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# **Status of Drug Use in the Department of Defense Personnel**

**Fiscal Year 2011 Drug Testing Statistical Report**

**Office of the Under Secretary of Defense for Personnel and Readiness**

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## **LIST OF ACRONYMS**

**DoD** – Department of Defense  
**DCAA** – Defense Contract Audit Agency  
**DCMA** – Defense Contract Management Agency  
**DDRP** – Drug Demand Reduction Program  
**DIA** – Defense Intelligence Agency  
**DISA** – Defense Information Systems Agency  
**DLA** – Defense Logistics Agency  
**DHHS** – Department of Health and Human Services  
**DMDC** – Defense Manpower Data Center  
**DoDIG** – DoD Office of the Inspector General  
**DSS** – Defense Security Service  
**DTRA** – Defense Threat Reduction Agency  
**FTDTL** – Forensic Toxicology Drug Testing Laboratory  
**FY** – Fiscal Year  
**LIMS** – Laboratory Information Management System  
**MDA** – Methylenedioxyamphetamine, a drug of abuse and a metabolite of MDMA  
**MDMA** – Methylenedioxymethamphetamine, a drug of abuse commonly called “ecstasy”  
**MEPS** – Military Entrance Processing Station, conducts physical examinations and drug tests on applicants to any military Service  
**NGA** – National Geospatial-Intelligence Agency  
**NSA** – National Security Agency  
**MRP** – Medical Review Process  
**OUSD(P&R)** – Office of the Under Secretary of Defense for Personnel and Readiness  
**OPTEMPO** – Operating tempo of military activities to include patrols, assaults, air sorties  
**SAMHSA** – Substance Abuse and Mental Health Services Administration  
**TDP** – Testing Designated Position  
**USUHS** – Uniform Services University of the Health Sciences  
**WHS** – Washington Headquarters Services

## **Executive Summary**

The abuse of illicit and prescription drugs in the U.S. military has substantial implications on force readiness. It negatively impacts performance in the inherently hazardous conditions of combat, and degrades safety and security for civilians in sensitive testing designated positions (TDPs). This report summarizes Fiscal Year (FY) 2011 drug testing results, discusses these findings, and presents recommendations on how to further mitigate drug threats.

This annual report presents statistics on drug abuse by members of the Armed Forces - active duty, Reserve, and National Guard for FY 2007 - 2011. It reflects the progress and the positive impact of the urinalysis drug testing program in reducing drug use by military personnel. The report analyzes the trends associated with the increased use of illegal substances as well as the abuse of selected prescription medications used in the treatment of combat related injuries.

## ***Findings and Recommendations***

- Overall urinalysis drug positive rates for active duty military personnel across each of the military Services has continued to decline (Figure 3, page 8). Of the total number of Service and Component members tested, only 0.97 percent tested positive for illicit drug use - the lowest level in the program history (Table 2, page 7).
- Although drug positive rates for the Department continue to decrease, this is not representative of all segments of the Force. The high risk category (males of age 18 – 25) comprises 35 percent of the total military end strength, but accounts for 66 percent of the overall Department of Defense (DoD) positive specimens in FY 2011. Expanded testing and leadership attention should be focused on 18-25 year old Service members who comprise the high risk population.
- Marijuana and cocaine continue to be the primary illicit drugs of abuse comprising 66 percent and 14 percent, respectively, of Service members testing positive (Table 13, page 19). Marijuana, cocaine, and amphetamines will continue to be a focus of drug testing and anti-drug awareness efforts.
- The percent of positive specimens containing morphine increased six fold between 2007 and 2011, indicative of possible heroin or morphine abuse (Table 13, page 19). The abuse of the prescription drug, oxycodone, by military personnel has risen at least two-fold over the past five years. Hydrocodone abuse is also of concern and DoD will initiate testing for hydrocodone in mid FY 2012.
- The introduction of synthetic marijuana (“Spice”) and a new generation of synthetic amphetamines (“Bath Salts”) were not captured in the testing paradigm in FY 2011. The adverse impact of these new generation drugs should be addressed through heightened awareness and outreach training. The inclusion of synthetic marijuana in the Department’s drug testing panel is not currently feasible, but the Department is pursuing with the commercial sector a means to provide this testing capability in the future.

