used in ARMS is a modification of the Harvard step test, which was developed in 1943.<sup>1</sup> Dynamic physical fitness is scored based on the length of time that an individual endures the test to a maximum of 5 minutes and on the individual's recovery heart rate. Widely evaluated in the literature, the Harvard step test is generally considered an accurate indicator of overall physical fitness that provides a low risk, noninvasive, and relatively quick determination of dynamic physical fitness and potentially screens for poorly motivated individuals.

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<sup>1</sup> Brouha L, Graybiel A, Heath CW. The step test: a simple method of measuring physical fitness for hard muscular work in adult man. *Rev Can Biol* 1943;2:88-92.



To perform the step test, the recruit steps up to and down from a platform at a constant pace of 120 steps per minute for 5 minutes or until fatigued to the extent that the recruit must stop. Females step up to a 12-inch platform, and males step up to a 16-inch platform. Passing criteria for the step test were set at completing the full 5 minutes at the set pace.

*Pushups.* Upper body muscular endurance was tested by requiring recruits to complete as many Army-type pushups as possible in 60 seconds. Females and males were required to complete at least 4 and 15 pushups, respectively, to pass.

*Incremental Dynamic Lift.* Upper body muscular strength was assessed through the incremental dynamic lift. The incremental dynamic lift weight carriage has variable weights, and the selected weight must be raised to a height of 5 feet. The incremental dynamic lift is used by the Air Force for specific occupations, so the equipment is present in all Military Entrance Processing Station (MEPS) sites. The incremental dynamic lift was discontinued from the ARMS assessment in January 2006 to streamline ARMS testing, and some analyses presented include only the step test and the pushups.

### ***Three Phase Study***

The ARMS study was approved by the WRAIR Internal Review Board in February 2004. Phase I involved pilot testing and implementation of tests and study procedures at the MEPS. The data collected in this phase were not used for analysis.

Phase II (fully qualified subjects) included implementation at all six study sites: Atlanta, Buffalo, Chicago, Sacramento, San Antonio, and San Diego. The ARMS test was administered to active duty Army applicants, but their performance did not affect whether they could enlist. These applicants were then followed through initial entry training (IET), and their ARMS performance was evaluated as a predictor of risk of attrition.

Phase III over body fat (OBF) subjects provided automatic waivers to those active duty Army applicants who were disqualified for having body fat over the limit but who could meet the ARMS passing criteria. The guard and reserve applicants were later added to Phase III.

The study sample consisted of all Army recruits who passed through any of six selected MEPS during 1 May 2004–31 December 2005 and met weight/body fat standards. Inclusion in the study was irrespective of gender or race for all active duty, guard, and reserve recruits. In addition, only those applicants who were age 18 years or older were included. Applicants had a choice to opt out of testing if they felt incapable of performing the tests. The Physical Activity Readiness Questionnaire was used to check the capability and readiness of applicants to take the test. Applicants were also given an option to consent to use their medical information for follow-up and outcome analysis.

### ***Preliminary Attrition Findings***

Analyses of subjects enrolled during Phase II indicated that those who could pass all components of the ARMS test and joined the Army had significantly lower attrition than those who failed ARMS and enlisted. Although limited subject numbers and follow-up time prevented adjustment for potential confounding factors, the results held as follow-up time

was extended and applicant numbers increased. The attrition difference between pass and fail groups was more pronounced among male subjects.

The finding of lower attrition among fully qualified subjects who passed ARMS suggested that the test provides a good indication of applicant fitness and motivation. Phase III was therefore implemented to determine whether similar success in terms of lower attrition could be achieved by individuals exceeding the traditional body weight and body fat standards.

Preliminary analysis indicates that attrition among OBF females who passed ARMS was not statistically different from that among fully qualified females. Attrition among males who exceed the body fat standards but pass the ARMS test was slightly increased relative to fully qualified males. Further analyses will include larger numbers of subjects and longer follow-up time, and thus the ability to account for potential confounding factors will improve.

Comparison of injuries among OBF subjects versus the fully qualified counterparts indicated a slightly increased risk among OBF males for injuries of any type. An increase in risk for heat injury, in particular, was noted, although the number of these was small in all groups. Examinations of particular issues in the ARMS study follow.

## Demographic Characteristics

Most subjects in two study populations of fully qualified (85%) and OBF (74%) applicants were males. The proportion of females in the OBF group (26%) was higher compared with the proportion of fully qualified females (15%), as shown in Tables 1.1 and 1.2.

A higher percentage of females was in the age 17–20 category in OBF (67% vs. 59%) and somewhat in fully qualified (60% vs. 57%) populations. For the age 21–25 group, the proportion of males exceeded the proportion of females among both OBF and fully qualified subjects (31% vs. 26%). There were slightly smaller percentages of females and males older than 30 years in the OBF compared with the fully qualified population.

The difference in the age distribution between females and males in both the fully qualified (chi-square;  $p < 0.02$ ) and OBF (chi-square;  $p < 0.01$ ) populations was significant. The actual differences were not so pronounced, however, and could be an artifact of the age groupings used.

Race distributions for females and males were comparable between OBF and fully qualified groups of subjects, except for a smaller proportion of black males in the OBF (7%) compared with fully qualified category (15%) with a correspondingly higher proportion of individuals with race unidentified (17% vs. 10%, respectively). For both populations, the proportion of white males exceeded the proportion of white females. In contrast, black males were outnumbered by black females in the OBF category, whereas black males outnumbered black females in the fully qualified category by a ratio of more than 3:1.

**TABLE 1.1. DEMOGRAPHIC CHARACTERISTICS OF FULLY QUALIFIED SUBJECTS**

Characteristic	Females		Males		
	<i>n</i>	%	<i>n</i>	%	
<b>Age</b>	17–20	768	60.4	3,946	56.5
	21–25	330	26.0	2,166	31.0
	26–30	101	7.9	564	8.1
	>30	69	5.4	297	4.3
	Missing	3	0.2	10	0.1
<b>Race</b>	White	744	58.5	5,002	71.6
	Black	328	25.8	1,024	14.7
	Other	45	3.5	243	3.5
	Missing	154	12.1	714	10.2
<b>Ethnicity</b>	Hispanic	321	25.3	1,440	20.6
	Non-Hispanic	349	27.5	1,960	28.1
	Decline to respond	594	46.7	3,534	50.6
	Missing	7	0.6	49	0.7
<b>Tobacco use</b>	Yes	237	18.6	1,784	25.5
	No	974	76.6	4,799	68.7
	Missing	60	4.7	400	5.7
	Total	1,271	15.4	6,983	84.6

**TABLE 1.2. DEMOGRAPHIC CHARACTERISTICS OF OBF SUBJECTS**

Characteristic	Females		Males		
	<i>n</i>	%	<i>n</i>	%	
<b>Age</b>	17–20 yr	391	67.4	969	59.0
	21–25 yr	149	25.7	515	31.4
	26–30 yr	30	5.2	128	7.8
	>30 yr	8	1.4	28	1.7
	Missing	2	0.3	2	0.1
<b>Race</b>	White	350	60.3	1,192	72.6
	Black	137	23.6	110	6.7
	Other	19	3.3	55	3.3
	Missing	74	12.8	285	17.4
<b>Ethnicity</b>	Hispanic	116	20.0	359	21.9
	Non-Hispanic	184	31.7	482	29.4
	Decline to respond	278	47.9	797	48.5
	Missing	2	0.3	4	0.2
<b>Tobacco</b>	Yes	94	16.2	357	21.7
	No	468	80.7	1,237	75.3
	Missing	18	3.1	48	2.9
	Total	580	26.1	1,642	73.9

As high as 50% of fully qualified and OBF males and female subjects declined to respond when asked about their ethnicity. Among those who responded, non-Hispanic individuals were almost 1.5 times more prevalent than Hispanic subjects except for more similar proportions for Hispanic and non-Hispanic in the group of fully qualified females.

Males reported tobacco use more often compared with females for both fully qualified (RR = 1.4) and OBF (RR = 1.3) populations. Among fully qualified subjects almost every fifth female and every fourth male admitted tobacco use. Among OBF subjects, the proportion of tobacco use was slightly lower than that among fully qualified subjects for both genders; 16% of females and 22% of males reported use of tobacco products, which included cigarettes, cigars, and smokeless tobacco.

### **Height and Weight**

In Table 1.3, it is seen that the height distribution for females in the OBF group is virtually the same as that for females in the fully qualified group, but the median weight for the former is 30 pounds greater than for the latter group. No difference was found in the height distribution between fully qualified and OBF males, but males in the OBF group were about 60 pounds heavier compared with their fully qualified counterparts.

**TABLE 1.3. HEIGHT AND WEIGHT OF FULLY QUALIFIED AND OBF SUBJECTS**

	Mean $\pm$ SD	Minimum	25%	Median	75%	Maximum
<i>FEMALES</i>						
<b>Height, inches</b>						
Fully qualified	64.0 $\pm$ 2.6	58.0	62.3	64.0	65.5	75.8
OBF	64.0 $\pm$ 2.4	58.5	62.3	63.8	65.8	70.8
<b>Weight, pounds</b>						
Fully qualified	132 $\pm$ 20	91	118	130	144	251
OBF	161 $\pm$ 19	106	148	160	174	226
<i>MALES</i>						
<b>Height, inches</b>						
Fully qualified	69.2 $\pm$ 2.8	58.5	67.3	69.0	71.0	80.0
OBF	69.7 $\pm$ 2.7	60.5	68.0	69.5	71.5	79.5
<b>Weight, pounds</b>						
Fully qualified	167 $\pm$ 29	92	145	163	185	281
OBF	225 $\pm$ 26	126	208	225	241	300

### **Body Mass Index**

Table 1.4 shows the body mass index (BMI) distribution among fully qualified subjects according to the BMI categories designated by the National Institutes of Health, and Table 1.5 presents analogous results for OBF subjects. BMI is calculated by the following formula: weight (kg) / [height (m)]<sup>2</sup>. Across all six MEPS study sites, 0.8% of females and 8.7% of males were fully qualified yet obese by BMI, presumably because they met the Army body fat limit.

**TABLE 1.4. BODY MASS INDEX BY GENDER AMONG FULLY QUALIFIED FEMALES AND MALES**

BMI*	Females		Males	
	N	%	n	%
<b>Atlanta</b>				
Underweight	29	10.4	62	4.2
Normal	192	68.8	838	57.1
Overweight	52	18.6	456	31.1
Obese	6	2.2	112	7.6
Total	279	100.0	1,468	100.0
<b>Buffalo</b>				
Underweight	8	6.3	26	3.9
Normal	100	79.4	382	57.0
Overweight	18	14.3	213	31.8
Obese	0	0.0	49	7.3
Total	126	100.0	670	100.0
<b>Chicago</b>				
Underweight	20	6.8	63	2.9
Normal	225	76.0	1,224	57.2
Overweight	49	16.6	659	30.8
Obese	2	0.7	193	9.0
Total	296	100.0	2,139	100.0
<b>Sacramento</b>				
Underweight	1	2.1	9	2.5
Normal	36	75.0	215	59.6
Overweight	9	18.8	117	32.4
Obese	2	4.2	20	5.5
Total	48	100.0	361	100.0
<b>San Antonio</b>				
Underweight	24	4.7	79	3.5
Normal	406	79.8	1,177	51.9
Overweight	79	15.5	784	34.6
Obese	0	0.0	228	10.1
Total	509	100.0	2,268	100.0
<b>San Diego</b>				
Underweight	0	0.0	1	4.2
Normal	4	66.7	11	45.8
Overweight	2	33.3	10	41.7
Obese	0	0.0	2	8.3
Total	6	100.0	24	100.0
<b>All MEPS</b>				
Underweight	82	6.5	240	3.5
Normal	963	76.2	3,847	55.5
Overweight	209	16.5	2,239	32.3
Obese	10	0.8	604	8.7
Total**	1,264	100.0	6,930	100.0

A BMI of >25 defines overweight, whereas a BMI of >30 defines obesity.

\*\* Total counts are less than in Table 1.1 due to missing height, weight or MEPS information.

**TABLE 1.5. BODY MASS INDEX BY GENDER AMONG OBF FEMALES AND MALES**

BMI*	Females		Males	
	<i>n</i>	%	<i>n</i>	%
<b>Atlanta</b>				
Underweight	0	0.0	1	0.5
Normal	3	3.1	0	0.0
Overweight	88	90.7	32	15.4
Obese	6	6.2	175	84.1
Total	97	100.0	208	100.0
<b>Buffalo</b>				
Underweight	0	0.0	0	0.0
Normal	3	4.3	0	0.0
Overweight	60	87.0	42	21.6
Obese	6	8.7	152	78.4
Total	69	100.0	194	100.0
<b>Chicago</b>				
Underweight	3	1.5	2	0.4
Normal	21	10.3	3	0.5
Overweight	152	74.5	71	12.5
Obese	28	13.7	494	86.7
Total	204	100.0	570	100.0
<b>Sacramento</b>				
Underweight	0	0.0	0	0.0
Normal	12	14.3	2	0.8
Overweight	54	64.3	45	17.2
Obese	18	21.4	214	82.0
Total	84	100.0	261	100.0
<b>San Antonio</b>				
Underweight	0	0.0	1	0.4
Normal	11	12.6	2	0.9
Overweight	65	74.7	43	19.3
Obese	11	12.6	177	79.4
Total	87	100.0	223	100.0
<b>San Diego</b>				
Underweight	0	0.0	0	0.0
Normal	0	0.0	3	1.6
Overweight	26	66.7	25	13.7
Obese	13	33.3	155	84.7
Total	39	100.0	183	100.0
<b>All MEPS</b>				
Underweight	3	0.5	4	0.2
Normal	50	8.6	10	0.6
Overweight	445	76.7	258	15.7
Obese	82	14.1	1,367	83.4
Total**	580	100.0	1,639	100.0

A BMI of >25 defines overweight, whereas a BMI of >30 defines obesity.

\*\* Total counts are less than in Table 1.1 due to missing height, weight or MEPS information.

Among the fully qualified subjects, females tend to have lower BMI values. Over 80% of females across the MEPS sites are within the normal range of BMI established by the National Institutes of Health ( $\leq 4.9$ ), whereas <60% of males are within this range.

Among OBF subjects, over 80% of the males across all MEPS sites have BMI values in the obese range, whereas only 14% of females are obese according to the NIH definition. This suggests that qualifying levels for a normal BMI might be different for females. Even though males had higher levels of BMI compared with females, the data should be interpreted cautiously because the same BMI can indicate different levels of excessive weight for females versus males.

### **Body Fat Percentage**

Table 1.6 shows body fat percentages as defined by Army Regulation 600-9 among OBF subjects. Analogous results are not shown for the fully qualified subjects because body fat measurements are only taken for applicants who fail to meet weight-for-height targets. Among OBF subjects across all MEPS, it can be seen that females tend to have lower body fat percentages. This is counter to the general understanding that females tend to have higher levels of body fat. The finding of higher body fat among OBF male subjects suggests that the Army weight-for-height standards and body fat standards are relatively more stringent for females. Body fat distributions by MEPS are also shown, although small numbers across the six MEPS and six body fat categories make comparisons difficult.

**TABLE 1.6. BODY FAT DISTRIBUTIONS BY GENDER**

Females			Males		
Body fat %*	<i>n</i>	%	Body fat %†	<i>n</i>	%
<b>Atlanta</b>					
Below 32	23	24	Below 26	40	19
32–33	25	26	26–27	44	21
33–34	15	15	27–28	38	18
34–35	25	26	28–29	42	20
35–36	5	5	29–30	22	10
Above 36	3	3	Above 30	12	6
Missing	1	1	Missing	12	6
Total	97	100	Total	210	100
<b>Buffalo</b>					
Below 32	14	20	Below 26	30	15
32–33	13	19	26–27	29	15
33–34	22	32	27–28	39	20
34–35	11	16	28–29	43	22
35–36	2	3	29–30	31	16
Above 36	5	7	Above 30	18	9
Missing	2	3	Missing	4	2
Total	69	100	Total	194	100
<b>Chicago</b>					
Below 32	48	24	Below 26	87	15
32–33	44	22	26–27	76	13
33–34	32	16	27–28	131	23
34–35	45	22	28–29	119	21
35–36	17	8	29–30	130	23
Above 36	15	7	Above 30	24	4
Missing	3	1	Missing	3	1
Total	204	100	Total	570	100

*Continued on next page*

TABLE 1.6 (CONTINUED)

Females			Males		
Body fat %*	n	%	Body fat %*	n	%
<b>Sacramento</b>					
Below 32	32	38	Below 26	52	20
32–33	22	26	26–27	52	20
33–34	14	17	27–28	45	17
34–35	10	12	28–29	46	18
35–36	2	2	29–30	48	18
Above 36	2	2	Above 30	17	7
Missing	2	2	Missing	1	0
Total	84	100	Total	261	100
<b>San Antonio</b>					
Below 32	18	21	Below 26	41	18
32–33	22	25	26–27	57	25
33–34	27	31	27–28	58	26
34–35	12	14	28–29	35	15
35–36	3	3	29–30	20	9
Above 36	4	5	Above 30	12	5
Missing	1	1	Missing	0	1
Total	87	100	Total	223	100
<b>San Diego</b>					
Below 32	14	36	Below 26	32	17
32–33	7	18	26–27	37	20
33–34	8	21	27–28	34	19
34–35	9	23	28–29	37	20
35–36	1	3	29–30	37	20
Above 36	0	0	Above 30	6	3
Missing	0	0	Missing	0	0
Total	39	100	Total	183	100
<b>All MEPS</b>					
Below 32	149	26	Below 26	282	17
32–33	133	23	26–27	295	18
33–34	118	20	27–28	345	21
34–35	112	19	28–29	322	20
35–36	30	5	29–30	288	18
Above 36	29	5	Above 30	89	5
Missing	9	2	Missing	23	1
Total	580	100	Total	1,641	100

\* Recommended body fat 14–32%.

† Recommended body fat 6–26%.

## Test Results

Table 1.7 shows pass and fail rates by test component among fully qualified subjects at the time of first physical visit, and Table 1.8 shows pass and fail rates for OBF subjects on the first test for each individual. It is seen that among fully qualified subjects, the step test is the most challenging for both females and males, with pass rates of 67% and 78%, respectively. By comparison, the overall pass rates for the pushup test were 90% for females and 97% for males and for the lift test were 98% for both females and males.



Among OBF subjects, females across all MEPS have a pass rate of almost 82% for the step test, which is greater than that for fully qualified females and males and also greater than that for OBF males. OBF females also outperformed their fully qualified counterparts on the pushup and lift tests, passing at 93% and 98%, respectively, versus 90% and 98%, respectively. OBF males had lower pass rates (91%) on the pushup test than their fully qualified counterparts (97%). Pass rates vary by MEPS and gender. Comparisons should be made cautiously, in particular for San Diego, which had small numbers of subjects tested.

The OBF results shown in Table 1.8 reflect performance on the first application of the ARMS test. This criterion was used for the current examination to have a fair basis for comparison with fully qualified subjects. Those OBF subjects who fail ARMS are allowed to retest 30 days after the previous test. Therefore, final pass rates among the OBF group might be somewhat higher than would be gleaned from Table 1.8.

The fact that OBF females pass the step test at a higher rate than any other subject group suggests that females who exceed the traditional weight/body fat standards are relatively fit as a whole, and, as noted earlier, the weight-for-height standards for females are more stringent.