## **Introduction**

Drug use is incompatible with DoD military and public service.<sup>1</sup> The abuse of illicit drugs and misuse of prescription drugs impairs individual and unit performance, and negatively impacts situational awareness in the uniquely hazardous conditions of the military work environment. Drug use by a civilian employee in a TDP can impact individual safety and compromise the security of sensitive classified information detrimental to National interests. Mandated in 1981, the mission of the Drug Demand Reduction Program (DDRP) is to deter and detect illicit drug use by DoD military and civilian personnel.

Overall, the success of the military DDRP can be measured in the self reported surveys of illicit drug use within a 30-day period which declined from 28 percent in 1980 to 5 percent in 2005.<sup>2</sup> The contribution of the military urinalysis drug testing program to deter and detect illicit drug abuse by Service members has been significant. The effectiveness is reflected in the urinalysis drug positive rate for active duty military personnel which decreased 33 percent between 2006 and 2011.

## **Historical Perspective**

In his final report “The Vietnam Drug User Returns”<sup>3</sup>, author L. Robins states in an Action Office Monograph that approximately 42 percent of the U.S. Military personnel in Vietnam in 1971 had used opiates at least once, and half of these individuals were reported to be physically dependent at some time. On June 22, 1971, the Army instituted a stiffer policy on drug use. An amnesty program was coupled with mandatory urinalysis drug testing. The Pentagon reported that nearly 16,000 (of which 14,736 were Army personnel) Service men voluntarily identified themselves as heroin users and sought treatment.<sup>4</sup>

The 1980 DoD Survey of Health Related Behavior Among Military Personnel showed that 27.6 percent of all Service members had used an illegal drug in the past 30 days. In some units, the rate was greater than 38 percent.<sup>5</sup>

The drug problem was generally viewed as an Army problem until the night of May 25, 1981. An aircraft accident aboard the USS Nimitz resulted in 14 killed, 48 injured, 7 planes destroyed, and 11 planes damaged at an estimated cost of \$150M. The post accident investigation revealed that six of those fatally injured had marijuana metabolites in their bodies. In the final report, while the presence of

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<sup>1</sup> Department of Defense Directive 1010.1, *Military Personnel Drug Abuse Testing Program*. Reissued with Change 1, January 11, 1999. <http://dtic.mil/whs/directives/corres/pdf/101001p.pdf>.

<sup>2</sup> 2008 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel

<sup>3</sup> Robins, LN, *The Vietnam Drug User Returns*. Special Action Office for Drug Abuse Prevention, Series A, Number 2, May 1974.

<sup>4</sup> Elaine Casey, “History of Drug Use and Drug Users in the United States”, Schaffer Library of Drug Policy, pg 29. <http://www.druglibrary.org/schaffer/history/casey1.htm>

<sup>5</sup> Reference In: Highlights, *2002 Department of Defense Survey of Health Related Behaviors Among Military Personnel*, <http://www.tricare.mil/main/news/dodsurvey.htm>

marijuana was not directly attributed to the events of that night, the extent of drug abuse throughout the military Services could not be dismissed. Since 1982, the DoD counter-drug effort developed into a model of forensic drug testing employing the proven technologies to accomplish rapid, high volume urinalysis drug testing. The Program created a demand for inexpensive immunoassay reagents and instrumentation that led to the commercialization of drug testing technologies to meet the changing patterns of drug use. The DoD counter-drug effort uses both educational training along with random urinalysis testing to deter and detect drug abuse with punitive and administrative consequences for those who violate a 'zero tolerance' mandate.

The drug threat is ever changing. The latest threats to individual and unit readiness are prescription drug abuse, primarily the opiate analgesics and benzodiazepine sedatives, and the new generation of synthetic drugs comprising synthetic marijuana, designer amphetamines, and opiate analogues.

### **Methods and Metrics**

With the exception of data contained in Table 1 and Tables 17 - 19, all figures and tables collated for this report were obtained from the Defense Manpower Data Center (DMDC).