**TABLE 1.7. ARMS PASS AND FAIL RATES FOR FULLY QUALIFIED SUBJECTS**

MEPS	Females					Males				
	Pass		Fail		DNT	Pass		Fail		DNT
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	<i>n</i>	%	<i>N</i>	%	<i>n</i>
<i>STEP TEST</i>										
Atlanta	119	42.2	163	57.8	1	1,013	68.5	466	31.5	3
Buffalo	111	87.4	16	12.6	1	561	83.1	114	16.9	1
Chicago	293	98.7	4	1.3	0	2,127	98.5	32	1.5	6
Sacramento	28	58.3	20	41.7	0	232	64.4	128	35.6	1
San Antonio	297	58.3	212	41.7	0	1,473	64.9	796	35.1	2
San Diego	4	66.7	2	33.3	0	17	65.4	9	34.6	0
Total	852	67.1	417	32.9	2	5,423	77.8	1,545	22.2	13
<i>PUSHUP</i>										
Atlanta	255	91.7	23	8.3	5	1,443	97.7	34	2.3	5
Buffalo	119	93.7	8	6.3	0	650	96.6	23	3.4	3
Chicago	274	93.2	20	6.8	4	2,104	97.4	56	2.6	5
Sacramento	44	91.7	4	8.3	0	339	94.2	21	5.8	1
San Antonio	435	85.8	72	14.2	2	2,179	96.3	83	3.7	9
San Diego	3	50.0	3	50.0	0	25	100.0	0	0.0	1
Total	1,130	89.7	130	10.3	11	6,740	96.9	217	3.1	24
<i>INCREMENTAL LIFT</i>										
Atlanta	277	98.9	3	1.1	3	1,359	93.1	101	6.9	22
Buffalo	122	96.1	5	3.9	0	671	99.7	2	0.3	3
Chicago	271	95.4	13	4.6	14	2,136	99.5	11	0.5	18
Sacramento	46	100.0	0	0.0	2	360	99.7	1	0.3	0
San Antonio	494	99.4	3	0.6	12	2,227	99.7	7	0.3	37
San Diego	5	83.3	1	16.7	0	24	100.0	0	0.0	2
Total	1,215	98.0	25	2.0	31	6,777	98.2	122	1.8	82

DNT, did not take.

**TABLE 1.8. ARMS PASS AND FAIL RATES FOR OBF SUBJECTS**

Site	Females					Males				
	Pass		Fail		DNT	Pass		Fail		DNT
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>
<i>STEP TEST</i>										
Atlanta	85	90.4	9	9.6	3	176	86.7	27	13.3	7
Buffalo	54	79.4	14	20.6	1	130	68.1	61	31.9	3
Chicago	189	94.5	11	5.5	4	490	87.0	73	13.0	7
Sacramento	62	74.7	21	25.3	1	140	54.3	118	45.7	3
San Antonio	48	55.8	38	44.2	1	70	31.4	153	68.6	0
San Diego	27	69.2	12	30.8	0	123	67.6	59	32.4	1
Total	465	81.6	105	18.4	10	1,129	69.7	491	30.3	21
<i>PUSHUP</i>										
Atlanta	92	98.9	1	1.1	4	192	95.5	9	4.5	9
Buffalo	68	100.0	0	0.0	1	180	95.2	9	4.8	5
Chicago	182	91.9	16	8.1	6	482	86.5	75	13.5	13
Sacramento	61	96.8	2	3.2	21	137	98.6	2	1.4	122
San Antonio	73	86.9	11	13.1	3	186	86.1	30	13.9	7
San Diego	31	83.8	6	16.2	2	157	92.4	13	7.6	13
Total	507	93.4	36	6.6	37	1,334	90.6	138	9.4	169
<i>INCREMENTAL LIFT</i>										
Atlanta	92	98.9	1	1.1	4	194	96.5	7	3.5	9
Buffalo	68	100.0	0	0.0	1	184	98.4	3	1.6	7
Chicago	184	96.3	7	3.7	13	526	97.6	13	2.4	31
Sacramento	61	100.0	0	0.0	23	137	100.0	0	0.0	124
San Antonio	80	98.8	1	1.2	6	208	99.0	2	1.0	13
San Diego	37	100.0	0	0.0	2	169	99.4	1	0.6	13
Total	522	98.3	9	1.7	49	1,418	98.2	26	1.8	197

DNT, did not take.

## Step Test Performance by Height

It was seen in the demographic analysis that females who took the ARMS test are shorter as a group than males who took the test. However, the distributions have some overlap, i.e., the tallest females are taller than the shortest males. This has led to questioning the reason for varying step height by gender (12 inches for females, 16 inches for males) rather than by study subject height.

Step height was varied by gender in accordance with the externally validated Harvard step test, which is consistent with the fact that normal females have lower lung capacity than males of the same height. Nonetheless, examining whether step test performance is related to subject height is of interest.

The results in Table 1.9 show neither a consistent nor a biologically plausible trend was detected in the passing rates stratified by height. This was true for females and males and for fully qualified and OBF subjects.

**TABLE 1.9. STEP TEST PASS RATES STRATIFIED BY HEIGHT**

Height, inches	Fully qualified			OBF		
	Pass	Fail	Pass %	Pass	Fail	Pass %
<b>Females</b>						
≤62.25	225	102	68.8	126	24	84.0
62.25–64	248	112	68.9	137	31	81.5
64–65.75	182	110	62.3	100	23	81.3
>65.75	192	91	67.8	102	27	79.1
Missing	5	2	71.4	0	0	
<b>Males</b>						
≤67.25	1,394	433	76.3	200	103	66.0
67.25–69	1,272	366	77.7	271	110	71.1
69–71	1,451	386	79.0	341	135	71.6
>71	1,264	356	78.0	316	143	68.8
Missing	43	5	89.6	2	0	100.0

### Attrition by MEPS Pass Rate

Over the course of the ARMS study it has been apparent that test performance by study subjects, as indicated by pass rates, has differed considerably across the six study sites. Table 1.10 shows the pass rates by study site, and it is seen that the overall ARMS pass rates among OBF subjects through December 2005 vary from a low of under 40% to a high of just over 80%.

**TABLE 1.10. ARMS PASS RATES BY STUDY SITE\***

Study site	Pass	Fail or Did Not Take	Total**	Pass %
San Antonio	110	201	311	35.4
Sacramento	197	148	345	57.1
San Diego	141	84	225	62.7
Buffalo	178	85	263	67.7
Chicago	586	195	781	75.0
Atlanta	252	56	308	81.8

- The pass % is defined the pass percentage among all OBF subjects.
- Individuals with missing gender (12) were included; hence the total number is higher than in Table 1.8.

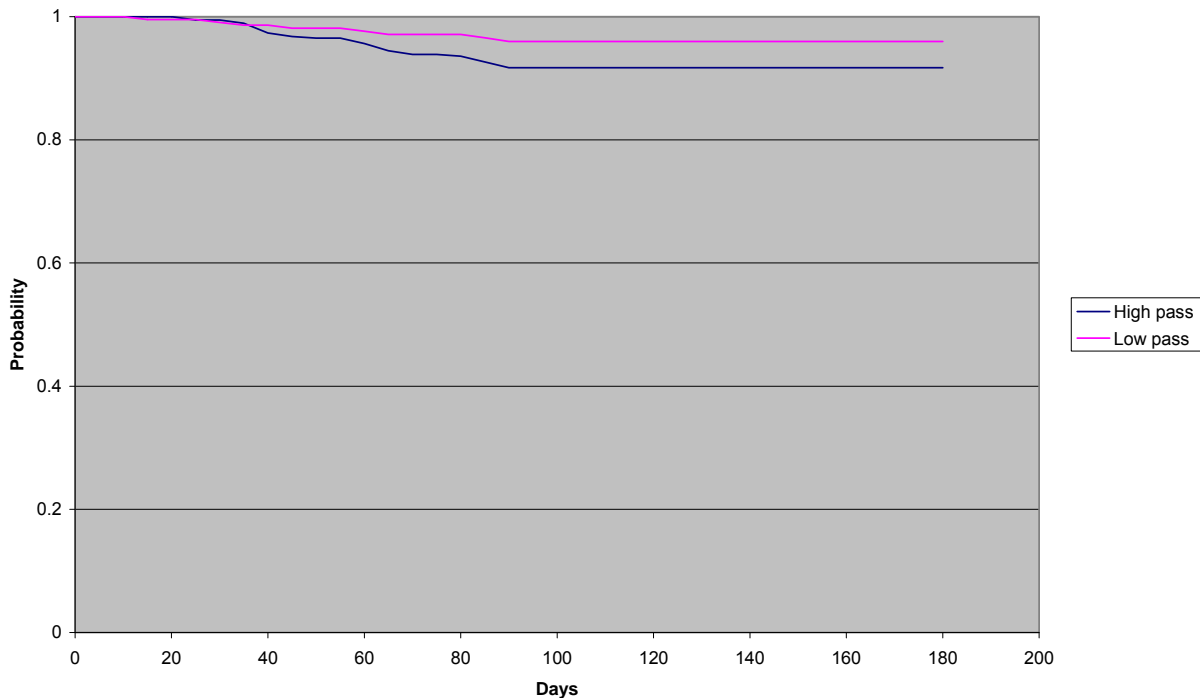
Anecdotal information and multiple observations by the investigation team indicate that many factors contribute to these differences. Although considerable initial and follow-up training has been conducted to standardize testing across study sites, the possibility that some study sites are more strict or lenient is being investigated. In particular, AMSARA is studying whether those OBF subjects who get a waiver from a site with a higher pass rate are more likely to attrite than those getting a waiver from a site with a lower pass rate.

To make an initial assessment, the study sites were divided into two groups of three each: those with the three highest pass rates, and those with the three lowest pass rates. This division provided a fairly even distribution of subjects and is consistent with the pass

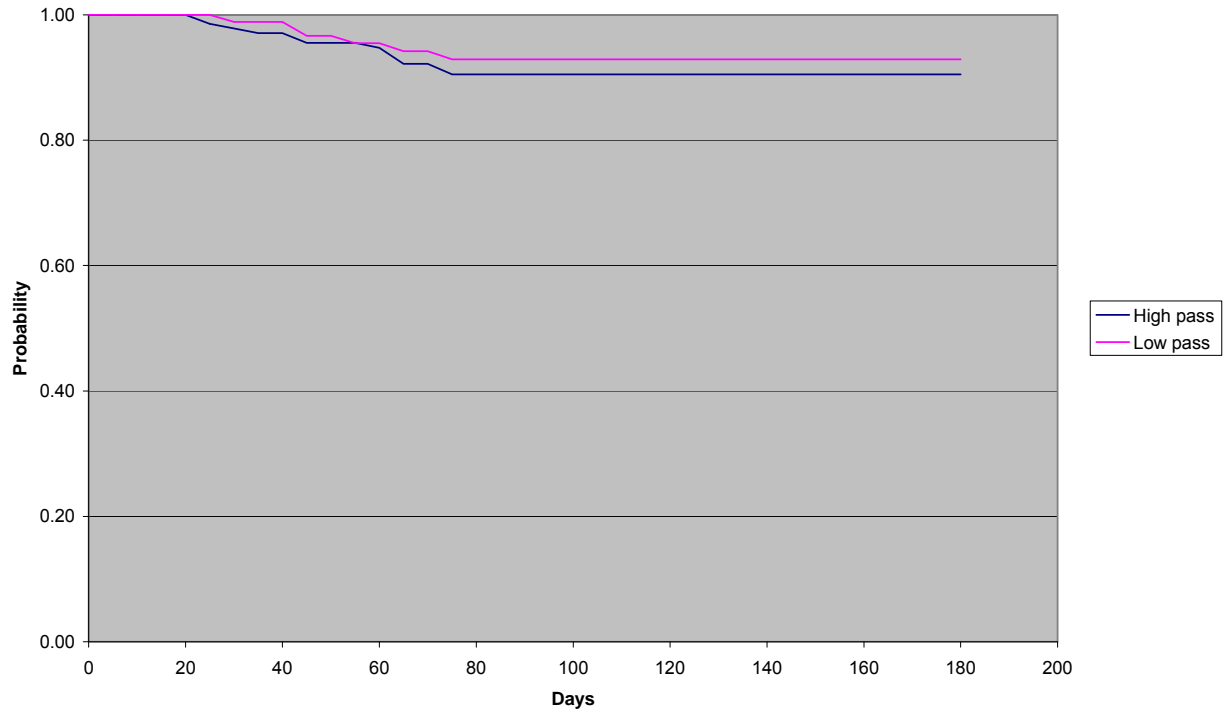
percentages by site. Those in the high pass rate group had pass rates of nearly or more than 70%, and those in the low pass rate group had pass rates below 65%.

Figure 1.1 shows retention probability over the first 180 days of service among OBF males from the high and low rate MEPS. It is seen that the estimated retention probability over the first 180 days is slightly higher among those who got a waiver from the lower pass rate sites. This difference, however, was only marginally statistically significant. Figure 1.2 shows analogous results for female OBF subjects, and it is seen from the  $p$  value that the retention patterns over time are not statistically significantly different.

In summary, there is no clear evidence that attrition among subjects entering service with an OBF waiver differs according to whether the waiver was from a high or low pass rate site. Further analysis is warranted, however, as more subjects are enrolled and longer follow-up time is available. Future refinements might include matching the comparison groups on other factors known to affect attrition (age, race, etc.).



**FIGURE 1.1. ESTIMATED RETENTION PROBABILITIES OF OBF MALES: HIGH PASS VS LOW PASS STUDY SITES THROUGH DECEMBER 2005 ( $0.05 < P < 0.10$ )**



**FIGURE 1.2. ESTIMATED RETENTION PROBABILITIES OF OBF FEMALES: HIGH PASS VS LOW PASS STUDY SITES THROUGH DECEMBER 2005 ( $P > 0.50$ )**

## Future of ARMS

The 5-minute step test is a validated measure of aerobic fitness relative to the  $VO_2$  aerobic capacity so-called gold standard test. The ARMS two-component fitness test appears to be consistent with the 1- or 2-mile run, which the literature has shown is the most consistent predictor of whether a person will obtain an injury and/or successfully complete IET. The ARMS fitness assessment is therefore consistent with the IET fitness literature in this respect. Studies are being planned to validate the ARMS step test with 2-mile run times.

The ARMS paradigm allows for the removal of barriers to enlistment for those physically able to serve. Phase III of the study is allowing applicants who fail to meet Army body fat standards to gain a waiver by passing the ARMS test. In the first year, more than 1,400 individuals have been allowed to access with a waiver granted for body fat through ARMS testing. AMSARA will continue to statistically track all subjects for health and attrition outcomes.

## 2. DESCRIPTIVE STATISTICS FOR APPLICANTS AND ACCESSIONS FOR ENLISTED SERVICE

The populations of applicants are described for enlisted service in the active duty, reserve, and National Guard components of the military during 1999–2004. For the active duty applicants, subsequent accessions are also shown. An enlistee *applicant* is the individual who presents to the MEPS for evaluation for acceptance into military service. An enlistee *accession* is the individual who has signed his or her oath of enlistment.

Except where otherwise noted, the following conventions apply:

- All references to year refer to calendar year.
- All merging of data sets to derive percentages and rates was performed at an individual level by SSN. For example, in determining the percentage of individuals gained in 2003 who received a discharge, only discharges with SSN matching a 2003 accession record SSN were included.
- Reference to “all applicants” refers to those who had a physical examination at MEPS. Applicants who were dropped from consideration before the medical exam (e.g., those who failed the AFQT) are not included.
- Totals may vary slightly among tables depending on the variable by which percentages or rates are presented. Records with a missing variable relevant to a given table are not included in that table.
- Under the subsections titled “Active Duty Applicants at MEPS with Accession Records” and “Medical Waivers,” education level and age are obtained at the time of MEPS application because MEPS data are the only source of this information for activities before accessions. For subsections titled “Hospitalizations,” “EPTS Discharges,” and “Disability Discharges among Army and Air Force Active Duty Enlistees,” education level and age at time of accession are used. Under the Delayed Entry Program, the application process can occur up to 2 years before the actual accession takes place.
- Temporary medical disqualifications are for conditions that can be remedied, such as being overweight or recently using marijuana. Permanent medical disqualifications are for all other disqualifying conditions described in DoD Instruction 6130.4.

## Active Duty Applicants at MEPS with Accession Records

Tables 2.1–2.8 describe the population of applicants and subsequent accessions for active duty, enlisted service in the Army, Navy, Marines, and Air Force.

Table 2.1 shows the numbers of applicants and subsequent accession percentages for the aggregate 1999–2003 period and separately for 2004. Accession percentages for the 1999–2003 applicants are shown in two ways: 1) total accession and 2) accession within year of application. For example, the first row shows that 63.4% of Army applicants during 1999–2003 had a subsequent accession record, whereas only 40.3% of the applicants were accessed within the same year in which they applied for service (“accession rate within year” column). The second percentage (last two columns) is presented to make a fair basis of comparison for the 2004 accessions; at the time this report was prepared, accession data were unavailable beyond the end of 2004.

The applications to all services in 2004 are somewhat lower than expected based on the 1999–2003 applications. In fact, the applications in both 2003 and 2004 were lower than those in 2000. Within-year accession rates within 2004 are lower than the rates seen over 1999–2003 for each service except Marines. Whether this represents an actual change in accession rates is unclear, but it is noted for future examination when follow-up data are available.

**TABLE 2.1. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: SERVICE**

Service	All applicants in 1999–2003			Applicants in 2004	
	Count	Accession rate, %	Accession rate within year, %	Count	Accession rate within year, %
Army	463,917	63.4	40.3	72,374	27.9
Navy	315,953	70.4	41.6	48,891	30.6
Marines	217,116	67.7	37.6	38,706	42.4
Air Force	217,282	76.6	45.5	32,360	39.1
Total	1,214,268			192,331	

Table 2.2 shows the numbers of applicants for enlisted service by year for 1999–2004 and the numbers of those applicants who subsequently began active duty enlisted service within 1 and 2 years of application. Regulations state that accessions must occur within 2 years of application.

Calculated accession rates are noticeably lower in 2003 and 2004. Accession percentages are low for applicants in 2004 owing to the lack of full follow-up data. These caveats aside, approximately two-thirds of applicants appear to be gained onto active duty within 1 year of applying, with only a small (<3%) percentage being gained more than 1 year after application.

**TABLE 2.2. ACCESSIONS WITHIN 1 AND 2 YEARS OF APPLICATION FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2004: YEAR**

Year of exam	Applicants	Within 1 year of application		Within 2 years of application	
		Count	%	Count	%
1999	229,994	153,085	66.6	162,517	70.7
2000	240,296	162,247	67.5	169,870	70.7
2001	249,608	166,527	66.7	174,686	70.0
2002	259,923	166,841	64.2	175,929	67.7
2003	234,447	134,583	57.4	141,631	60.4
2004	192,331	92,561	48.1	94,615	49.2

Tables 2.3–2.6 show demographic characteristics (at the time of application) for the applicant pools of 1999–2003 and separately for 2004. Accession percentages are also shown.

Most applicants in 2004 were male (about 82%), aged 17–20 years (about 74%), and white (about 74%). The demographic profiles were roughly the same for applicants in 1999–2003. Roughly 38% of applicants in 2004 had not completed high school at the time of application.

Demographic distributions of accessions reflect the applicant population with regard to gender, age, race, and AFQT score. Slight differences may be seen between applicants and accessions, although these differences are likely attributable to random fluctuations that occur within any given year.

The percentage of accessions that had at least a high school education at the time of application was higher than that among applicants. This difference likely reflects the fact that many applicants with less than a high school education at the time of application were still in school by the end of the year and thus had not begun service.

**TABLE 2.3. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: GENDER**

Gender	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
Male	973,817	80.2	682,152	82.2	157,946	82.1	72,706	84.0
Female	240,442	19.8	148,076	17.8	34,381	17.9	13,848	16.0

**TABLE 2.4. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AGE**

Age	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
17–20 yr	917,631	75.6	640,861	77.2	142,393	74.0	65,662	75.9
21–25 yr	227,524	18.7	152,165	18.3	37,837	19.7	17,134	19.8
26–30 yr	51,624	4.3	29,296	3.5	8,204	4.3	2,956	3.4
>30 yr	17,073	1.4	7,582	0.9	3,893	2.0	800	0.9
Missing	416	—	327	—	4	—	2	—



**TABLE 2.5. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: RACE\***

Race	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
White	863,426	71.8	592,226	71.9	119,661	74.1	55,277	73.2
Black	218,293	18.2	147,324	17.9	25,030	15.5	11,600	15.4
Other	120,346	10.0	84,285	10.2	16,822	10.4	8,656	11.5
Unknown	12,203	—	6,396	—	30,818*	—	11,021	—

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

**TABLE 2.6. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: EDUCATION LEVEL**

Education level at MEPS	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
Below HS senior*	40,908	3.4	25,003	3.0	4,619	2.4	1,783	2.1
HS senior	388,931	32.1	254,504	30.8	67,953	35.4	28,784	33.4
HS diploma	740,789	61.2	524,113	63.3	111,974	58.4	52,957	61.4
Some college	11,091	0.9	7,487	0.9	1,829	1.0	825	1.0
Bachelor's and above	28,894	2.4	16,362	2.0	5,325	2.8	1,912	2.2
Unknown	3,655	—	2,762	—	631	—	293	—

\* Encompasses the following: 1) those pursuing completion of the GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc.; 2) those not attending high school and who are neither a high school graduate nor an alternative high school credential holder; and 3) those who are attending high school and are not yet seniors.

The distribution of AFQT scores was similar between applicants and accessions in both 1999–2003 and 2004 (Table 2.7). This similarity likely reflects the fact that individuals achieving a low score on the AFQT are often eliminated from consideration before being given a medical examination. Accordingly, such individuals do not appear among the applicant data. Note that the AFQT is a nationally normed test, so the score distribution among all applicants would not necessarily mirror the percentile ranges.

**TABLE 2.7. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AFQT SCORES**

AFQT score	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
93–99	55,173	4.6	38,635	4.7	11,844	6.2	5,843	6.8
65–92	408,410	33.8	289,555	34.9	69,073	36.1	32,975	38.1
50–64	326,296	27.0	228,367	27.5	48,738	25.5	22,240	25.7
30–49	372,030	30.8	252,317	30.4	50,921	26.6	21,883	25.3
1–29	46,070	3.8	20,091	2.4	10,662	5.6	3,578	4.1
Missing	6,289	—	1,266	—	1,093	—	35	—

Table 2.8 shows the medical qualification status of applicants during 1999–2003 and 2004. Just over 82% of applicants in 2004 were deemed to be medically qualified for enlisted service. However, 89% of the subsequent accessions came from among those applicants with no detected medically disqualifying condition.

In contrast, 10.8% of applicants in 2004 had a permanent medical disqualification, whereas only 6.7% of subsequent accessions came from this group. A similar observation can be made for 1999–2003. The apparent lower accession rate among those with a permanent medical disqualification in part reflects inability or unwillingness of some medically disqualified applicants to acquire the necessary accession medical waiver. Some applicants do not pursue a medical waiver, and those who do might not be granted the waiver. Accession medical waiver numbers, approval rates, and the medical nature of conditions considered for waiver are presented under “Medical Waivers.”

It is apparent that individuals with a temporary medical disqualification represent a smaller percentage of accessions than of applicants. This may reflect an inability or unwillingness of some applicants to remedy the condition that led to a temporary disqualification.

**TABLE 2.8. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: MEDICAL QUALIFICATION STATUS**

Medical qualification status	1999–2003				2004			
	Applicants		Accessions		Applicants		Accessions	
	Count	%	Count	%	Count	%	Count	%
Qualified	961,251	79.2	719,698	86.7	158,636	82.5	76,995	89.0
Temporary disqualification	91,634	7.5	34,814	4.2	12,937	6.7	3,742	4.3
Permanent disqualification	161,383	13.3	75,719	9.1	20,758	10.8	5,817	6.7

## Reserve Applicants at MEPS without Accession Records

Tables 2.9–2.15 show the numbers of applicants for the enlisted reserves of the Army, Navy, Marines, and Air Force by demographic features. In particular, reserve applicants who received a medical examination at any MEPS in 1999–2003 (aggregate) and 2004 are represented. Although these individuals were primarily civilians, many accessions into the reserves are direct accessions from active duty and thus would not be included in the results.

Table 2.9 shows the number of reserve applicants, by year, to the reserves. The year-to-year numbers of applicants for each service vary somewhat, although this variation shows no clear pattern within a given service, except for the Marines, who show a slight trend downward since 1999.

**TABLE 2.9. RESERVE ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2004: SERVICE AND YEAR**

Year	Army	Navy	Marines	Air Force
1999	21,707	2,212	7,206	2,042
2000	27,033	2,137	7,857	2,578
2001	23,083	1,845	7,507	3,121
2002	23,738	1,815	6,007	3,651
2003	25,019	2,092	5,516	4,185
2004	18,341	1,908	5,110	3,740
Total	138,921	12,009	39,203	19,317

From Tables 2.10–2.13, it is seen that most reserve applicants in 2004 were male (77%), aged 17–20 years (62%), and white (76%). Sixty-seven percent had at least a high school diploma at the time of application, whereas most of the remaining 23% were seniors in high school. The distribution by age group in 2004 was different from that during 1999–2003, with the oldest age group accounting for a greater percentage than expected and the youngest group accounting for less than expected. The distribution by gender in 2004 was slightly different from that during 1999–2003, with the male group accounting for a little higher percentage of applicants than expected. The distribution by race in 2004 was different from that during 1999–2003, with whites accounting for a greater percentage than expected and blacks and other accounting for less than expected. According to the other demographic factors, the distributions of reserve applicants during 1999–2003 were similar to those among 2004 applicants.

**TABLE 2.10. RESERVE ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: GENDER**

Gender	1999–2003		2004	
	Count	%	Count	%
Male	132,163	73.3	22,368	76.9
Female	48,187	26.7	6,731	23.1

**TABLE 2.11. RESERVE ENLISTED APPLICANTS AT MEPS  
WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AGE**

Age	1999–2003		2004	
	Count	%	Count	%
17–20 yr	127,743	70.9	18,170	62.4
21–25 yr	28,904	16.0	4,711	16.2
26–30 yr	12,110	6.7	1,908	6.6
>30 yr	11,474	6.4	4,308	14.8

**TABLE 2.12. RESERVE ENLISTED APPLICANTS AT MEPS  
WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: RACE\***

Race	1999–2003		2004	
	Count	%	Count	%
White	123,378	69.3	16,167	75.7
Black	37,074	20.8	3,399	15.9
Other	17,460	9.8	1,793	8.4
Unknown	2,439		7,740	

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

**TABLE 2.13. RESERVE ENLISTED APPLICANTS AT MEPS  
WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: EDUCATION LEVEL**

Education level at examination	1999–2003		2004	
	Count	%	Count	%
Below HS senior*	23,651	13.1	2,730	9.4
HS senior	46,849	26.0	6,680	23.0
HS diploma	99,034	55.0	17,566	60.5
Some college	2,530	1.4	537	1.8
Bachelor and above	8,103	4.5	1,528	5.3
Unknown	184		58	

\* Encompasses the following: 1) those pursuing completion of the GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc.; 2) those not attending high school and who are neither a high school graduate nor an alternative high school credential holder; and 3) those who are attending high school and are not yet seniors.

Table 2.14 shows the distribution of AFQT scores among applicants for enlisted service in the reserves. It is seen that roughly 86% of the applicants in 2004 scored in the 30–92 percentile range. Note that this is a nationally normed test, and some applicants who performed poorly may have had their applications terminated before receiving a medical examination. Therefore, the percentage distributions do not necessarily match the percentile ranges. For example, only 5.7% of the 2004 applicants scored in the 1–29 percentile range.

**TABLE 2.14. RESERVE ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AFQT SCORES**

AFQT score	1999–2003		2004	
	Count	%	Count	%
93–99	11,688	6.6	2,226	8.0
65–92	65,192	36.8	10,918	39.3
50–64	43,950	24.8	6,620	23.8
30–49	50,070	28.2	6,454	23.2
1–29	6,455	3.6	1,589	5.7
Missing	2,996		1,292	

Table 2.15 shows the numbers and percentages of reserve applicants by medical qualification status. It is seen that 80% of applicants were deemed to be medically qualified for service in 2004. Among those not initially qualified, most disqualifications were temporary, i.e., for conditions that can be remedied, such as being overweight.

**TABLE 2.15. RESERVE ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: MEDICAL DISQUALIFICATION STATUS**

Medical qualification status	1999–2003		2004	
	Count	%	Count	%
Qualified	142,809	79.2	23,397	80.4
Permanent medical disqualification	14,213	7.9	2,412	8.3
Temporary medical disqualification	23,329	12.9	3,290	11.3

## Army and Air National Guard Applicants at MEPS without Accession Records

Tables 2.16–2.22 show the numbers of new applicants in the enlisted National Guard of the Army and Air Force by demographic and other factors. The Navy and Marines do not have a guard component. The tables represent National Guard applicants who received a medical examination at MEPS in 1999–2003 (aggregate) or 2004. Although these individuals were primarily civilians, many accessions into the National Guard are direct accessions from active duty and thus would not be included in the results.

Table 2.16 shows the number of applicants, by year and service, to the National Guard. The numbers of applicants to the Army and Air National Guard were considerably higher during 2000–2003. AMSARA cannot determine whether this change in numbers reflects true applicant numbers or shortcomings in the data.

**TABLE 2.16. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2004: YEAR AND SERVICE**

Year	Army National Guard	Air National Guard
1999	32,277	3m356
2000	37,400	5m028
2001	38,378	5,865
2002	36,927	5,266
2003	36,049	5,463
2004	31,574	4,174
Total	212,605	29,152

From Tables 2.17–2.20, it is seen that most National Guard applicants in 2004 were male (77.6%), aged 17–20 years (69.2%), and white (76.5%). Approximately 55% had at least a high school diploma at the time of application, and most of the remaining applicants were in their senior year of high school at the time of application. The distribution by age group in 2004 was different from that during 1999–2003, with the oldest age group accounting for a greater percentage than expected and the youngest group accounting for a lower percentage. According to other demographic factors, the distributions of guard applicants during 1999–2003 were similar to those among 2004 applicants.

**TABLE 2.17. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: GENDER**

Gender	1999–2003		2004%	
	Count	%	Count	%
Male	158,236	76.8	27,754	77.6
Female	47,772	23.2	7,994	22.4

**TABLE 2.18. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AGE**

Age	1999–2003		2004	
	Count	%	Count	%
17–20 yr	147,547	71.7	24,735	69.2
21–25 yr	32,756	15.9	4,887	13.7
26–30 yr	13,355	6.5	2,027	5.7
>30 yr	12,223	5.9	4,096	11.5
Missing	128		3	

**TABLE 2.19. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: RACE\***

Race	1999–2003		2004	
	Count	%	Count	%
White	156,976	77.1	19,070	76.5
Black	32,212	15.8	3,742	15.0
Other	14,433	7.1	2,117	8.5
Unknown	2,388		10,819	

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

**TABLE 2.20. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: EDUCATION LEVEL**

Education level at examination	1999–2003		2004	
	Count	%	Count	%
Below HS senior*	32,630	15.9	6,955	19.6
HS senior	51,961	25.3	8,897	25.0
HS diploma	111,150	54.1	17,902	50.3
Some college	2,927	1.4	564	1.6
Bachelor's and above	6,703	3.3	1,250	3.5
Unknown	638		180	

\* Encompasses the following three cases: 1) one who is pursuing completion of the GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

Table 2.21 shows the distribution of AFQT scores among applicants for enlisted service in the Army and Air National Guard. It is seen that roughly 84% of the applicants in 2004 scored in the 31–92 percentile range. Note that this is a nationally normed test, and some applicants who perform poorly may have had their applications terminated before receiving a medical examination. Therefore, the percentage distributions do not necessarily match the percentile ranges. For example, only 10.2% of the 2004 applicants scored in the 1–29

percentile range. This percentage was somewhat higher than the 5.8% seen among applicants during 1999–2003.

**TABLE 2.21. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: AFQT SCORE**

AFQT score	1999–2003		2004	
	Count	%	Count	%
93–99	10,002	5.0	1,781	5.4
65–92	64,758	32.6	9,898	30.0
50–64	44,472	22.4	7,186	21.8
30–49	68,061	34.2	10,770	32.6
1–29	11,460	5.8	3,382	10.2
Missing	7,256		2,731	

Table 2.22 shows the numbers and percentages of Army and Air National Guard applicants by medical qualification status. It is seen that roughly 76% of 2004 applicants were deemed to be medically qualified for service. Among those not immediately qualified, most medical disqualifications were temporary, i.e., for conditions that can be remedied, such as being overweight.

**TABLE 2.22. ARMY AND AIR NATIONAL GUARD ENLISTED APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1999–2003 VS 2004: MEDICAL QUALIFICATION STATUS**

Medical qualification status	1999–2003		2004	
	Count	%	Count	%
Qualified	155,474	75.5	27,325	76.4
Permanent medical disqualification	16,823	8.2	2,973	8.3
Temporary medical disqualification	33,712	16.4	5,450	15.2



## Medical Disqualifications among Applicants for First-Time Active Duty Enlisted Service

Before 2001, applicant medical disqualifications were categorized according to a relatively crude diagnostic coding system. During 2001, MEPCOM began to also categorize medical disqualifications using the full set of ICD9 diagnostic codes to more accurately indicate the reasons for medical disqualifications among applicants. Tables 2.23 and 2.24 summarize medical disqualifications in the ensuing years according to the codes from the earlier coding system. In particular, Table 2.23 shows medical disqualifications among applicants for all services during 2002–2004, categorized by the first listed MEPCOM code for each applicant (see “MEPS” in Section 4). Table 2.24 shows medical disqualifications among applicants for all services during 2002–2004, using all codes indicated for each applicant. Tables 2.25 and 2.26 show analogous results using the more detailed ICD9 designations.

**TABLE 2.23. MEDICAL DISQUALIFICATIONS OF FIRST-TIME ACTIVE DUTY ENLISTED APPLICANTS BY FIRST LISTED MEPCOM CODES: 2002–2004**

Condition	2002		2003		2004	
	Count	%	Count	%	Count	%
Weight, body build	18,497	25.0	17,159	25.0	13,425	26.1
<i>Cannabis sativa</i> test positive	8,918	12.0	7,248	10.6	5,720	11.1
Psychiatric	4,641	6.3	4,329	6.3	2,848	5.5
Lower extremities (except feet)	4,143	5.6	3,907	5.7	2,809	5.5
Audiometer (hearing)	4,175	5.6	3,877	5.7	2,694	5.2
Lungs and chest (includes breasts)	4,559	6.2	3,997	5.8	2,588	5.0
Upper extremities	2,632	3.6	2,689	3.9	2,041	4.0
Refraction	2,554	3.4	2,397	3.5	2,037	4.0
Skin, lymphatic, allergies	2,580	3.5	2,476	3.6	1,981	3.8
Blood pressure	1,936	2.6	2,222	3.2	1,531	3.0
Abdomen and viscera (includes hernia)	1,622	2.2	1,603	2.3	1,239	2.4
Feet	1,863	2.5	1,733	2.5	1,187	2.3
External genitalia (genitourinary)	1,479	2.0	1,409	2.1	1,065	2.1
Eyes— general (excludes visual acuity and refraction)	1,039	1.4	1,133	1.7	931	1.8
Cocaine test positive	1,278	1.7	1,194	1.7	885	1.7
Spine, other musculoskeletal	1,179	1.6	1,112	1.6	848	1.6
Heart (thrust, size, rhythm, sounds)	875	1.2	829	1.2	693	1.3
Neurologic	973	1.3	914	1.3	689	1.3
Urine	885	1.2	831	1.2	566	1.1
Pelvic (female only)	869	1.2	715	1.0	533	1.0
All other	7,400	10.0	6,732	9.8	5,215	10.1
Total	74,097		68,506		51,525	

\* MEPCOM medical disqualification codes were changed in 2001, and both old and new codes were used without distinction in the 2001 data. Hence, the 2001 data were excluded.

**TABLE 2.24. MEDICAL DISQUALIFICATIONS OF FIRST-TIME ACTIVE DUTY ENLISTED APPLICANTS BY ALL LISTED MEPCOM CODES: 2002–2004**

Condition	2002		2003		2004	
	Count	%	Count	%	Count	%
Weight, body build	19,430	24.1	18,054	24.1	13,872	24.4
<i>Cannabis sativa</i> test positive	9,269	11.5	7,522	10.1	5,748	10.1
Psychiatric	4,879	6.1	4,638	6.2	3,436	6.0
Lower extremities (except feet)	4,519	5.6	4,354	5.8	3,332	5.9
Audiometer (hearing)	4,343	5.4	4,046	5.4	3,084	5.4
Lungs and chest (includes breasts)	5,296	6.6	4,603	6.2	2,790	4.9
Upper extremities	2,934	3.6	3,000	4.0	2,338	4.1
Refraction	2,660	3.3	2,526	3.4	2,298	4.0
Skin, lymphatic, allergies	2,868	3.6	2,769	3.7	2,181	3.8
Blood pressure	2,202	2.7	2,532	3.4	1,779	3.1
Abdomen and viscera (includes hernia)	1,813	2.2	1,818	2.4	1,385	2.4
Feet	2,028	2.5	1,897	2.5	1,356	2.4
External genitalia (genitourinary)	1,636	2.0	1,550	2.1	1,175	2.1
Cocaine test positive	1,283	1.6	1,248	1.7	1,105	1.9
Eyes—general (excludes visual acuity and refraction)	1,135	1.4	1,251	1.7	1,074	1.9
Spine, other musculoskeletal	1,355	1.7	1,291	1.7	1,010	1.8
Neurologic	1,181	1.5	1,121	1.5	820	1.4
Heart (thrust, size, rhythm, sounds)	978	1.2	917	1.2	748	1.3
Urine	925	1.1	859	1.1	628	1.1
Pulse	777	1.0	824	1.1	608	1.1
All others	9,071	11.3	7,955	10.6	6,029	10.6
<b>Total</b>	<b>80,582</b>		<b>74,775</b>		<b>56,796</b>	

The most common disqualification was failure to meet body weight standards, with 13,872 disqualifications in 2004 for this reason (of these, the condition was listed first for 13,425 individuals). This disqualification is generally temporary and can be eliminated by gaining or losing weight, as needed. The next most common disqualification, which is also generally temporary, was use of *Cannabis sativa* (marijuana). The third and the fourth most common overall, and the most common of the permanent disqualifications, were psychiatric or psychological conditions and orthopedic conditions (lower extremity, excluding feet). Lungs and chest, a category that includes history of asthma, dropped to sixth place in 2004.

The process of standardizing usage of these complex codes at 65 geographically separate MEPS sites presents a considerable logistical challenge. Accordingly, AMSARA simply presents the codes that were used for applicants during 2002–2004, without comparisons with the traditional medical disqualification codes summarized above. Note that although some categories are similar to those in Tables 2.23 and 2.24, they are generally not identical and can only be compared in terms of rough numbers.

Tables 2.25 (first listed ICD9 code) and 2.26 (all ICD9 codes) show the numbers of individuals with medical disqualifications among applicants for all services in 2002–2004 categorized by groupings of ICD9 codes. Being overweight is the leading cause of medical disqualification, with 16,309 individuals being disqualified in 2003 and 12,306 individuals

being disqualified in 2004. Drug abuse is second, with 7,649 disqualifications in 2003 and 5,816 in 2004. Hearing deficiency and visual refraction, both permanent disqualifications, were the third and fourth leading causes, respectively, in 2004, whereas hearing deficiency and asthma, were the third and fourth leading causes, respectively, in 2003.

**TABLE 2.25. MEDICAL DISQUALIFICATIONS OF FIRST-TIME ACTIVE DUTY ENLISTED APPLICANTS BY FIRST LISTED ICD9 CODE: 2002–2004\***

Condition	2002		2003		2004	
	Count	%	Count	%	Count	%
Overweight†	17,226	23.3	15,459	22.6	11,873	23.0
Drug abuse§	8,993	12.1	7,349	10.7	5,772	11.2
Hearing deficiency	3,981	5.4	3,723	5.4	2,612	5.1
Asthma	3,723	5.0	3,179	4.6	1,976	3.8
Visual refraction‡	2,805	3.8	2,650	3.9	2,243	4.4
Underweight	1,771	2.4	2,028	3.0	1,832	3.6
Hypertension	1,521	2.1	1,550	2.3	1,027	2.0
Cocaine	1,281	1.7	1,205	1.8	892	1.7
Disorder of bone/cartilage	1,232	1.7	1,485	2.2	1,225	2.4
Hyperkinetic syndrome	1,106	1.5	1,207	1.8	693	1.3
Neurosis	1,098	1.5	986	1.4	592	1.1
Pregnancy	961	1.3	831	1.2	594	1.2
Cardiovascular symptoms	703	0.9	751	1.1	560	1.1
Inguinal hernia	591	0.8	542	0.8	457	0.9
Other drug abuse	408	0.6	358	0.5	330	0.6
Depressive disorders	365	0.5	399	0.6	300	0.6
Nonspecific abnormal findings	330	0.4	518	0.8	397	0.8
Eye surgery	256	0.3	367	0.5	236	0.5
Visual disturbances	130	0.2	154	0.2	118	0.2
Blind or low visual acuity	56	0.1	30	0.0	25	0.0
All others	25,541	34.5	23,715	34.6	17,757	34.5
Total	74,078		68,486		51,511	

\* 2002 was the first year for which ICD codes were provided.