#### ***DMDC Personnel Databases***

The DMDC Personnel Databases include the Active Duty Personnel Master File, the Reserve Components Personnel Data System, and the Military Drug Test File. The Active Duty Personnel Master File provides an inventory of all individuals on active duty (excluding Active Duty Reservists for training) for the Army, Navy, Marine Corps, and Air Force at any given point in time. It provides a standardized and centralized database of all present and past members of the active duty force. File sources are from various personnel centers; their requirement to submit data to DMDC is covered under DoD Instruction 1336.5 (*Automated Extract of Active Duty Military Personnel Records*).

#### ***The Reserve Components Common Personnel Data System***

The Reserve Components Common Personnel Data System provides the DoD with a standardized and centralized database containing personnel information on all current and past members of the Reserve Components in the Army National Guard, Army Reserve, Navy Reserve, Marine Corps Reserve, Air National Guard, Air Force Reserve, and Coast Guard Reserve.

#### ***U.S. Army Medical Information and Technology Center***

The Laboratory Information Management System (LIMS) Database is a computer network with independent servers in each of the six DoD drug testing laboratories and central data repository located in San Antonio, TX, managed under a contract by the United States Army Medical Command. Examples of these data fields are donor identification, collection specimen number, collection unit, collection date, laboratory screening test results, laboratory confirmation test results, final test results, etc. Specimens are included in this statistical report based on the date that drug testing laboratory results

were reported, not the date of collection. Usually these two dates are within one week of each other but there are occasions where this time difference is greater.

## **Terminology**

### ***High Risk Population***

The term “high risk population” is defined as enlisted males ages 18 - 25. The reasons for monitoring the high risk population are to determine the pattern and extent of drug abuse and to normalize comparisons among the Services since each has a different proportion of enlisted vs. officers, males vs. females, and younger vs. older age groups. Rank, age, and gender are risk factors for drug use. The Substance Abuse and Mental Health Services Administration (SAMHSA) *National Survey on Drug Use and Health* reports civilian statistics for United States males 18 - 25 years of age, which allow for comparison with civilian populations.

### ***Illicit Drug Positive Rate***

For the purposes of this report, the illicit drug positive rate is calculated using the number of unique positive personnel divided by the number of unique tests performed on any given population. This method of calculating the drug positive rate takes into account that an individual may be tested more than once a year and that a test may be positive for more than one illicit drug. In the March 3, 2008 memorandum signed by the Principal Deputy Under Secretary of Defense for Personnel and Readiness, a drug positive rate below 2 percent was adopted as a “Wellness of the Force Indicator” goal. The 2 percent goal is presented in highlight on the figures.

### ***Total Drug Tests***

The term total drug tests are the total number of specimens tested within any given Military Service population or risk group.

### ***Mean Test Ratios***

The mean testing ratio is calculated for each group and is defined as the total number of urine specimens tested during the year divided by the average end strength. This ratio is a measure of testing frequency and used to determine if the Services meet the minimum requirements expressed in DoD Directive 1010.1, *Military Personnel Drug Abuse Testing Program*. The Directive requires a mean minimum random testing ratio of 100 percent for active duty forces and requires the Reserve and National Guard forces to test at a rate close to this number (limited by time and funding). If the mean testing ratio in a Service is 100 percent, one can say that a Service member is tested on average once per year. It must be realized that some individuals will be tested more than once and some not at all in any given 12 month period.

### ***Medical Review Process (MRP) Unknown***

The term MRP Unknown indicates that no medical records review was conducted to ascertain whether a drug positive resulted from the valid use of a prescribed medication.