† Includes MEPCOM medical disqualification code OVR, ICD9 278 (obesity), and 783 (abnormal weight gain).

§ Includes 305.2 (cannabis abuse), 305.6 (cocaine abuse), and 305 and 306 (all other drug abuse).

‡ Includes refractive disorders (367), refractive surgery (P11.6, 11.7), visual disturbances (368), and low vision (369).

**TABLE 2.26. MEDICAL DISQUALIFICATIONS OF FIRST-TIME ACTIVE DUTY ENLISTED APPLICANTS  
BY ALL LISTED ICD9 CODES: 2002–2004\***

Condition	2002		2003		2004	
	Count	%	Count	%	Count	%
Overweight†	18,096	22.3	16,309	21.5	12,306	21.3
Drug abuse§	9,386	11.6	7,649	10.1	5,816	10.1
Asthma	4,385	5.4	3,712	4.9	2,137	3.7
Hearing loss	4,140	5.1	3,900	5.1	3,006	5.2
Visual refraction‡	2,945	3.6	2,804	3.7	2,549	4.4
Underweight	1,872	2.3	2,153	2.8	1,902	3.3
Hypertension	1,745	2.2	1,802	2.4	1,199	2.1
Disorders of bone and cartilage	1,338	1.7	1,701	2.2	1,420	2.5
Drug abuse, cocaine	1,297	1.6	1,267	1.7	1,116	1.9
Neurotic	1,277	1.6	1,187	1.6	834	1.4
Hyerkinetic syndrome	1,215	1.5	1,375	1.8	871	1.5
Pregnancy	1,000	1.2	870	1.1	643	1.1
Cardiovascular symptoms	841	1.0	917	1.2	662	1.1
Inguinal hernia	643	0.8	599	0.8	482	0.8
Drug abuse, others	537	0.7	458	0.6	419	0.7
Depressive disorders	446	0.6	498	0.7	422	0.7
Spinal curvature	387	0.5	387	0.5	313	0.5
Nonspecific abnormal findings	367	0.5	592	0.8	461	0.8
Visual eye surgery	279	0.3	408	0.5	280	0.5
Visual disturbances	145	0.2	181	0.2	135	0.2
Blind or low visual acuity	57	0.1	30	0.0	28	0.0
All others	28,630	35.3	26,942	35.6	20,792	36.0
Total	81,028		75,741		57,793	

\* Multiple disqualifications per applicants are included.

† Includes MEPCOM disqualification code OVR, ICD9 278 (obesity), and 783 (abnormal weight gain).

§ Includes 305.2 (cannabis abuse), 305.6 (cocaine abuse), and 305 and 306 (all other drug abuse).

‡ Includes refractive disorders (367), refractive surgery (P11.6, 11.7), visual disturbances (368), and low vision (369).

## Medical Waivers

Applicants who receive a permanent medical disqualification at the MEPS may be granted an accession medical waiver for the disqualifying condition(s) from a service-specific waiver authority. This section summarizes the numbers of waiver considerations during 1999–2004. Part I examines all waiver consideration records, regardless of whether a corresponding MEPS applicant record was available. Part II examines only those waiver records for which a matching applicant record is in the MEPS data. The counts of waiver records in Part I will therefore differ from those in Part II. Whether a matching record exists is usually related to clerical errors, such as incorrect entry of applicants’ social security numbers.

Individuals frequently have multiple records of waiver consideration by the same waiver authority, likely reflecting resubmissions, perhaps with additional information. Only the most current record on each individual was considered in these analyses. Therefore the numbers of considerations do not reflect overall workload of the waiver authorities.

Note that a waiver application that is denied by one waiver authority might be submitted to another. In such a case, the individual would be counted twice in the tables. Finally, note that only waiver applications are summarized, so these individuals may eventually gain onto duty.

### ***Part I: Medical Waivers without an Accession Record***

Accession medical waiver considerations for active duty enlisted applicants in 1999–2004 are summarized for the Army, Navy, Marines, and Air Force. All waiver considerations are included, regardless of whether AMSARA has a corresponding MEPS record or whether the individual was subsequently gained onto active duty.

Table 2.27 shows raw counts (i.e., no matching of records to applicant or accession data) of waiver considerations and approval percentages in each year from 1999 to 2004 by service and year of waiver decision. The approval percentages are derived by dividing number of approvals by total number of considerations for a particular waiver authority in a year. Note that a waiver can be denied by one service authority and granted by another, so an individual could be counted more than once.

**TABLE 2.27. WAIVER CONSIDERATIONS FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2004: SERVICE AND YEAR\***

Year	Army		Navy		Marines		Air Force	
	Count	% Approved	Count	% Approved	Count	% Approved	Count	% Approved
1999	9,874	58.2	6,563	52.9	3,818	63.5	1,882	34.0
2000	11,725	66.9	6,224	50.7	3,427	55.9	2,148	41.2
2001	11,394	60.7	5,298	44.3	3,131	43.9	2,376	55.1
2002	15,024	61.4	5,423	45.3	3,144	45.6	3,063	51.6
2003	14,484	61.2	5,743	56.1	3,558	58.7	3,528	50.8
2004	13,395	56.5	5,167	60.9	3,579	65.9	2,864	50.3
Total	75,896		34,418		20,657		15,861	

\* Values are estimated using approved and denied only.

Over this period, the number of Army waiver consideration records has generally decreased to 13,395 in 2004 (a decrease of 4.7% from 2003). The percentage of waiver considerations

for the Navy and Marines shows an upward trend for 2004, although absolute counts are similar for 2003 and 2004. For the Air Force, the percentage is stable, but absolute counts are down slightly from 2003. Approval percentages for the Army peaked at 66.9% in 2000 and have been at ~60% in 2001–2003 with a low of 56.5% in 2004. Waiver approval rates varied over time for the Navy and Marines, with respective low approval rates of 44.3% and 43.9% in 2001 and have gradually increased over 2002–2004. For the Air Force, approval rates increased to over 50% in 2001–2004; Air Force rates were about 40% or less in 2000 and before.

Tables 2.28–2.31 show the conditions for which the most accession medical waivers were considered by each service waiver authority during 1999–2003 and the numbers of approvals for each condition over this period. Also shown are the analogous numbers of waiver considerations and approvals for those conditions in 2004.

The medical condition categories were created for the Army and Air Force data according to the first three digits of the ICD9 code(s) assigned to each waiver consideration. The Navy and Marines use ICD9 codes limited to those appearing in DoD Instruction 6130.4.

Table 2.28 shows enlisted accession waiver considerations and approvals for the Army. Hearing deficiency is the condition for which waivers were most often considered in 1999–2003, accounting for 6,687 (10.7% of all considerations). Hearing deficiency is also the most common condition for waiver considerations and the second leading for approvals in 2004. The leading condition for waiver approvals in 2004 is disorders of refraction. Disorders of refraction are the second leading condition for waiver approvals in 1999–2003, and asthma is the third most common. Each accounted for just fewer than 10% of considerations and approvals during 1999–2003 and 2004. All other conditions had considerably fewer approvals than these top three conditions.

The numbers of waiver considerations for several conditions in 2004 are different from what was expected based on the numbers over the 5 years from 1999 to 2003. Some of these differences result from varying numbers of considerations, which in turn can result from changes in medical standards over time, and some may represent random fluctuations or may be related to changes in personnel or philosophy within a waiver authority. However, such differences may also be the result of data shortcomings. For example, 48 considerations were labeled “physiological malfunction arising from mental factors” in 2004, compared with 1,179 during 1999–2003. This difference most likely reflects a change in the coding of such considerations rather than a real drop of such a magnitude in the waiver requests for this category.

Table 2.29 shows the conditions for which the most accession medical waivers were considered by the Navy waiver authority during 1999–2003. The corresponding numbers of waiver considerations and approvals for those conditions in 2004 are also shown.

Hearing deficiency is the condition for which Navy waivers were most often considered in 1999–2003. Asthma followed closely, and disorders of refraction and accommodation was third. These three conditions were involved in 3,313 (11.3%), 3,172 (10.8%), and 2,858 (9.8%) of Navy waiver considerations during the period, respectively. Disorders of refraction accounted for the largest number of waiver approvals: 1,674 (11.4% of all approvals).

**TABLE 2.28. TOP 20 ICD9 DIAGNOSES OF WAIVERS CONSIDERED AND GRANTED FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 vs 2004: ARMY\***

ICD9 code	Condition	1999–2003				2004			
		Applied		Granted		Applied		Granted	
		Count	%	Count	%	Count	%	Count	%
389	Hearing deficiency	6,687	10.7	4,865	12.6	1,345	10.0	698	9.2
367	Disorders of refraction and accommodation	4,809	7.7	3,818	9.9	1,072	8.0	758	10.0
493	Asthma	4,743	7.6	3,693	9.6	862	6.4	438	5.8
717	Internal derangement of knee	1,889	3.0	1,535	4.0	311	2.3	170	2.2
754	Certain congenital musculoskeletal deformities	1,460	2.3	1,212	3.1	216	1.6	123	1.6
306	Physiological malfunction arising from mental factors	1,179	1.9	1,176	3.0	48	0.4	47	0.6
314	ADHD	983	1.6	872	2.3	291	2.2	230	3.0
401	Hypertension	803	1.3	498	1.3	117	0.9	21	0.3
300	Neurotic, mood, somatoform, dissociative, or factitious disorders	797	1.3	366	0.9	378	2.8	105	1.4
785	Symptoms involving cardiovascular system	776	1.2	700	1.8	149	1.1	127	1.7
796	Other nonspecific abnormal findings	696	1.1	657	1.5	466	0.7	435	1.0
783	Symptoms concerning nutrition, metabolism, and development	689	1.1	571	1.3	13	0.0	8	0.0
719	Other and unspecified disorders of joint	685	1.1	415	0.9	238	0.4	78	0.2
733	Other disorders of bone and cartilage	566	0.9	444	1.0	412	0.6	332	0.7
693	Dermatitis due to substances taken internally	556	0.9	507	1.1	61	0.1	54	0.1
831	Dislocation of shoulder	531	0.8	439	1.0	98	0.2	68	0.2
737	Curvature of spine	511	0.8	299	0.7	126	0.2	59	0.1
311	Depressive disorders	509	0.8	329	0.7	176	0.3	50	0.1
813	Fracture of radius and ulna	481	0.8	442	1.0	66	0.1	51	0.1
622	Noninflammatory disorders of cervix	445	0.7	408	0.9	53	0.1	38	0.1
	Other	32,706	52.5	15,359	41.4	6,897	61.6	3,676	61.5
	<b>Total</b>	<b>62,501</b>		<b>38,605</b>		<b>13,395</b>		<b>7,566</b>	

\* Values represent applicants with a diagnostic code, not total waiver applicants.

Hearing deficiency is also the most common condition for waiver considerations in 2004 but is the second most common condition for waiver approvals in 2004. Disorder of refraction is the second leading condition for waiver considerations in 2004 and was the most common condition for waiver approval. Asthma was the third most common waiver approved during 1999–2003 but was surpassed by disorders of bone and cartilage as the third most common waiver approval in 2004. All other conditions had considerably fewer approvals than these top four conditions.

**TABLES 2.29. TOP 20 DoD DIAGNOSES OF WAIVERS CONSIDERED AND GRANTED FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 VS 2004: NAVY\***

DoD code	Condition	1999–2003				2004			
		Applied		Granted		Applied		Granted	
		Count	%	Count	%	Count	%	Count	%
389	Hearing deficiency	3,313	11.3	1,411	9.6	671	13.0	358	11.4
493	Asthma	3,172	10.8	1,249	8.5	382	7.4	221	7.0
367	Disorders of refraction and accommodation	2,858	9.8	1,674	11.4	617	11.9	383	12.2
733	Other disorders of bone and cartilage	1,409	4.8	989	6.8	337	6.5	275	8.7
401	Hypertension	1,172	4.0	910	6.2	185	3.6	157	5.0
754	Certain congenital musculoskeletal deformities	1,154	3.9	829	5.7	120	2.3	94	3.0
796	Miscellaneous conditions	868	3.0	427	2.9	162	3.1	104	3.3
717	Internal derangement of knee	820	2.8	490	3.3	126	2.4	88	2.8
995	Certain adverse effects not elsewhere classified	700	2.4	409	2.8	118	2.3	83	2.6
300	Neurotic, mood, somatoform, dissociative, or factitious disorders	690	2.4	265	1.8	67	1.3	26	0.8
726	Peripheral enthesopathies and allied syndromes	637	1.9	330	1.9	111	0.3	71	0.4
314	ADHD	625	1.9	362	2.1	176	0.5	117	0.7
795	Abnormal Pap smear	567	1.7	443	2.5	93	0.3	76	0.4
737	Scoliosis	448	1.3	139	0.8	61	0.2	23	0.1
785	Tachycardia persistent	386	1.1	324	1.8	106	0.3	93	0.5
746	Valvular heart diseases, congenital	385	1.1	152	0.9	61	0.2	38	0.2
905	Late effects of musculoskeletal and connective tissue injuries	338	1.0	156	0.9	47	0.1	29	0.2
696	Psoriasis	296	0.9	141	0.8	47	0.1	23	0.1
313	Behavior disorders	282	0.8	116	0.7	48	0.1	14	0.1
784	Headaches, recurrent, all types	282	0.8	103	0.6	45	0.1	26	0.1
	Other	8,849	32.2	3,730	28.0	1,587	43.7	849	40.3
	<b>Total</b>	<b>29,251</b>		<b>14,649</b>		<b>5,167</b>		<b>3,148</b>	

\* Values represent applicants with a diagnostic code, not total waiver applicants.

Table 2.30 shows the conditions for which the most accession medical waivers were considered by the Marine waiver authority during 1999–2003 and the corresponding numbers of waiver considerations and approvals for those conditions in 2004.

Asthma is the condition for which waivers were most often considered in 1999–2003, with 2,282 considerations. It was also the condition involved in the highest number of waiver approvals during this period, with 1,310. Hearing loss and disorders of refraction had the second and third most considerations, respectively, with more approvals for disorders of refraction.



The ordering by condition in 2004 is slightly different than that in 1999–2003: 1) disorders of refraction, 2) other disorders of bone and cartilage, and 3) asthma for waivers considered. For waivers approved, the order changes to 1) other disorders of bone and cartilage, 2) disorders of refraction, and 3) asthma.

**TABLE 2.30. TOP 20 DoD DIAGNOSES OF WAIVERS CONSIDERED AND GRANTED FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 VS 2004: MARINES\***

DoD code	Condition	1999–2003				2004			
		Applied		Granted		Applied		Granted	
		Count	%	Count	%	Count	%	Count	%
493	Asthma	2,282	13.4	1,310	14.2	309	8.6	208	8.8
389	Hearing deficiency	1,770	10.4	452	4.9	281	7.9	107	4.5
367	Disorders of refraction and accommodation	1,516	8.9	847	9.2	328	9.2	236	10.0
796	Miscellaneous conditions	926	5.4	487	5.3	273	7.6	180	7.6
733	Other disorders of bone and cartilage	838	4.9	644	7.0	313	8.7	272	11.5
401	Hypertension	820	4.8	629	6.8	189	5.3	159	6.7
717	Internal derangement of knee	670	3.9	473	5.1	85	2.4	60	2.5
314	ADHD	656	3.8	468	5.1	197	5.5	165	7.0
754	Certain congenital musculoskeletal deformities	502	2.9	356	3.9	49	1.4	31	1.3
300	Neurotic, mood, somatoform, dissociative, or factitious disorders	489	2.9	245	2.7	89	2.5	62	2.6
995	Certain adverse effects not elsewhere classified	318	1.6	152	1.3	92	0.4	65	0.6
726	Peripheral enthesopathies and allied syndromes	271	1.3	162	1.4	37	0.2	27	0.2
905	Late effects of musculoskeletal and connective tissue injuries	258	1.3	152	1.3	43	0.2	31	0.3
746	Valvular heart diseases, congenital	247	1.2	136	1.2	62	0.3	31	0.3
785	Tachycardia persistent	211	1.0	172	1.5	43	0.2	33	0.3
737	Scoliosis	205	1.0	51	0.4	47	0.2	19	0.2
P81	Keratorefractive surgery	167	0.8	120	1.0	39	0.2	35	0.3
718	Shoulder instability of any major joint	160	0.8	56	0.5	81	0.4	31	0.3
696	Psoriasis	154	0.8	47	0.4	15	0.1	3	0.0
692	Eczema	150	0.7	70	0.6	43	0.2	26	0.2
	Other	4,468	28.2	2,208	26.3	964	38.5	576	34.6
	Total	17,078		9,237		3,579		2,357	

\* Values represent applicants with a diagnostic code, not total waiver applicants.

Table 2.31 shows the conditions for which the most accession medical waivers were considered by the Air Force during 1999–2003 and the corresponding numbers of waiver considerations and approvals for those conditions in 2004.

Air Force waivers were most often considered for disorders of refraction in 1999–2003 ( $n = 1,390$ ), followed by asthma and hearing deficiency. Disorders of refraction was also involved

in the highest number of waiver approvals during this period ( $n = 785$ ) It is almost double that of the second leading approval condition, ADHD which was followed by asthma.

The ordering of conditions considered for waiver by condition in 2004 is quite different than that in 1999–2003: symptoms concerning nutrition, metabolism, and development (seventh in 1999–2003) was the most commonly considered waiver condition in 2004, followed by disorders of refraction and asthma.

The distribution of waiver approvals is also considerably different, with few (76 of 601 in 1999–2003) waivers being granted for hearing deficiency. The order for approvals is: 1) symptoms concerning nutrition, metabolism, and development, 2) ADHD., and 3) disorders of refraction.

**TABLE 2.31. TOP 20 ICD9 DIAGNOSES OF WAIVERS CONSIDERED AND GRANTED FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 VS 2004: AIR FORCE\***

ICD9 code	Condition	1999–2003				2004			
		Apply		Granted		Apply		Granted	
		Count	%	Count	%	Count	%	Count	%
367	Disorders of refraction and accommodation	1,390	10.7	785	12.7	242	8.4	123	8.5
493	Asthma	1,091	8.4	374	6.0	231	8.1	67	4.6
389	Hearing deficiency	601	4.6	76	1.2	82	2.9		0.0
314	ADHD	554	4.3	398	6.4	188	6.6	139	9.6
P79	Reduction of fracture and dislocation	414	3.2	312	5.0	131	4.6	103	7.1
P81	Repair of cruciate ligament	404	3.1	347	5.6	90	3.1	58	4.0
783	Symptoms concerning nutrition, metabolism, and development	309	2.4	223	3.6	250	8.7	245	17.0
718	Other derangement of joint	273	2.1	128	2.1	75	2.6	40	2.8
296	Episodic mood disorders	271	2.1	124	2.0	61	2.1	33	2.3
734	Pes planus acquired	271	2.1	189	3.0	44	1.5	28	1.9
719	Other and unspecified disorder of joint	221	1.6	91	1.4	65	0.5	34	0.5
754	Certain congenital musculoskeletal deformities	219	1.6	66	1.0	52	0.4	12	0.2
692	Contact dermatitis and othereczema	181	1.3	32	0.5	34	0.2	2	0.0
368	Visual disturbances	177	1.3	74	1.1	10	0.1	7	0.1
732	Osteochondropathies	134	1.0	51	0.8	27	0.2	15	0.2
309	Adjustment reaction	125	0.9	78	1.2	40	0.3	28	0.4
622	Noninflammatory disorders of cervix	121	0.9	79	1.2	41	0.3	25	0.4
300	Neurotic, mood, somatoform, dissociative, or factitious disorders	99	0.7	58	0.9	20	0.1	7	0.1
424	Other diseases of endocardium	96	0.7	29	0.4	16	0.1	10	0.1
696	Psoriasis	96	0.7	7	0.1	15	0.1	0	0.0
	Other	5,950	46.3	2,683	43.9	1,150	49.0	466	39.9
	Total	12,997		6,204		2,864		1,442	

\* Values represent applicants with a diagnostic code, not total waiver applicants.

**Part II: Medical Waivers with an Accession Record**

Table 2.32 shows the numbers of applicants for enlisted service granted accession medical waiver approvals during each year from 1999 through 2004, all service branches combined. Also shown are the numbers and percentages of these individuals who were subsequently gained onto active duty within 1 and 2 years of application at MEPS.

As seen under “Part I: Without Accession,” the numbers of waiver approvals have generally increased over the period, with 10,735 in 1999 to a peak of almost 15,000 in 2003. Accession percentages of these applicants were generally over 50% within 1 year of initial application. The only exception is among those granted a waiver in 2003, for which follow-up data were incomplete. Also, except for 2003, the 2-year accession percentages ranged from 65% to 70%.

**TABLE 2.32. ACCESSIONS WITHIN 1 AND 2 YEARS OF PHYSICAL EXAMINATION FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2004: YEAR**

Year of waiver consideration	Applicants with waivers granted	Applicants who accessed within 1 year of application		Applicants who accessed within 2 years of application	
		Count	Rate (per 100)	Count	Rate (per 100)
1999	10,735	6,446	60.0	7,495	69.8
2000	11,401	6,631	58.2	7,605	66.7
2001	10,277	5,917	57.6	6,752	65.7
2002	13,075	7,483	57.2	8,705	66.6
2003	14,964	7,452	49.8	8,802	58.8
2004	13,691	6,063	44.3	6,968	—*
Total	74,143	39,992		46,327	

\* Incomplete follow-up time.

Tables 2.33–2.37 summarize waiver considerations during 1999–2003 and 2004, separately, among individuals with a corresponding MEPS application record. Subsequent accession numbers are also shown for several demographic factors. Numbers of total records also vary slightly depending on the completeness of data on the demographic factor being considered.

Table 2.33 shows the gender distribution of applicants receiving a waiver and those who subsequently came onto active duty. The distribution was similar in 1999–2003 and 2004. Females accounted for a slightly smaller percentage of subsequent accessions than of waiver approvals.

**TABLE 2.33. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2003 VS 2004: GENDER**

Gender	1999–2003				2004			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
Male	48,710	80.6	35,247	82.9	11,378	83.1	6,323	84.4
Female	11,742	19.4	7,265	17.1	2,313	16.9	1,172	15.6

Table 2.34 shows that the age distribution of applicants with waiver approvals was similar in 1999–2003 and 2004. The age distribution of those who were accessed with an accession medical waiver closely reflected that of the overall applicant population (see Table 2.4).

**TABLE 2.34. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2003 VS 2004: AGE**

Age	1999–2003				2004			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
17–20 yr	43,277	71.6	31,275	73.6	9,603	70.1	5,535	73.8
21–25 yr	11,915	19.7	8,334	19.6	2,697	19.7	1,439	19.2
26–30 yr	3,626	6.0	2,192	5.2	789	5.8	360	4.8
>30 yr	1,607	2.7	693	1.6	600	4.4	159	2.1

Table 2.35 shows that whites and blacks made up a slightly lower percentage of waiver approvals in 2004 compared with the previous 5 years, whereas the race of a higher percentage of those accessed with a waiver in 2004 was unknown. These deviations may reflect a difference in the applicant pool, differing likelihood of disqualifying conditions by race, and/or differences in documentation or random variation.

**TABLE 2.35. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2003 VS 2004: RACE\***

Race	1999–2003				2004			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
White	44,647	73.9	31,421	73.9	9,148	66.8	5,221	69.7
Black	9,812	16.2	6,908	16.2	1,551	11.3	917	12.2
Other	5,560	9.2	3,935	9.3	1,158	8.5	713	9.5
Unknown	433	0.7	248	0.6	1,834	13.4	644	8.6

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

Table 2.36 shows the distribution by education level at the time of application among applicants with a waiver approval and among those subsequently accessed. The distribution among waiver recipients in 2004 was similar to that in 1999–2003. Note that many of these who have less than a high school education at the time of application finish high school before enlistment.

**TABLE 2.36. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2003 VS 2004: EDUCATION LEVEL**

Education level	1999–2003				2004			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
Below HS senior*	2,862	4.7	1,623	3.8	577	4.2	235	3.1
HS senior	17,995	29.8	12,699	29.9	4,417	32.3	2,575	34.4
HS diploma	36,336	60.1	26,302	61.9	7,866	57.5	4,339	57.9
Some college	709	1.2	416	1.0	169	1.2	76	1.0
Bachelor's and higher	2,432	4.0	1,385	3.3	622	4.5	246	3.3
Unknown	118	0.2	87	0.2	40	0.3	24	0.3

\* Encompasses the following three cases: 1) one who is pursuing completion of the GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

Table 2.37 summarizes percentile scores on the AFQT among applicants and subsequent accessions with an accession medical waiver. The score distribution among waiver recipients in 2004 is skewed slightly toward the extremes compared with waiver recipients in 1999–2003, with greater percentages in the highest and lowest percentile ranges. The same is true of the subset of waiver recipients who subsequently accessed.

**TABLE 2.37. ACCESSIONS FOR ACTIVE DUTY ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1999–2003 VS 2004: AFQT SCORES**

AFQT score	1999–2003				2004			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
93–99	4,104	6.8	2,654	6.2	1,095	8.0	562	7.5
65–92	22,136	36.6	15,347	36.1	5,212	38.1	2,825	37.7
50–64	15,920	26.3	11,421	26.9	3,465	25.3	1,944	25.9
30–49	16,706	27.6	12,098	28.5	3,305	24.1	1,878	25.1
1–29	1,396	2.3	945	2.2	572	4.2	280	3.7
Missing	190	0.3	47	0.1	42	0.3	6	0.1

## EPTS Discharges

Discharges for medical conditions existing prior to service (EPTS) are of vital interest to AMSARA. A discharge can be classified as EPTS if the condition was verified to have existed before the recruit began service and if the complications leading to discharge arose no more than 180 days after the recruit began duty. As discussed under Section 4, EPTS data reporting has varied by site and over time. In addition, the numbers of records provided across all sites in 2004 appear to be lower than in previous years; this may be due to delays in transmission of records from MEPCOM to AMSARA. The numbers should be reviewed in the context of these data shortcomings.

Part I summarizes the EPTS records provided to AMSARA, irrespective of whether a corresponding accession record is available. EPTS records for active duty, reserves, and National Guard members are included. Part II only summarizes records for which a corresponding accession record is available, so, only active duty discharges are included.

### ***Part I: EPTS Discharges Irrespective of Accession Record***

Included among the EPTS records provided to AMSARA are records for recruits in IET for the reserves or guard for which AMSARA does not currently hold accessions data. In addition, some active duty enlistee EPTS records do not have a matching accession record. Accordingly, the tables in Part I show the numbers of EPTS discharge records provided by the IET sites, irrespective of whether a corresponding accession record is available to AMSARA.

Table 2.38 shows the numbers of EPTS discharge records by service branch, component, and year during 1999–2004. The numbers are unstable for each component of each service. For example, the number of records received for the active duty Navy was 2,534 in 1999 and dropped more than 60% to 919 in 2004. This downturn in reported EPTS discharges was due to a turnover of personnel responsible for reporting such discharges.

**TABLE 2.38. EPTS DISCHARGES AMONG ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2004: SERVICE AND COMPONENT**

Component	1999	2000	2001	2002	2003	2004	Total
<b>Army</b>							
Active duty	3,029	3,377	3,084	3,279	3,469	3,172	19,410
Guard	772	668	556	501	560	682	3,739
Reserves	455	465	404	223	351	474	2,372
<b>Navy</b>							
Active duty	2,534	1,865	1,823	1,815	1,163	919	10,119
Reserves	10	1	1	2	5	1	20
<b>Marines</b>							
Active duty	1,231	1,056	886	1,089	887	1,158	6,307
Reserves	100	108	83	73	135	177	676
<b>Air Force</b>							
Active duty	928	200	257	753	704	679	3,521
Guard	34	12	5	3	4	2	60
Reserves	47	8	8	26	55	55	199
<b>Total</b>	<b>9,140</b>	<b>7,760</b>	<b>7,107</b>	<b>7,764</b>	<b>7,333</b>	<b>7,319</b>	<b>46,423</b>

\* Data reporting incomplete (see Section 4).

† Air Force did not provide EPTS discharge records in April 2000–September 2001.

The numbers of records received for the Navy Reserves were low over the period, with only one record each in 2000, 2001, and 2004. Similarly, the numbers of records provided by the Marines fluctuated radically for both active duty and reserve members. Finally, the Air Force active duty numbers were low in 2000 and 2001, most likely due to underreporting, but the numbers of records provided for 2002-2004 have returned to a more plausible level.

Although the numbers for the Army, particularly the active duty component, appear relatively stable, reporting by site has fluctuated considerably over this period (see “Data Sources” for details). Therefore the apparent stability for the Army as a whole does not reflect full reporting.

Table 2.39 shows EPTS discharges among active duty enlistees according to the medical categories utilized by MEPCOM. The medical categories are sorted according to the numbers of discharges from the Army, the largest service and the one with the most reported EPTS discharges. Asthma and orthopedic conditions (e.g., feet, knee, back, and other) are major causes of EPTS discharges reported in all services. Psychiatric conditions were the most common causes of EPTS discharges reported for the Navy and Marines, accounting for 33.3% and 33.1%, respectively. The considerable differences in category frequencies may be due in part to differences in how each service categorizes and reports EPTS discharges. Accordingly, differences across services may reflect procedural differences more than true EPTS rates, and any comparisons across services are tenuous, at best.

**TABLE 2.39. EPTS DISCHARGES AMONG ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2004: CONDITION**

Condition	Army		Navy		Marines		Air Force*	
	Count	%	Count	%	Count	%	Count	%
Asthma	3,438	17.7	1,097	10.8	824	13.1	1,049	29.8
Psychiatric—other	3,312	17.1	3,373	33.3	2,087	33.1	74	2.1
Orthopedics—other	2,637	13.6	861	8.5	635	10.1	296	8.4
Orthopedics—knee	2,109	10.9	692	6.8	393	6.2	451	12.8
Orthopedics—back	1,726	8.9	531	5.2	270	4.3	300	8.5
Orthopedics—feet	1,623	8.4	291	2.9	179	2.8	267	7.6
Genitourinary system	726	3.7	423	4.2	197	3.1	102	2.9
Other	710	3.7	439	4.3	402	6.4	187	5.3
Neurology—other	596	3.1	393	3.9	326	5.2	197	5.6
Abdomen and viscera	435	2.2	144	1.4	139	2.2	82	2.3
Cardiovascular—other	339	1.7	192	1.9	127	2.0	82	2.3
Skin/lymphatics	299	1.5	269	2.7	110	1.7	80	2.3
Eyes—other	281	1.4	437	4.3	129	2.0	100	2.8
Chest/lung—other	243	1.3	105	1.0	99	1.6	49	1.4
Seizure disorder	225	1.2	122	1.2	61	1.0	43	1.2
Hypertension	222	1.1	79	0.8	64	1.0	12	0.3
Ears—hearing	96	0.5	123	1.2	158	2.5	11	0.3
Vision, refraction	96	0.5	114	1.1	40	0.6	35	1.0
Schizophrenia	42	0.2	4	0.0	9	0.1	0	0.0
Ears—other	27	0.1	91	0.9	35	0.6	4	0.1
Missing	228	1.2	339	3.4	23	0.4	100	2.8
Total	19,410	100.0	10,119	100.0	6,307	100.0	3,521	100.0

\* Air Force did not provide records for discharges in April 2000–September 2001, so the 1999–2004 aggregate numbers for Air Force are underestimates.

The medical causes of EPTS discharges for each service are more thoroughly examined by medical condition using the subset of ICD9 codes listed in DoD Instruction 6130.4. Tables 2.40–2.43 summarize the primary EPTS discharge diagnoses for 1999–2004, sorted by the number of discharges in 2004

Table 2.40 shows the top 20 conditions leading to EPTS discharge in the Army during 1999–2004. Asthma, psychological conditions, and orthopedic conditions were the most common conditions underlying the reported EPTS discharges. The numbers of reported discharges have fluctuated over these years for several conditions, including a dramatic increase in neurotic, mood, somatoform, dissociative, or factitious disorder.

**TABLE 2.40. TOP 20 PRIMARY EPTS DISCHARGE DoD DIAGNOSES AMONG ACTIVE DUTY ENLISTED PERSONNEL IN 1999–2004: ARMY**

DoD code	Condition	1999	2000	2001	2002	2003	2004
493	Asthma	407	525	562	665	675	646
300	Neurotic, mood, somatoform, dissociative, or factitious disorder	230	391	465	327	398	372
719.4	Disease or chronic pain of lower extremities	224	265	230	275	332	310
724	Spine and sacroiliac joints	204	176	159	210	259	191
905.2	Upper extremity disorders	94	108	111	157	178	162
784	Headaches	41	50	49	80	58	65
401	Hypertension	28	20	18	24	69	65
754.6	Flat feet	122	250	100	74	49	61
718.1	Shoulder instability of any major joint	50	66	56	86	88	54
717.7	Chondromalacia of patella or retropatellar knee pain syndrome	113	105	54	64	60	46
345	Epilepsy, including seizures	38	34	36	61	52	43
717.9	Unstable or internally deranged joint	45	53	33	47	53	42
314	Academic skills defects	33	27	28	31	46	35
732.4	Osgood-Schlatter disease	33	42	34	38	46	31
746	Valvular heart disease, congenital	13	9	14	41	32	30
905.4	Lower extremity disorders	80	70	66	41	30	30
737	Deviation or curvature of spine	56	54	39	38	38	26
796	Miscellaneous conditions	29	18	20	39	27	26
456.4	Varicocele	7	11	9	17	30	25
728.7	Plantar fasciitis	52	48	32	22	30	22
Other		1,130	1,055	969	942	919	890
	Total	3,029	3,377	3,084	3,279	3,469	3,172

Table 2.41 shows the top 20 primary conditions leading to EPTS discharge among Navy recruits during 1999–2004, with categories determined by the subset of ICD9 codes listed in DoD Instruction 6130.4. Psychological, personality, behavioral disorders, and asthma were the most common diagnoses. The numbers of reported discharges are unstable for this 5-year period for most of the conditions shown. For example, the numbers of EPTS discharges for personality disorders went from a high of 268 in 2002 to 30 in 2004, a drop of 89% in just 2 years. In fact, the numbers for 2004 are generally much lower than those for the other years for most of the listed conditions. This is most likely due to lack of EPTS reporting to MEPCOM but may reflect a difference in the applicant pool or random variation.



**TABLE 2.41. TOP 20 PRIMARY EPTS DISCHARGE DoD DIAGNOSES AMONG ACTIVE DUTY ENLISTED PERSONNEL IN 1999–2004: NAVY**

DoD code	Condition	1999	2000	2001	2002	2003	2004
300	Neurotic, mood, somatoform, dissociative, or factitious disorder	260	168	111	212	142	38
493	Asthma	380	206	119	147	140	129
301	Personality disorders	167	130	136	268	89	30
719.4	Disease or chronic pain of lower extremities	48	104	131	43	68	48
313	Behavior disorders	104	87	100	151	63	25
314	Academic skills defects	61	26	21	67	58	16
724	Spine and sacroiliac joints	34	56	47	28	36	30
754.6	Flat feet	9	15	44	26	24	7
737	Deviation or curvature of spine	39	24	26	24	22	45
371.6	Keratoconus	19	21	24	9	21	29
389	Hearing deficiency	16	25	23	25	19	22
784	Headaches	91	48	27	28	19	15
345	Epilepsy, including seizures	41	19	25	18	18	17
905.2	Upper extremity disorders	24	26	47	20	15	22
401	Hypertension	13	15	19	21	13	17
717.9	Unstable or internally deranged joint	33	32	32	16	13	15
V22	Pregnancy	42	49	57	38	12	15
796	Miscellaneous conditions	39	13	16	10	12	9
728	Disorders of ligaments and fascia	22	31	90	20	11	11
780.2	Syncope	30	22	20	22	10	9
831	Shoulder dislocation	25	10	10	18	9	12
Other		1,037	738	698	604	349	358
	<b>Total</b>	<b>2,534</b>	<b>1,865</b>	<b>1,823</b>	<b>1,815</b>	<b>1,163</b>	<b>919</b>

Table 2.42 shows the top 20 conditions leading to EPTS discharge among Marine enlistees during 1999–2004. Many of the most common reasons for EPTS discharge among the Marines were psychological in nature. The most common specific condition in 2004, and in 1999–2004 as a whole, was neurotic, mood, somatoform, dissociative, or factitious disorder. Asthma was the next most common in both 2004 and 1999–2004.

The third most common EPTS condition for active duty enlisted Marines was suicide attempt/behavior with an increase in 2004 nearly equal to the level seen in 2001. Informal review of these records indicated that most were related to behavior rather than actual attempts. Anecdotal evidence suggests that the services take a risk-adverse approach to suicide threats, preferring to allow release of all who make such threats rather than risk an actual suicide. This may lead to increased suicide threats by recruits seeking to escape the rigors of basic training.

The numbers of EPTS records changed markedly in certain categories. This may be partly due to fluctuations in overall data reporting over the period. Further scrutiny would be required to determine the reasons for these dramatic changes in reported discharge numbers.

**TABLE 2.42. TOP 20 PRIMARY EPTS DISCHARGE DoD DIAGNOSES  
AMONG ACTIVE DUTY ENLISTED PERSONNEL IN 1999–2004: MARINES**

DoD code	Condition	1999	2000	2001	2002	2003	2004
300	Neurotic, mood, somatoform, dissociative, or factitious disorder	120	102	131	190	174	198
493	Asthma	138	125	153	166	112	137
300.9	Suicide (attempted or suicidal behavior)	156	66	88	69	46	82
314	Academic skills defects	25	14	15	32	36	42
301	Personality disorders	22	16	20	32	32	91
784	Headaches, recurrent, all types	23	34	20	55	32	31
719.4	Disease or chronic pain of lower extremities	51	48	25	20	28	39
389	Hearing deficiency	34	33	27	17	25	19
724	Spine and sacroiliac joints	27	36	19	23	24	39
905.2	Upper extremity disorders	17	27	19	14	21	24
995.0	Allergic manifestations	15	6	12	21	18	17
718.1	Shoulder instability of any major joint	24	22	8	5	15	14
315	Learning disorder	5	5	2	7	13	19
831	Shoulder dislocation	28	16	18	19	10	16
796	Miscellaneous conditions	9	9	8	13	9	16
786.5	Chest pain	12	7	13	16	9	10
717.9	Unstable or internally deranged joint	9	8	5	10	9	9
304	Drug dependence	5		1	17	6	10
307.6	Enuresis	14	5	4	11	6	9
456.4	Varicocele	1	5	1	4	6	9
Other		496	472	297	348	256	327
	Total	1,231	1,056	886	1,089	887	1,158

Table 2.43 shows the top 20 primary conditions leading to EPTS discharge among Air Force recruits during 1999–2004 (except for 2000–2001, for which numbers are unreliable because the Air Force provided few data on EPTS discharges).

Asthma was the most common cause, with 263 reported EPTS discharges in 2004. Second and third, with numbers considerably lower than those for asthma, were “disease or chronic pain of lower extremities” and “spine and sacroiliac joints.” Note that no psychological conditions appear among the leading causes in any year, most likely reflecting a difference in active screening for these conditions in basic training at Lackland Air Force Base and in Air Force categorization of such conditions as administrative rather than EPTS discharges.