### ***Drug Testing Panel***

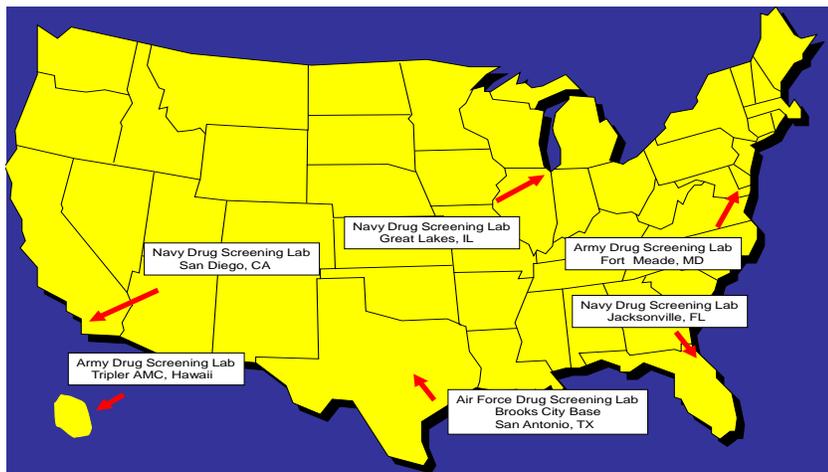
The standard drug testing panel and associated cutoff values are provided in Appendix A. The DoD program screens 100 percent of the acceptable specimens submitted for marijuana, cocaine, and amphetamines (d-methamphetamine, d-amphetamine, methylenedioxymethamphetamine (MDMA, “Ecstasy”), and methylenedioxyamphetamine (MDA)). Because of the significant threat from heroin in the Afghanistan theater of operations, all the military laboratories were instructed to perform 100 percent screening for heroin starting in FY 2005. Opiates (morphine, codeine, oxycodone, and oxymorphone) and phencyclidine are tested on a “pulse” test basis defined as a rate of 20 percent of the laboratory’s work load. Applicants at the Military Entrance Processing Stations (MEPS) are tested only for use of marijuana, cocaine, amphetamines and designer amphetamines (MDMA and MDA) pursuant to the policy memorandum, *Pre-Accession Drug and Alcohol Testing* from the Deputy Secretary of Defense dated June 12, 2006.

Until FY 2007 there was no mechanism to input the results of the MRP into the LIMS database. Leading up to FY 2007, at the direction of the Office of the Under Secretary of Defense for Personnel and Readiness (OUSDP&R), the Services implemented reporting procedures requiring units to route MRP results back to DMDC. Starting with FY 2007 all positive drug results that require a MRP have been validated; otherwise, they are listed as “MRP Unknown”.

## Results and Salient Observations

### *Military Laboratory Operations*

Counternarcotics funding supports the operations of six Service-operated laboratories at the locations shown in Figure 1. The use of ‘field’ drug screening kits or testing devices is not authorized



**Figure 1. Location of Service Operated Forensic Toxicology Drug Testing Laboratories (FTDTL)**

During FY 2008 the Naval Medicine Support Command contracted comprehensive facilities analysis of the DoD drug testing system.<sup>6</sup> One of the final conclusions reached by the independent consultant was that DoD saves an estimated \$21 million per year by using government owned and managed FTDTLs as opposed to outsourcing the laboratory support services.

<sup>6</sup>“Engineering Study and Analysis of the DoD Laboratories, Sherlock, Smith and Adams, October 2008.

for active duty, National Guard, or Reserve military members. All military urine specimens are obtained under direct observed collection conditions, maintaining strict chain of custody documentation and shipped to the supporting military laboratory. Beginning in FY 2007, the Service Laboratories began operating under a regionalization testing plan, where a Service would submit samples to the nearest designated drug testing laboratory independent of Service affiliation. The Great Lakes Navy Forensic Toxicology Drug Testing Laboratory (FTDTL) primarily supports drug testing of all military applicants collected and processed at the 65 MEPS. During the applicants’ initial processing at the MEPS they are tested for marijuana, cocaine, amphetamine, methamphetamine, MDMA, and MDA. In addition to testing of military member specimens, the Fort Meade Army FTDTL is also certified by the Department of Health and Human Services’ (DHHS) National Laboratory Certification Program to conduct testing of civilian specimens under DHHS guidelines.