**TABLE 2.43. TOP 20 PRIMARY EPTS DISCHARGE DoD DIAGNOSES  
AMONG ACTIVE DUTY ENLISTED PERSONNEL IN 1999–2004: AIR FORCE**

DoD code	Condition	1999	2002	2003	2004
493	Asthma	183	272	253	263
719.4	Disease or chronic pain of lower extremities	118	65	36	41
724	Spine and sacroiliac joints	101	49	34	37
784	Headaches, recurrent, all types	56	28	28	31
754.6	Flat feet	7	39	26	12
905.2	Upper extremity disorders	22	15	18	17
717.9	Unstable or internally deranged joint	9	8	17	7
746	Valvular heart diseases	4	6	12	7
685	Pilonidal cyst	2	2	11	10
905.4	Lower extremity disorders	12	8	10	14
345	Epilepsy, including seizures	9	6	10	12
795	Abnormal Pap smear	7	2	10	6
P81	Keratorefractive surgery	0	1	8	7
732.4	Juvenile osteochondrosis of lower extremity, excluding foot	8	8	7	8
427.0	Supraventricular tachycardia	1	2	5	9
550	Inguinal hernia	7	6	5	6
285	Anemia	0	3	5	4
300	Neurotic, mood, somatoform, dissociative, or factitious disorder	4	4	5	4
717.7	Retropatellar knee pain syndrome	47	32	4	10
780.2	Syncope	6	7	4	5
Other		325	190	196	169
	Total	928	753	704	679

\* Air Force did not provide records for EPTS discharges that occurred in April 2000–September 2001.

## ***Part II: EPTS Discharges with an Accession Record***

EPTS discharges among recruits accessed during 1999–2004 are summarized in Tables 2.44–2.50. Note that all references to years refer to the year of accession rather than year of discharge. Discharge numbers reflect only discharges occurring among individuals with an accession record in the specified year. As a reminder, by service regulation an EPTS discharge can only be obtained within the first 180 days of accession.

Relative risks are used to compare the likelihood of EPTS discharge between demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group. All comparisons, particularly those by service branch, should be taken in light of the EPTS data reporting fluctuations by service and over time (see Section 4 for details).

Table 2.44 shows EPTS discharges reported among individuals accessed into enlisted service during each year from 1999 through 2004. The numbers of EPTS discharges reported for each year since 2000 are considerably lower than the numbers reported in 1999, whereas the numbers of accessions were relatively stable during these later years. It is unclear whether this represents a decrease in likelihood of EPTS discharge over time, less compliance in data reporting, or differences in how discharges have come to be classified.

**TABLE 2.44. EPTS DISCHARGES AMONG ACTIVE DUTY ENLISTED ACCESSIONS IN 1999–2004: YEAR**

Year	Total accessed	Count	%
1999	172,555	7,098	4.11
2000	180,294	5,663	3.14
2001	170,192	4,935	2.90
2002	176,580	6,015	3.41
2003	168,515	5,282	3.13
2004	138,728	4,436	3.20

Table 2.45 shows numbers of accessions and subsequent EPTS discharges reported by service over 1999–2004. Relative to Army enlistees, the percentage of accessions ending in a reported EPTS discharge is significantly lower among Navy, Marines, and Air Force enlistees. However, EPTS reporting is not uniform across all services or even across different IET sites within the Army and Marines (see “EPTS Discharges” in Section 4). Moreover, the services differ regarding which discharges are classified as EPTS. Therefore, differences observed between services may more reflect procedural or reporting differences than actual differences of discharge likelihood.

**TABLE 2.45. ACTIVE DUTY ENLISTED ACCESSIONS IN 1999–2004 ENDING IN EPTS DISCHARGE: SERVICE**

Service	Total accessed	Discharged	% Discharged	Relative risk	95% CI
Army	355,751	14,984	4.21	1.00	
Navy	264,306	9,333	3.53	0.84	0.82, 0.86
Marine	190,579	6,045	3.17	0.75	0.73, 0.78
Air Force	133,237	2,781	2.09	0.50	0.48, 0.52

\* Air Force did not provide records for discharges in April 2000–September 2001, so the discharge rate and relative risk for Air Force are underestimates.

Table 2.46 shows the numbers of accessions and subsequent EPTS discharges reported by gender. The risk of EPTS discharges is high among female enlistees relative to males.

**TABLE 2.46. ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1999–2004: GENDER**

Gender	Total accessed	Discharged	% Discharged	Relative risk	95% CI
Male	829,125	25,538	3.08	1.00	
Female	177,733	7,890	4.44	1.44	1.41, 1.48

Table 2.47 shows the numbers of accessions and subsequent EPTS discharges reported by age at accession. The risk of EPTS discharge is progressively higher in the age 21–25, age 26–30, and age >30 groups relative to the youngest group.

**TABLE 2.47. ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1999–2004: AGE**

Age	Total accessed	Discharged	% Discharged	Relative risk	95% CI
17–20 yr	739,778	23,540	3.18	1.00	
21–25 yr	216,532	7,648	3.53	1.11	1.08,1.14
26–30 yr	40,262	1,754	4.36	1.37	1.31,1.44
>30 yr	10,269	487	4.74	1.49	1.37,1.63

Table 2.48 shows the numbers of accessions and subsequent EPTS discharges reported by race. The relative risk of EPTS discharge is significantly lower for blacks and for other nonwhites compared with whites.

**TABLE 2.48. ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1999–2004: RACE\***

Race	Total accessed	Discharged	% Discharged	Relative risk	95% CI
White	712,560	25,439	3.57	1.00	
Black	176,669	4,983	2.82	0.79	0.77,0.81
Other	101,153	2,360	2.33	0.65	0.63,0.68
Unknown	16,482	647	3.93	1.10	1.02,1.19

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

Table 2.49 shows the numbers of accessions and subsequent EPTS discharges reported by education level at the time of accession. The risk of EPTS discharge is low among those with some college and those who had completed college at the time of application relative to those who had not yet completed high school.

**TABLE 2.49. ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1999–2004: EDUCATION LEVEL**

Education level	Total accessed	Discharged	% Discharged	Relative risk	95% CI
Below HS	89,956	3,080	3.42	1.00	
HS senior	866,711	28,986	3.34	0.98	0.94,1.01
HS diploma	26,694	837	3.14	0.92	0.85,0.99
Some college	21,881	472	2.16	0.63	0.57,0.69
Unknown	1,622	54	3.33		

Table 2.50 shows the numbers of accessions and subsequent EPTS discharges reported by AFQT percentile score groups. The relative risk of EPTS discharge generally increases as the AFQT score decreases.

**TABLE 2.50. ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1999–2004: AFQT SCORE**

AFQT score	Total accessed	Discharged	% Discharged	Relative risk	95% CI
93–99	47,462	1,058	2.23	1.00	
65–92	350,592	10,224	2.92	1.31	1.23,1.39
50–64	274,261	9,680	3.53	1.58	1.49,1.69
30–49	304,125	11,363	3.74	1.68	1.57,1.78
1–29	26,618	1,093	4.11	1.84	1.70,2.00

## Disability Discharges among Army and Air Force Active Duty Enlistees

Data on disability discharge considerations are compiled separately for each service by its disability agency. The Army and Air Force disability agencies have provided data on all disability discharge considerations during 1999–2004. The Navy/Marines agency has provided data only on a diagnosis-specific request basis rather than for all actions. Consequently, only Army and Air Force disability discharge data are summarized.

### **Part I: Disability Discharges without an Accession Record**

Numbers are presented irrespective of accession records, so the years shown refer to the year of discharge. The individuals being discharged could have been in the service for any number of years. Medical diagnosis categories are taken from the Veterans Administration Schedule for Rating Disabilities (see “Disability” in Section 4).

Table 2.51 summarizes disability discharges in 1999–2003 and separately in 2004 among Army active duty enlistees by medical category. Clearly the largest category, accounting for 66.5% of reported disability discharges in 1999–2003 and 51.9% in 2004, is musculoskeletal system, muscle injuries. A distant second is diseases of trachea and bronchi including asthma, accounting for 5.1% of discharges during 1999–2003 and 7.1% in 2004. Every other category accounted for less than 4% of disability discharges.

**TABLE 2.51. DIAGNOSIS CATEGORIES OF DISABILITY DISCHARGES FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 VS 2004: ARMY\***

Diagnosis category	1999–2003		2004	
	Count	%	Count	%
Musculoskeletal system, muscle injuries	20,766	66.5	6,034	51.9
Diseases of trachea and bronchi	1,598	5.1	823	7.1
Psychotic*, mental organic†, and psychoneurotic§ disorders	699	2.2	475	4.1
Organic diseases of central nervous system	585	1.9	309	2.7
Endocrine system	338	1.1	178	1.5
Systemic condition	177	0.6	55	0.5
Heart	152	0.5	77	0.7
Diseases of eye, impairment of muscle function	137	0.4	72	0.6
Diseases of genitourinary system	129	0.4	62	0.5
Hematologic and lymphatic systems	128	0.4	48	0.4
Other	6,513	20.9	3,488	30.0
Total	31,222		11,621	

\* Schizophrenia, bipolar disorder, major depression, paranoid disorders, and psychoses.

† Various dementias.

§ Generalized anxiety disorders; psychogenic amnesia; psychogenic fugue; multiple personality disorder; conversion disorder; psychogenic pain disorder; phobic, obsessive compulsive dysthymic, adjustment, depersonalization, and posttraumatic disorders; and hypochondriasis.

Table 2.52 summarizes disability discharges in 1999–2003 and separately in 2004 among Air Force active duty enlistees by medical category. The largest category, accounting for 24.9% of reported disability discharges in 1999–2003 and 34.2% in 2004, is musculoskeletal system,

muscle injuries. The second most common category is diseases of trachea and bronchi, which accounted for 14.2% of discharges in 1999–2003 and 13.6% in 2004.

**TABLE 2.52. DIAGNOSIS CATEGORIES OF DISABILITY DISCHARGES FOR ACTIVE DUTY ENLISTED APPLICANTS IN 1999–2003 VS 2004: AIR FORCE**

Diagnosis category	1999–2003		2004	
	All discharges	%	All discharges	%
Musculoskeletal system, muscle injuries	2,754	24.9	611	34.2
Diseases of trachea and bronchi	1,573	14.2	243	13.6
Endocrine system	594	5.4	29	1.6
Psychotic*, mental organic†, and psychoneurotic§ disorders	554	5.0	112	6.3
Organic diseases of central nervous system	393	3.6	51	2.9
Heart	360	3.3	19	1.1
Diseases of genitourinary system	189	1.7	15	0.8
Systemic condition	177	1.6	15	0.8
Hematologic and lymphatic systems	176	1.6	11	0.6
Skin	151	1.4	7	0.4
Other	4,125	37.3	673	37.7
Total	11,046		1,786	

\* Schizophrenia, bipolar disorder, major depression, paranoid disorders, and psychoses.

† Various dementias.

§ Generalized anxiety disorders; psychogenic amnesia; psychogenic fugue; multiple personality disorder; conversion disorder; psychogenic pain disorder; phobic, obsessive compulsive dysthymic, adjustment, depersonalization, and posttraumatic disorders; and hypochondriasis.

## ***Part II: Disability Discharges with an Accession Record***

Numbers of medical disability discharges within the first year of service among Army and Air Force recruits accessed during 1999–2004 are presented. Relative risks are used to compare likelihood of disability discharge between demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group. Disability discharge data were unavailable for the Marines and Navy (see “Disability” in Section 4).

Table 2.53 shows the numbers of disability discharges reported among individuals accessed into Army or Air Force enlisted service during each year from 1999 through 2004. Results are shown for each accession year group with a full year of follow-up on each individual.

The disability discharge percentages are increasing slightly over the time shown. For those enlistees accessed in 1999, the percentage receiving disability discharge within 1 year of enlistment is 0.56. The percentage increases steadily by year to a high of 0.61% among enlistees accessed in 2003. Note that the rate is not shown for enlistees accessed in 2004, because follow-up data are only through the end of 2004, leaving less than a full year for these individuals.

**TABLE 2.53. DISABILITY DISCHARGES FOR ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS WITHIN 1 YEAR OF SERVICE IN 1999–2004: ACCESSION YEAR**

Year	Total accessed	Discharged within 1 year of service	
		Count	%
1999	93,143	525	0.56
2000	98,384	532	0.54
2001	90,465	493	0.54
2002	104,116	616	0.59
2003	95,889	581	0.61
2004	69,982	208	N/A

Table 2.54 shows numbers of accessions and subsequent disability discharges reported by service over 1999–2004. Relative to Army enlistees, the percentage of accessions ending in a reported disability discharge is significantly lower among Air Force enlistees.

**TABLE 2.54. ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1999–2004: SERVICE**

Service	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
Army	355,751	2,334	0.66	1.00	
Air Force	196,228	621	0.32	0.48	0.44, 0.53

Tables 2.55–2.57 show the percentages of Army and Air Force accessions ending in disability discharge within the first year of service by different demographic factors. Females had roughly double the risk of males for disability discharge. Likelihood of disability discharge within the first year of service was higher among the older age group relative to the younger age group. Whites were more likely than blacks or others to have an early disability discharge.

**TABLE 2.55. ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1999–2004: GENDER**

Gender	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
Male	433,809	1,887	0.43	1.00	
Female	118,166	1,068	0.90	2.08	1.93, 2.24

**TABLE 2.56. ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1999–2004: AGE**

Age	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
17–20 yr	384,134	1,731	0.45	1.00	
21–25 yr	134,391	854	0.64	1.41	1.30, 1.53
26–30 yr	26,534	264	0.99	2.21	1.94, 2.51
>30 yr	6,919	106	1.53	3.40	2.80, 4.13



**TABLE 2.57 ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1999–2004: RACE**

Race	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
White	393,076	2,274	0.58	1.00	
Black	103,298	448	0.43	0.75	0.68,0.83
Other	44,816	202	0.45	0.78	0.67,0.90
Unknown*	10,789	31	0.29	0.50	0.35,0.71

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

Table 2.58 shows the numbers and likelihood of disability discharge within the first year of service by education level at the time of accession. Those who began service without having completed high school had the lowest risk of early disability discharge. By comparison, those who had finished some college had significantly higher relative risk of disability discharge. These findings are likely related to the earlier finding that younger applicants are at lower risk for early disability discharge.

**TABLE 2.58. ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1999–2004: EDUCATION LEVEL**

Education level	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
Below HS	49,150	231	0.47	1.00	
HS diploma	468,037	2,514	0.54	1.14	1.00,1.31
Some college	17,020	110	0.65	1.38	1.10,1.72
Bachelor's and above	16,847	96	0.57	1.21	0.96,1.54
Unknown	925	4	0.43		

Table 2.59 shows the numbers and likelihood of disability discharge within the first year of service by AFQT percentile score. None of the percentile groups was a significantly different risk from any of the other groups for disability discharge.

**TABLE 2.59. ARMY AND AIR FORCE ACTIVE DUTY ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1998–2003: AFQT SCORE**

AFQT score	Total accessed	Discharged within 1 year of accession	% Discharged	Relative risk	95% CI
93–99	27,480	139	0.51	1.00	
65–92	196,899	1,035	0.53	1.04	0.87,1.24
50–64	155,612	866	0.56	1.10	0.92,1.32
30–49	155,629	834	0.54	1.06	0.89,1.27
1–29	14,145	79	0.56	1.10	0.84,1.45

# Hospitalizations

## ***Part I: Hospitalizations without an Accession Record***

Hospitalization records of servicemembers admitted to any military treatment facility are summarized regardless of whether AMSARA has an accession record corresponding to the hospitalized individual. Except where indicated, the tables include all hospitalizations, regardless of length of time in service before hospitalization. For those tables that present results according to length of service before hospitalization, the length of service was taken from a field within each hospitalization record.

Table 2.60 shows overall Army hospitalization counts and percentages during the first and second years of service as well as counts of hospitalizations at all lengths of service. Results are shown separately for active duty enlistees, officers, and warrant officers during 1999–2004 combined.

A much greater percentage of hospitalizations among enlistees occur during the first 2 years of service compared with officers or warrant officers. For example, over 13.7% of hospitalizations of Army enlistees occurred among those who were in the first year of service. The analogous percentages for officers and warrant officers were 2.2% and 0.4%, respectively.

The small percentage for warrant officers reflects the fact that individuals typically must rise through the enlisted ranks to become warrant officers; thus few achieve that level during the first 2 years of service. The greater influence of the first 2 years among enlistees compared with officers may partly reflect the tendency of enlistees to spend less time in the service compared with IET than officers; i.e., a greater percentage of the enlistee force consists of individuals in the first 2 years of service. The greater physical demands of basic and advanced individual training compared with officer basic training may contribute to this disparity.

**TABLE 2.60. HOSPITALIZATIONS IN 1999–2004 BY GRADE, YEARS OF SERVICE, AND SERVICE: ACTIVE DUTY**

Years of service	Army		Navy		Marines		Air Force	
	Count	%	Count	%	Count	%	Count	%
<b>Enlistees</b>								
0–1	21,256	13.7	7,078	9.2	6,697	16.7	8,452	15.3
1–2	22,264	14.4	8,860	11.5	5,711	14.3	5,286	9.6
All	154,592	—	76,834	—	40,047	—	55,247	—
<b>Officers</b>								
0–1	333	2.2	114	1.3	37	1.9	195	2.1
1–2	695	4.5	263	3.1	75	3.9	388	4.1
All	15,454	—	8,453	—	1,903	—	9,362	—
<b>Warrant officers</b>								
0–1	9	0.4	0	0.0	0	0.0	3	37.5
1–2	5	0.2	1	0.3	3	0.9	0	0.0
All	2,495	—	318	—	336	—	8	—

Table 2.61 shows hospitalizations among the reserves, and Table 2.62 shows hospitalizations for the National Guard. The percentages of hospitalizations during the first 2 years of service are clearly higher among enlistees than among officers and are much higher than among warrant officers. In fact, the hospitalizations for both these components are more heavily skewed toward the first year of service than for active duty Army enlistees.

**TABLE 2.61. HOSPITALIZATIONS IN 1999–2004 BY GRADE, YEAR OF SERVICE, AND SERVICE: RESERVES**

Years of service	Army		Navy		Marines		Air Force	
	Count	%	Count	%	Count	%	Count	%
<b>Enlistees</b>								
0–1	1,485	22.6	16	1.6	63	9.5	106	13.1
1–2	341	5.2	50	5.1	53	8.0	49	6.0
All	6,581	—	975	—	661	—	812	—
<b>Officers</b>								
0–1	36	3.2	8	2.2	2	2.4	2	1.2
1–2	37	3.3	18	5.0	5	6.0	6	3.7
All	1,118	—	363	—	83	—	162	—
<b>Warrant officers</b>								
0–1	1	0.8	0	0.0	0	0.0	0	0.0
1–2	1	0.8	0	0.0	0	0.0	0	0.0
All	125	—	3	—	5	—	0	—

**TABLE 2.62. HOSPITALIZATIONS IN 1999–2004 BY GRADE, YEAR OF SERVICE, AND SERVICE: NATIONAL GUARD**

Years of service	Army		Air Force	
	Count	%	Count	%
<b>Enlistees</b>				
0–1	1,858	23.0	121	14.9
1–2	474	5.9	42	5.2
All	8,090	—	813	—
<b>Officers</b>				
0–1	8	1.7	1	1.3
1–2	8	1.7	1	1.3
All	464	—	79	—
<b>Warrant officers</b>				
0–1	0	0.0	0	0.0
1–2	0	0.0	0	0.0
All	137	—	0	—

Table 2.63 compares hospitalization percentages during 1999–2003 with those in 2004 among active duty personnel according to medical category of the primary diagnosis code. Except for “others,” the categories are taken directly from the ICD9. The “others” category represents a wide range of diagnoses that do not fit the ICD9 categories. In addition, the five categories including the word *other* cover conditions not fitting the specific categories. For example, “other diseases of respiratory system” includes all respiratory tract diseases that do not fit into the specific respiratory conditions listed.

In 1999–2003, the largest medical category of hospitalizations (aside from “others”) was complications of pregnancy. In 2004, however, the percentage of hospitalizations for injuries was higher than in 1999–2003 for the Army and Marines. In fact, injuries plus fractures was the largest category for hospitalization after pregnancy among active duty Army and Marine personnel, and the category was a close second among active duty Navy personnel. This is likely due, in part, to injuries associated with combat.

**TABLE 2.63. ACTIVE DUTY ENLISTED HOSPITALIZATION PERCENTAGES OF DIAGNOSIS CATEGORIES BY SERVICE: 1999–2003 vs 2004**

Diagnosis category	Army		Navy		Marines		Air Force	
	1999–2003	2004	1999–2003	2004	1999–2003	2004	1999–2003	2004
Complications of pregnancy	20.2	15.0	27.8	33.0	14.4	12.3	27.3	32.2
Neurotic and personality disorders	8.7	7.7	10.0	5.6	9.3	7.1	9.0	7.3
Injuries	6.4	10.9	3.6	3.7	6.7	15.3	3.1	3.2
Fracture	5.3	8.2	4.1	4.1	6.7	12.7	2.7	3.0
Nonspecific symptoms	5.1	5.3	5.0	5.7	4.7	3.1	5.5	6.7
Arthropathies and related symptoms	4.5	4.2	3.6	3.6	5.5	4.5	2.9	2.4
Other psychoses	3.4	2.6	3.6	2.7	2.8	2.9	2.9	2.6
Other diseases of respiratory system	2.6	2.4	2.2	1.4	3.1	1.8	2.6	2.3
Disease of oral cavity	2.4	2.2	1.2	1.0	1.5	1.1	2.5	2.7
Infections of skin and subcutaneous tissue	2.1	3.2	2.1	2.5	4.7	4.9	1.4	1.7
Alcohol and drug dependence	2.0	1.4	2.0	1.9	2.0	1.3	1.3	0.8
Appendicitis	2.0	2.1	2.5	2.9	3.3	3.0	2.6	3.1
Pneumonia and influenza	1.9	1.8	0.9	0.8	3.4	3.3	1.4	0.9
Hernia of abdominal cavity	1.2	1.7	0.6	0.5	1.4	1.0	0.5	0.5
Noninfectious enteritis and colitis	1.1	1.0	0.9	0.7	1.0	0.9	1.1	0.8
Acute respiratory infections	1.0	0.8	0.4	0.3	0.8	0.8	0.9	0.3
Poisoning and toxic effects	0.8	1.0	0.7	0.8	1.6	1.4	0.4	0.5
Other diseases due to viruses	0.8	0.6	0.4	0.3	0.6	0.3	2.8	0.4
Chronic obstructive pulmonary disease	0.6	0.4	0.4	0.3	0.4	0.2	0.4	0.3
Other bacterial diseases	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1
Viral diseases accompanied by exanthem	0.2	0.1	0.2	0.1	0.2	0.0	0.1	0.1
Others	27.3	27.3	27.8	28.0	25.6	21.9	28.3	28.4
Total	141,876	30,759	72,100	13,539	34,019	8,281	54,714	9,918

Table 2.64 compares the distribution of hospitalizations by medical conditions during 1999–2003 with those during 2004 among active duty, guard, and reserve servicemembers according to category of the primary diagnosis code.

Comparisons within components for 2004 are similar to those for 1999–2003 except for injuries and fracture. However, the distribution of hospitalizations by cause differs considerably by component. In particular, hospitalizations among reserve and guard members tend to be more heavily weighted toward acute conditions than those of active duty members. This may be partly due to the fact that the reserves and guard are only eligible for military hospitalization for conditions that become a problem while on duty. Pregnancy complications, for example, are typically an ineligible cause for hospitalization for the reserves and guard. Excluding complications of pregnancy, the distribution of hospitalizations by diagnosis category is similar across components by year.

**TABLE 2.64. HOSPITALIZATION PERCENTAGES OF DIAGNOSIS CATEGORIES FOR ALL SERVICES BY COMPONENT: 1999–2003 VS 2004**

Diagnosis category	Active duty		National Guard		Reserves	
	1999–2003	2004	1999–2003	2004	1999–2003	2004
Complications of pregnancy	22.6	21.3	2.8	1.7	6.2	5.5
Neurotic and personality disorders	9.1	7.1	7.6	7.4	7.3	6.4
Injuries	5.2	8.7	7.3	13.3	7.1	9.8
Nonspecific symptoms	5.1	5.3	9.3	9.9	10.0	9.3
Fracture	4.7	7.1	5.7	8.7	5.3	8.4
Arthropathies and related disorders	4.1	3.8	2.8	2.6	3.2	2.8
Other psychoses	3.3	2.7	3.0	3.1	3.1	3.1
Other diseases of urinary system	2.6	2.1	3.1	3.9	3.1	3.0
Appendicitis	2.4	2.6	2.0	1.9	2.2	2.4
Infections of skin and subcutaneous tissue	2.3	3.0	4.2	3.7	2.9	3.4
Disease of oral cavity	2.0	1.9	1.5	1.1	1.3	1.2
Alcohol and drug dependency	1.9	1.4	1.2	1.3	1.0	0.7
Pneumonia and influenza	1.7	1.6	5.1	2.0	2.9	1.6
Other diseases due to viruses	1.0	0.5	1.8	1.1	1.2	0.4
Noninfectious enteritis and colitis	1.0	0.9	1.8	1.1	1.6	1.0
Hernia of abdominal cavity	1.0	1.1	2.1	2.8	1.9	2.0
Poisoning and toxic effects	0.8	0.9	0.8	0.5	0.7	0.4
Acute respiratory infection	0.8	0.6	1.6	0.9	1.3	0.9
Chronic obstructive pulmonary disease	0.5	0.3	0.8	0.4	0.8	0.4
Other bacterial diseases	0.2	0.2	0.4	0.4	0.3	0.2
Viral diseases accompanied by exanthem	0.2	0.1	0.4	0.1	0.4	0.1
Others	27.4	26.9	34.6	31.8	36.3	36.9
Total	302,709	62,497	6,414	3,178	7,915	2,988

**Part II: Hospitalizations with an Accession Record,  
Active Duty Enlistees Only**

Hospitalization records of active duty enlistees who began service during 1999–2004 and for whom AMSARA has a corresponding accession record are summarized. Relative risks are used to compare the likelihood of hospitalization across demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group.

Table 2.65 shows hospitalizations and persons hospitalized among recruits accessed during each year from 1999 through 2004. The results are first presented for hospitalizations that occurred within the same year in which the recruit began active duty. The count column includes multiple hospitalizations per person, whereas the person column excludes multiple hospitalizations per person. This presentation forms a fair basis of comparison for those gained in 2004, because hospitalization data were only available through 2004, allowing less than a full year of follow-up for this group. Results are also shown for each accession year group with a full year of follow-up on each individual.

**TABLE 2.65. HOSPITALIZATIONS FOR ACTIVE DUTY ENLISTEES BY ACCESSION YEAR: 1999–2004**

Year	Total accessed	Within same accession year			Within 1 year of service		
		Count	Person	% of persons	Count	Person	% of persons
1999	172,555	3,889	3,549	2.06	7,479	6,612	3.83
2000	180,294	6,128	5,556	3.08	9,660	8,530	4.73
2001	170,192	4,073	3,681	2.16	7,402	6,446	3.79
2002	176,580	4,810	4,317	2.44	7,999	6,926	3.92
2003	168,515	4,535	4,093	2.43	7,297	6,363	3.78
2004	138,728	3,217	2,941	2.12	N/A	N/A	N/A

Tables 2.66–2.71 summarize numbers of hospitalizations and numbers of individuals hospitalized within 1 year of accession by demographic groups among enlisted personnel beginning duty during 1999–2004. Note that these numbers and percentages are slight underestimates, because follow-up data for recruits who were accessed in 2004 were incomplete.

Females had a higher likelihood of hospitalization. With regard to age, those who began active duty at age 21–25 and those who began at age 26–30 or >30 had a significantly higher risk of hospitalization than those beginning duty at age 17–20 years. In fact, the risk increases by increasing age group.

Whites had a higher likelihood of hospitalization than nonwhites. Blacks had a higher likelihood than other nonwhites. The difference in hospitalization likelihood by education level was slight, with those having some college having a slightly highest risk than other groups. Finally, recruits in the 93–99 percentile group on the AFQT had a lower likelihood of hospitalization than those in all other percentile groupings.

**TABLE 2.66. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: SERVICE**

Service	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
Army	355,751	19,383	16,845	4.74	1.00	
Navy	264,306	8,080	7,221	2.73	0.58	0.56,0.59
Marine	190,579	7,458	6,530	3.43	0.72	0.70,0.74
Air Force	196,228	8,159	7,244	3.69	0.78	0.76,0.80

**TABLE 2.67. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: GENDER**

Gender	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
Male	829,125	32,620	28,654	3.46	1.00	
Female	177,733	10,459	9,185	5.17	1.50	1.46,1.53

**TABLE 2.68. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: AGE**

Age	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
17–20 yr	739,778	30,289	26,742	3.61	1.00	
21–25 yr	216,532	9,900	8,644	3.99	1.10	1.08,1.13
26–30 yr	40,262	2,207	1,873	4.65	1.29	1.23,1.35
>30 yr	10,269	684	581	5.66	1.57	1.45,1.70

**TABLE 2.69. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: RACE\***

Race	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
White	712,560	31,237	27,422	3.85	1.00	
Black	176,669	7,531	6,605	3.74	0.97	0.95,1.00
Other	101,153	3,828	3,381	3.34	0.87	0.84,0.90
Unknown	16,482	484	432	2.62	0.68	0.62,0.75

\* New categories exist in race since 2003. Increasing numbers of applicants do not answer this question.

**TABLE 2.70. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: EDUCATION LEVEL**

Education level	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
Below HS	89,956	3,766	3,306	3.68	1.00	
HS diploma	866,711	37,011	32,511	3.75	1.02	0.99,1.06
Some college	26,694	1,380	1,198	4.49	1.22	1.14,1.30
Bachelor's	21,881	856	767	3.51	0.95	0.88,1.03
Unknown	1,622	67	58	3.58	0.97	0.75,1.25

**TABLE 2.71. HOSPITALIZATIONS WITHIN 1 YEAR OF ACCESSION  
FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004: AFQT SCORE**

AFQT score	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
93–99	47,462	1,695	1,497	3.15	1.00	
65–92	350,592	14,421	12,728	3.63	1.15	1.09,1.21
50–64	274,261	12,346	10,831	3.95	1.25	1.19,1.32
30–49	304,125	13,383	11,710	3.85	1.22	1.16,1.29
0–29	26,618	1,194	1,037	3.90	1.24	1.14,1.34
Missing	3,806	41	37	0.97	0.31	0.22,0.43

Table 2.72 shows the most common medical categories of reasons for hospitalizations and the numbers of admissions and individuals admitted for those conditions. Medical categories are specified in ICD9. The category neurotic and personality disorders is clearly the most frequent, particularly for hospitalizations during the first year of service. Not surprisingly, injuries with fractures, combined, are the next most common, reflecting the physically demanding nature of early enlisted service, specifically IET.

When the follow-up is through the first 2 years of service, the relative sizes of the medical categories change somewhat. For example, the numbers of injury hospitalizations (and persons hospitalized) are nearly double those seen after 1 year of follow-up, whereas the numbers for pneumonia and influenza are almost the same after 2 years as after 1 year of follow-up. Presumably, enlistees are at a similar level of risk for serious injuries over the first 2 years of service, but the risk of pneumonia and influenza decreases after early service, perhaps as the enlistees are less often in barracks or other group-living situations.

The numbers of hospitalizations for neurotic and personality disorders increase with the 2-year follow-up but are less than double those after 1 year of accession. AMSARA has found that those enlistees experiencing a serious episode related to mental illness early in training are discharged soon after (2000 AMSARA Annual Report, p. 23–33). Most such mental problems appear to manifest during the first year of service.



**TABLE 2.72. HOSPITALIZATIONS AND PERSONS HOSPITALIZED WITHIN 1 AND 2 YEARS OF SERVICE BY DIAGNOSIS CATEGORY FOR ACTIVE DUTY ENLISTED PERSONNEL ACCESSED IN 1999–2004**

Diagnosis category	Within 1 year of accession		Within 2 years of accession	
	Hospital admissions	Persons hospitalized	Hospital admissions	Persons hospitalized
Neurotic and personality disorders	10,691	9,282	15,034	12,532
Pneumonia and influenza	3,275	3,113	3,450	3,257
Other psychoses	2,403	1,933	3,781	2,715
Infections of skin	2,313	2,154	3,069	2,798
Fracture	2,113	1,896	4,239	3,538
Nonspecific symptoms	1,928	1,648	3,002	2,464
Other diseases due to virus	1,898	1,800	2,069	1,945
Injuries	1,865	1,622	4,496	3,576
Acute respiratory infections	1,297	1,229	1,494	1,404
Other diseases of respiratory system	1,171	1,054	1,952	1,675
Complications of pregnancy	1,072	917	12,587	10,673
Appendicitis	895	865	1,646	1,550
Alcohol and drug dependency	817	677	1,727	1,402
Poisoning and toxic effects	702	616	1,198	1,010
Hernia of abdominal cavity	549	525	818	765
Disease of oral cavity	525	491	1,108	1,010
Arthropathies and related disorders	437	367	1,425	1,192
Noninfectious enteritis	425	361	716	582
Chronic obstructive pulmonary disease and allied conditions	335	295	449	389
Other bacterial diseases	315	288	373	338
Viral diseases accompanied by exanthem	203	192	239	220
Other	7,851	6,515	13,281	10,377
<b>Total</b>	<b>43,080</b>	<b>37,840</b>	<b>78,153</b>	<b>65,412</b>

### 3. FUTURE STUDIES

#### Assessment of Recruit Motivation and Strength (ARMS)

An ambitious project with over two years of subject enrollment, the Assessment of Recruit Motivation and Strength (ARMS) has provided an extensive amount of data to be analyzed. A thorough overview of the study is presented in Section 1, along with some detailed analyses of selected subtopics examined so far. Some analyses that are anticipated to be completed over the next 1–2 years include the following.

1. Validate the ARMS performance as a predictor of morbidity and attrition in IET among fully qualified individuals and among recruits who exceed percent body fat.
2. Analyze which injuries are more related to excess fat given a similar fitness level. The fitness level will be measured by the rapid fitness index, which is calculated by taking the duration of stepping (sec)  $\times$  100 divided by heart rate (beats/min)/2 [at 1 min postexercise]  $\times$  5.5.
3. Assess wide variance in ARMS pass rates among MEPS sites. Providing OBF waivers to recruits who successfully completed the ARMS test was expanded to the other nonstudy sites in February 2006. Once these data are available, AMSARA will compare attrition at MEPS sites with low ARMS pass rates (<50%) with those with high pass rates (>80%). Matching for gender, age, race, BMI or percent body fat, and time of entry into service, AMSARA will assess attrition and morbidity outcomes to determine whether a strict or lenient ARMS testing strategy is advantageous to the individual and to the Army.
4. Compare the Youth Risk Behavioral Surveillance Survey (YRBSS) questionnaire results from public domain data with the responses provided by ARMS enrollees. Starting in January 2006, ARMS enrollees were asked eight fitness questions from the YRBSS. Answers will be validated with ARMS performance.
5. Examine gender differences in outcomes based on ARMS performance, specifically similar rapid fitness index scores (which correlate with maximum oxygen volume) for females and males.
6. Determine whether abdominal circumference may be a marker of poor fitness and other demographic variables. Evaluate distribution of abdominal circumference by gender, age, race, BMI, percent body fat, rapid fitness index score, and geographical location (MEPS).
7. Compare the ARMS rapid fitness index to the initial 1-mile run times (paired samples) obtained at Fort Jackson and Fort Benning.
8. Examine reasons for early attrition among the OBF subjects, particularly including retention standards.

## **Clinical Management Guidelines for Initial Entry Soldiers**

In 2005, Training and Doctrine Command (TRADOC) developed an Investment Strategy to combat attrition during IET. TRADOC noted that the motivated and professional IET cadre could train almost anyone with the mental and physical capacity to complete IET. Discharging soldiers for failure to meet certain standards, when additional coaching, teaching, and mentoring could bring them to standard, was not in keeping with the intent of the strategy.

A key component of the IET Investment Strategy allowed the medical community to rehabilitate low-risk soldiers who could continue to train and meet standards. MEDCOM consultants and clinical experts developed three Clinical Management Guidelines (CMG) for use among IET soldiers. These guidelines address the management of mild intermittent asthma, behavioral health (to include mild depression, anxiety, or ADHD), and hip pain. Soldiers in IET will be retained on active duty with these conditions if they can be successfully managed under the CMG.

AMSARA will be following the morbidity and attrition outcomes of IET soldiers who have been managed by the CMGs compared with a matched control group of individuals who do not have the condition. The CMGs were distributed in April 2006, so Army EPTS cases will be examined in 2007 and 2008 to determine the extent of the impact of the new policy on EPTS discharges for those conditions in a case series review (relative to years before the policy implementation and relative to other conditions that do not have a CMG (e.g., personality disorders)).

## **Quadrennial Timetable for Review of DoD Instruction 6130.4**

The Accession Medical Standards Working Group (AMSWG) has adopted a 4-year timetable for the next revision of DoD Instruction 6130.4, "Physical Standards for Appointment, Enlistment, or Induction." AMSWG anticipates that review of the current standards by medical topic will be completed by December 2008, with final approval for changes to DoD Instruction 6130.4 in December 2009. Specialty reviews planned for 2007 include orthopedic, vision, and hearing standards.

AMSARA will continue to provide input into each accession standard specialty grouping. Information will vary by condition and may include assessments of disqualifications, waiver applications and approvals, condition-related hospitalizations, and medical and administrative discharges.

## **Research to Develop a Screening Test for Detection of Psychiatric Disorders in Young Adults**

Psychiatric disorders, a leading cause of EPTS discharges, are common in young adults within the age range of most military applicants (17–25 years). From 1997 to 2002, ~30% of all EPTS discharges were due to psychiatric conditions, most of which were concealed at accession. Recruitment and accession expenses associated with these losses cost the military an estimated \$27.3 million in 1998 alone; this estimate excludes the costs of medical care, subsequent disability discharges, and associated attrition. Research has shown that recruits being discharged often had a history of depression and suicidal ideation and had concealed their mental health history during their medical accession examination [1]. Another study found that mental illness in servicemembers is a leading cause of health care utilization and is associated with a relatively high risk of subsequent attrition compared with other diagnostic categories [2].

Unfortunately, no reliable screening tool for identifying individuals at risk for a mental health condition exists. Various screening programs implemented in military recruitment and IET settings have yielded inconsistent results [3–6]. Through a program supported by Small Business Innovative Research funding, AMSARA aims to develop a rapid, inexpensive, and reliable method to screen recruits for major psychiatric disorders and other behavioral factors that strongly predict occupational dysfunction in the military. To reduce attrition, the screen ideally will identify individuals with psychiatric disorders who should not enter active duty and detect conditions that can be addressed with appropriate intervention before entry (e.g., mental health counseling, cognitive group therapy, and life skills training). The overall goal is to reduce attrition related to psychiatric disorders by 10% or greater. This methodology also may aid in assessing disease severity and response to therapy.

Phase I was awarded in 2002 to two contractors. The goal of the 6-month effort was to develop a prototype for an appropriate screening tool designed to be standardized and interpretable by physicians without specialty training in psychiatry. Possible tools included questionnaires, biochemical markers, and detection of psychoactive pharmaceuticals to identify those who recently discontinued psychiatric medications. Phase I results are not yet available.

For Phase II, each screening methodology will be evaluated in a population of young adults to determine sensitivity, specificity, positive predictive value for any disqualifying psychiatric disorder, and ease of use. These validation trials will be conducted at selected MEPS sites under the approval of the Army Surgeon General's Human Subjects Research Review Board at the Army Medical Research and Materiel Command. Beginning in 2003, a 2-year award was made to the two Phase I contractors who will conduct the validation trials. In 2005 both contractors received a 2-year no-cost extension because civilian and military institutional review board's approvals were difficult to obtain. Phase III, currently planned but not yet funded, will include a large-scale multistage efficacy trial. The first stage would administer the questionnaires to all applicants with no impact on their qualification status and follow them onto active duty for psychiatric morbidity and attrition. The second stage would use the questionnaire plus mental health records and consultations under a clinical management guideline to both selectively screen in limited psychiatric disorders such as

depressive and anxiety disorders before age 13 and attention deficit disorders. Again study subjects would be followed onto active duty for psychiatric morbidity and attrition.

### *References*

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## 4. DATA SOURCES

AMSARA requests and receives data from various sources, most of which are the primary collection agencies for the data they provide to AMSARA. Because data are seldom collected with the goal of epidemiologic study, AMSARA coordinates with the appropriate points of contact to ensure that the following major data types needed for AMSARA studies are in an appropriate form for epidemiologic work.

As mentioned under “Charter and Supporting Documents,” AMSARA maintains strict confidentiality of all data it receives. No external access to the data is allowed, and internal access is limited to a small number of primary analysts on an as-necessary basis. Research results are provided only at the aggregate level, with no possibility of individual identification.

### MEPS

AMSARA receives data on all applicants who undergo an accession medical examination at any of the 65 MEPS sites. These data, provided by MEPCOM Headquarters (North Chicago, IL), contain several hundred demographic, medical, and administrative elements on recruit applicants for each applicable branch (regular enlisted, reserve, National Guard) of each service (Air Force, Army, Coast Guard, Marines, and Navy). These data also include records on a relatively small number of officer recruit applicants and other nonapplicants receiving periodic physical examinations.

From the data records provided by MEPCOM, AMSARA extracts personal, medical, and administrative variables that are often of use in studies of military attrition. These include personal identifiers (e.g., name and SSN) for linking with other data, demographics (e.g., gender, age, and race), and a wide range of other information that is often relevant to military attrition studies (e.g., intended service, education level at the time of application, and AFQT scores).

In addition, the MEPS records provide extensive medical examination information, including date of examination, medical qualification status, medical disqualification codes (where relevant), and any waiver requirements. Results of some specific tests are also extracted, including those for hearing/vision, alcohol/drug use, and measurements of height, weight, and blood pressure.

A medical disqualification is categorized as either temporary (condition that can be remediated, e.g., being overweight) or permanent (condition that remains with the applicant, e.g., history of asthma). For those applicants with a permanent disqualification,

an accession medical waiver from a service-specific waiver authority is required for the applicant to be eligible for accession into the service (see “Waiver”).

MEPS data are the primary source of demographic information on new accessions into the armed forces and of initial medical conditions and medical qualification status. These data are linked by AMSARA to Defense Manpower Data Center (DMDC) gain files (see “Active Duty Enlistee Gain/Loss”) to verify new accessions into the military and to provide benchmark descriptive statistics. These linked data are also used in epidemiologic investigations related to the military’s accession medical standards, such as selecting and matching subjects for survival studies to compare retention patterns among new recruits with various medical histories.

## **Active Duty Enlistee Gain and Loss Files**

The DMDC provides data on individuals entering military service (gain or accession) and on individuals exiting military service (loss). Gain and loss data, which are AMSARA’s primary sources of information about who is, or has been, in the military, include when an individual began duty and when or if an individual exited the military. From this information the length of service can be determined for any individual entering and leaving during the periods studied. This information is vital to survival analyses and attrition studies presented in several AMSARA annual reports.

Gain data include approximately 50 variables. Of these, AMSARA has identified 25 of primary interest: personal identifiers (e.g., name and SSN) for linking with other data, demographics (e.g., age, education, and AFQT score) at the time of accession, and service information (e.g., date of entry and IET site). These data are combined with MEPS data to determine accession percentages among applicants by demographic and other variables. Also, as mentioned under “MEPS,” these linked data are used in epidemiologic investigations related to the military’s accession medical standards.

Loss data also include approximately 50 variables, many of which are the same as those found in the gain file, although they reflect the individual’s status at the time of loss rather than at the time of gain. The variables of primary interest to AMSARA are personal identifiers for linking with other data, the loss date for computing length of service, and the interservice separation code as a secondary source of the reason for leaving the military. These data serve as the primary source of information on all-cause attrition from the service and are linked with the MEPS and gain data for studies of attrition.

A problem with the loss data lies in the broad nature of the interservice separation code that characterizes the cause of the loss. Although each service maintains its own codes for describing discharge reasons, these are replaced at DMDC by a consolidated interservice separation code to provide a common coding system for all military discharges. Many categories have overlapping definitions, making it difficult to determine the real reason

for discharge. For example, a discharge for EPTS pregnancy might be coded “pregnancy,” “condition existing prior to service,” or “fraudulent enlistment.” This lack of specificity, as well as interservice differences in discharge categorizations, has been encountered in comparing other sources of loss information (i.e., EPTS and disability discharge data) with the DMDC loss data. Moreover, a study of Army discharges at one IET site indicates that the reasons underlying many discharges are more complex than can be fully characterized by any single loss code.

## **Medical Waiver**

AMSARA receives records on all recruits who were considered for an accession medical waiver, i.e., those who received a permanent medical disqualification at the MEPS (see “MEPS”) and sought a waiver for that disqualification. Each service is responsible for making waiver decisions about its applicants. Data on these waiver considerations are generated and provided to AMSARA by each service waiver authority. Although the specifics of these data vary by service, they generally contain identifiers (e.g., name and SSN) for linking with other data, demographics (e.g., gender, age, and race), and information about the waiver consideration.

In particular, each record contains the date of the waiver consideration, indicators of the medical condition(s) for which the waiver was required, and the decision of the waiver authority. The Air Force and Army indicate medical conditions being considered for waiver using the full set of diagnostic codes in ICD9, whereas the Navy and Marines code waiver conditions according to the subset of ICD9 codes presented in DoD Instruction 6130.4 in association with medically disqualifying conditions.

Many AMSARA studies begin with the waiver data. Individuals granted waivers for a particular medically disqualifying condition are matched to the DMDC gain file to determine their date of entry, if any, into the service. Those found to have begun active duty within a specified time constitute the pool from which the main study subjects, and often their comparison subjects, are drawn. Follow-up medical and attrition information during military service is appended to these records, and statistical comparisons can then be made. Specific details vary among studies. A few additional details of the data provided by each service waiver authority follow.

### ***Air Force***

The Air Force Directorate of Medical Services and Training (Lackland AFB, TX) transmits, upon request, data on all officer and enlisted accession medical waivers. These data include SSN, name, demographics, action (e.g., approved, disapproved, other), and date of waiver consideration. In addition, ICD9 codes are used to define the medically disqualifying condition(s) for which the waiver is being considered.



### **Army**

The Army Recruiting Command (Fort Knox, KY) has provided monthly electronic accession medical waiver data since January 1997. Each data record contains name, SSN, action (e.g., approved, disapproved, other), and date of waiver consideration. In addition, ICD9 codes are used to define the medically disqualifying condition(s) for which the waiver is being considered.

### **Marines**

The Navy Bureau of Medicine and Surgery (BUMED) in Washington, DC, provides, on request, accession and commissioning medical waiver data for enlisted personnel and officers, along with data from special programs such as ROTC and the Naval Academy. Data include name, SSN, demographics, date of waiver consideration, and recommended action (e.g., approved, disapproved, other). In addition, the subset of ICD9 codes listed in DoD Instruction 6130.4 is used to indicate the medically disqualifying condition(s) for which the waiver is being considered.

### **Navy**

The Office of Commander, Navy Recruiting Command (Millington, TN) provides accession medical waiver data on applicants for enlisted service in the Navy that occurred from May 2000 to December 2004. Before May 2000, enlisted medical accession waivers for the Navy were considered by BUMED, which then provided data to AMSARA.

## **Hospitalization**

The MEDCOM Patient Administration Systems and Biostatistics Activity at Fort Sam Houston, TX has provided hospitalization data on a yearly basis for all services except the Coast Guard. These data contain information on admissions of active duty officers and enlisted personnel to any military hospital. Information on each visit includes SSN for linking with other data, demographics (e.g., gender, age, and race), and details about the hospitalization. In particular, the medical nature of the hospitalization is coded according to the ICD9, with up to eight codes per record to describe all conditions found. Date of admission, date of disposition, number of sick days, number of bed days, and indicators of the medical outcome are also included.

## **EPTS Discharges**

Discharges for EPTS medical conditions are of vital interest to AMSARA. A discharge for a medical condition can be classified as an EPTS discharge if the condition was verified to have existed before the recruit began service and if the complications leading to discharge arose no more than 180 days after the recruit began duty. MEPCOM requests a copy of official paperwork on all EPTS discharges and records certain

information about each. This information includes a rough medical categorization (20 categories) of the reason(s) for discharge and a judgment on each discharge regarding why (i.e., concealment, waiver, or unawareness) the person was not rejected for service on the basis of the preexisting condition. Beginning in August 1996, this paperwork has been regularly forwarded by MEPCOM to AMSARA for additional data extraction, including more specific coding of medical conditions leading to discharge.

The primary concern with the EPTS discharge data is completeness. Table 4.1 summarizes the numbers of records provided to AMSARA over 1999–2004. Note that the numbers of records have been unstable over time for nearly all IET sites. For example, the numbers of EPTS records provided by the Marine Corps Training Depot in San Diego dropped considerably in 2000 from those that had previously been provided, and the numbers have remained surprisingly low since then. Although some variability in numbers of EPTS records over time is expected, underreporting is clearly a major source of the fluctuations.

**TABLE 4.1. EPTS DISCHARGE DATA REPORTED TO MEPCOM BY TRAINING SITE AND YEAR\***

Training site	1999	2000	2001	2002	2003	2004	Total
<b>Air Force**</b>							
Lackland AFB	994	107	227	784	754	649	3515
<b>Army</b>							
Fort Jackson	712	356	675	822	1,241	1,228	5,034
Fort Leonard Wood	1,243	1,578	1,487	864	684	741	6,597
Fort Benning	888	1,212	1,128	1,370	1,242	1495	7,335
Fort Sill	713	795	148	314	697	567	3,234
Fort Knox	506	598	650	582	546	376	3,258
<b>Marines</b>							
Parris Island	812	551	751	1080	928	1316	5,438
San Diego	527	656	193	140	372	138	2,026
<b>Navy</b>							
Great Lakes	2,685	1,919	1,861	1873	1,246	842	10,426
<b>Total</b>	994	107	227	784	754	649	3,515

Numbers may not sum to totals shown in Section 2 because information from specific training sites is incomplete and other requirements for records are different.

\*\* Air Force did not provide EPTS discharge records in April 2000–September 2001

AMSARA has addressed many of these data inconsistencies with on-site officials and continues to emphasize the importance of these data to assessing and improving the fitness of future recruits.

In light of these shortcomings in the data, comparisons of EPTS discharges across services, or even across different training sites within the same service, should be interpreted with caution. Disparities may reflect differences in reporting procedures more than actual differences in discharge likelihood. Furthermore, counts of EPTS records should not be construed as representing all EPTS discharges. Instead, EPTS counts only represent discharges for which data were reported.

## Disability Discharges

Data on disability discharge considerations are compiled separately for each service at its disability agency. The Army agency has provided data on all disability discharge considerations during 1995–2004 and continues to provide these data. The Air Force agency has also provided data to cover the 1995–2004. The Navy/Marine agency has provided data only on a diagnosis-specific request basis rather than for all actions. Therefore, only Army and Air Force disability discharge data were summarized in Section 2.

The Army physical disability agency provides information on all disability cases considered, including personal identifiers (e.g., name and SSN), program (e.g., regular enlisted, academy, and officer), date of consideration, and disposition (e.g., permanent disability, temporary disability, or return to duty as fit). For individuals receiving a disability discharge, medical condition codes and degree of disability are also included.

The Air Force Physical Disability Division provides data on all disability cases it considers, including much of the same information as outlined for the Army. Specifically, these data include personal identifiers (e.g., name and SSN), rank, date of consideration, and disposition (e.g., permanent disability, temporary disability, or return to duty as fit). For individuals receiving a disability discharge, medical condition codes and degree of disability are also included.

For both the Army and Air Force data, the medical condition(s) involved in each case are described using the condition codes of the Veterans Administration Schedule for Rating Disabilities. This set is less comprehensive than the ICD9 codes. In some cases the disabling condition has no associated code, so the code most closely resembling the true condition is used. AMSARA therefore only uses broad categories of disability condition codes rather than attempting to interpret specific codes.

# Charter and Supporting Documents

HA Control #: NONE  
Due Date: NONE

February 28, 1995

ASSISTANT SECRETARY OF DEFENSE  
(HEALTH AFFAIRS)  
EXECUTIVE SUMMARY/COVER BRIEF

MEMORANDUM FOR THE ASSISTANT SECRETARY OF DEFENSE  
(HEALTH AFFAIRS)

THROUGH: *Jm* Dr. Sue Bailey, DASD (CS)  
FROM: Action Officer, Colonel Ed Miller  
SUBJECT: Accession Medical Standards Analysis and Research  
Activity (AMSARA)

PURPOSE: SIGNATURE--on request that the Assistant Surgeon  
General of the Army (Research and Development)  
establish an Accession Medical Standards Analysis  
and Research Activity (AMSARA).

DISCUSSION:  
  
The Accessions Medical Standards Working Group  
which met over the summer sponsored through MFIM  
funding completed a functional economic analysis  
of the medical accessions examination process.  
One of the critical recommendations made by the  
Group was to establish a research activity to  
provide the Medical Accessions Standards Council  
(also recommended) with an evidence-based analysis  
of DoD accessions medical standards. The  
memorandum tasks the Army with the responsibility  
of establishing the activity resourced under the  
Defense Health Program. This has already been  
staffed with the Assistant Surgeon General of the  
Army (Research and Development)

RECOMMENDATION:  
Sign tasking memorandum to Army Surgeon General.

COORDINATION:  
✓ Mr. Conte, PDUSD(P&R) \_\_\_\_\_  
Mr. Maddy, HB&P: See attached memo  
✓ Mr. Richards, EO: \_\_\_\_\_  
Dr. Martin, PDASD: \_\_\_\_\_

## CHARTER AND SUPPORTING DOCUMENTS



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20307-1200

DEC 06 1995

MEMORANDUM FOR SURGEON GENERAL OF THE ARMY

SUBJECT: Military Medical Standards Analysis and Evaluation Data Set

The personnel community has asked OASD/HA to develop a fact based accessions policy to minimize medical attrition, quantitate risk in medical waivers, and to defend accession decisions when challenged.

The offices of Clinical Services and Military Personnel Policy have worked closely with epidemiologists at Walter Reed Army Institute of Research on the concept of a Military Medical Standard Analysis and Evaluation Data Set (MMSABDS) to apply quantitative analysis to a longitudinal data base.

The Army Center for Health Promotion and Preventive Medicine (CHPPM) maintains a data base of personnel, hospitalization, deployment and separation information for all Services. I would like WRAIR, in coordination with CHPPM, to serve as consultants to the Accession Medical Standard Steering Committee, modify and maintain the data base, and coordinate field research to answer specific questions germane to accession policy.

Therefore, I request that, by the end of December 1995, a proposal be submitted through you from WRAIR, outlining the consultant role and modifications needed to the data base. This should include funding requirements.

*Edward D. Mattes /br*  
Stephen C. Joseph, M.D., M.P.H.

cc:  
Commander WRAIR

**DEPARTMENT OF DEFENSE**  
**ACCESSION MEDICAL STANDARDS**  
**STEERING COMMITTEE**

**CHARTER**

**I. ESTABLISHMENT, PURPOSE AND SCOPE**

**A. ESTABLISHMENT**

The Under Secretary of Defense (Personnel and Readiness) establishes a Department of Defense Accession Medical Standards Steering Committee (hereafter referred to as the "Committee".) The Committee shall operate under the joint guidance of the Assistant Secretaries of Defense (Force Management Policy and Health Affairs [FMP & HA].)

**B. PURPOSE**

The Committee's main objective is to ensure the appropriate use of military members with regard to medical/physical characteristics, assuring a cost-efficient force of healthy members in military service capable of completing initial training and maintaining worldwide deployability. The primary purposes of the Committee are: (1) integrating the medical and personnel communities in providing policy guidance and establishing standards for accession medical/physical requirements, and (2) establishing accession medical standards and policy based on evidence-based information provided by analysis and research.

**C. SCOPE OF ACTIVITY**

1. The Committee's responsibility involves:

- a. Providing policy oversight and guidance to the accession medical/physical standards setting process.
  - b. Directing research and studies necessary to produce evidenced-based accession standards making the best use of resources.
  - c. Ensuring medical and personnel coordination when formulating accession policy changes.
  - d. Overseeing the common application of the accession medical standards as outlined in DoD Directive 6130.3, "Physical Standards for Appointment, Enlistment, and Induction."
-

- e. Interfacing with other relevant Department of Defense and Department of Transportation organizations.
- f. Recommending promulgation of new DoD directives as well as revisions to existing directives.
- g. Recommending legislative proposals concerning accession medical/physical processing.
- h. Reviewing, analyzing, formulating and implementing policy concerning the accession physical examination.
- i. Issuing policy letters or memoranda providing interpretation of provisions of DoD directives.
- j. Resolving conflicts of application of accession medical/physical standards and policies among the Military Services and other authorized agents.
- k. Maintaining records and minutes of Committee meetings.

## II. ORGANIZATION

A. The Committee will be co-chaired by the Deputy Assistant Secretary of Defense (Military Personnel Policy) and the Deputy Assistant Secretary of Defense (Clinical Services). This will facilitate tasking the Deputy Chiefs of Staff for Personnel and the Surgeons General to assign staffers to relevant working groups, and to ensure DCS/Personnel and Surgeon General personal involvement with the various issues. The Committee will convene semiannually, at a minimum, and at the discretion of the Chairpersons.

B. Committee members are appointed by the Under Secretary of Defense (Personnel and Readiness) and provide ongoing liaison with their respective organizations concerning matters of medical/physical accession policy.

C. The Committee shall be composed of representatives from the following:

Office of the Assistant Secretary of Defense (Force Management Policy)

Office of the Assistant Secretary of Defense (Health Affairs)

Office of the Assistant Secretary of Defense (Reserve Affairs)

Office of Service Surgeons General

Office of Service Deputy Chiefs of Staff for Personnel, and Chief of Personnel and Training, HQ U.S. Coast Guard.

D. Representatives from the Office of the Assistant Secretary of Defense (Force Management Policy) and the Office of the Assistant Secretary of Defense (Health Affairs) shall serve as executive secretaries for the Committee, and maintain a working group, composed of representatives from each of the offices mentioned above, to receive and review issues pertinent to accession policy.

E. The Commander, U.S. Military Entrance Processing Command, and the Director, DoD Medical Examination Review Board shall serve as advisors to the Committee.

F. The Committee may invite consultants (i.e., training, recruiting, epidemiology) at the discretion of the Chairpersons.

Approved: JAN 16 1996  
Date



EDWIN DORN



## Acronyms

ADHD	attention deficit and hyperactivity disorder	HS	high school
AFB	Air Force base	ICD9	<i>International Classification of Diseases, 9<sup>th</sup> Revision</i>
AFQT	armed forces qualifying test	IET	Initial Entry Training
AMSARA	Accession Medical Standards Analysis and Research Activity	MEDCOM	Medical Command
AMSWG	Accession Medical Standards Working Group	MEPCOM	Military Entrance Processing Command
ARMS	Assessment of Recruit Motivation and Strength	MEPS	Military Entrance Processing Station
BMI	body mass index	OBF	over body fat
BUMED	Navy Bureau of Medicine and Surgery	ROTC	Reserve Officer Training Corp
CI	confidence interval	RR	relative risk
CMG	Clinical Management Guideline	SD	standard deviation
DMDC	Defense Manpower Data Center	SSN	social security number
DNT	did not take	TRADOC	Training and Doctrine Command
DoD	Department of Defense	VO <sub>2</sub>	oxygen volume
EPTS	existed prior to service	WRAIR	Walter Reed Army Institute of Research
GED	general educational development	YRBSS	Youth Risk Behavioral Surveillance Survey