### *Military Laboratory Performance*

FY 2011 performance metrics at the six military drug testing laboratories are shown in Table 1. Overall, the six DoD drug testing laboratories analyzed a total of 5.145 million specimens. Five of the

<b>Table 1. FY 2011 Military Drug Testing Laboratory Performance Metrics</b>						
	<b>Tripler<sup>1</sup></b>	<b>Meade<sup>2</sup></b>	<b>JAX<sup>3</sup></b>	<b>SD<sup>4</sup></b>	<b>GL<sup>5</sup></b>	<b>Lackland<sup>6</sup></b>
<b>Specimens Tested</b>	1,005,611	899,696 (715,150 military) (184,546 civilian)	872,222	908,859	599,085 (295,382 military) (303,703 MEPS)	859,229
<b>Positive TAT<sup>7</sup></b>	5.9	6.1	4.3	3.9	2.8	8.5
<b>Negative TAT</b>	3.3	3.1	2.1	1.3	0.6	4.2
<b>Test Rates</b>						
<b>AMP</b>	100%	100%	100%	100%	100%	100%
<b>COC</b>	100%	100%	100%	100%	100%	100%
<b>OPI</b>	22%	25%	21%	40%	26%	18%
<b>PCP</b>	20%	29%	21%	63%	19%	18%
<b>THC</b>	100%	100%	100%	100%	100%	100%
<b>HEROIN</b>	100%	100%	100%	100%	100%	100%
<b>OXY</b>	22%	27%	21%	28%	22%	18%

<sup>1</sup> Army Drug Screening Laboratory, Tripler Army Medical Center, Honolulu, HI

<sup>2</sup> Army Drug Screening Laboratory, Fort Meade, MD, testing rates are calculated using military specimens only

<sup>3</sup> Navy Drug Screening Laboratory, Jacksonville, FL

<sup>4</sup> Navy Drug Screening Laboratory, San Diego, CA

<sup>5</sup> Navy Drug Screening Laboratory, Great Lakes, IL, testing rates are calculated using military specimens only

<sup>6</sup> Air Force Drug Screening Laboratory, Lackland Air Force Base, San Antonio, TX

<sup>7</sup> TAT - Turn-around Time – Day from receipt at lab to the day the specimen result was reported

six laboratories met the DoD standard reporting turn-around time of four days for negative specimens and six days for positive specimens. Only the Air Force laboratory at Lackland AFB was remiss in meeting this reporting standard. All of the laboratories met the DoD requirement to test all appropriately submitted specimens for amphetamines (AMP), cocaine (COC), marijuana (THC), and heroin. Five of the six laboratories met the additional DoD requirement to test at least 20 percent of all appropriately submitted specimens for phencyclidine, codeine/morphine and oxycodone/oxymorphone, with the Air Force Laboratory at Lackland AFB conducting testing on 18 percent of specimens received.

***DoD Drug Testing Results***

<b>Table 2 Total DoD Drug Testing Performance Metrics</b>					
<b>Fiscal Year</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>Illicit Drug Positive Rate</b>	1.21%	1.20%	1.18%	1.13%	0.97%
<b>Mean Testing Ratio</b>	1.61	1.73	1.72	1.65	1.70

The total DoD testing metrics across all Service Components (Active Duty, Reserve and Guard personnel) are shown in Table 2. The DoD established a “Wellness of the Force” goal of less than a 2 percent drug positive rate.

Overall in FY 2011, DoD attained a drug positive rate of 0.97 percent, the lowest positive rate in the history of the DDRP; and, attained a mean random test ratio of 1.70, indicating that on average, a Service member was subject to a possible 1.7 urinalysis collections a year.

***Services Active Duty Drug Testing Results***

The Army active duty service population was tested at over twice the DoD goal of 100 percent random testing, while the Navy and Marine Corps service population was tested at nearly three times the DoD goal of 100 percent. The Air Force service population is tested at the highlighted DoD minimum goal of 100 percent (Figure 2).

A mean test ratio of 1.0 equals a 100 percent random testing rate. While the active duty mean test ratios have remained relatively constant over the years, the active duty drug positive rates (Figure 3) continue to show a significant decline across the Services. The most notable declines in drug positive rates were observed for the Army, Navy, and Marine Corps.

The testing ratios and drug positive rates for military personnel on active duty are shown in Table 3. As indicated, the overall DoD active duty positive rate was 0.72 percent, the lowest rate in the

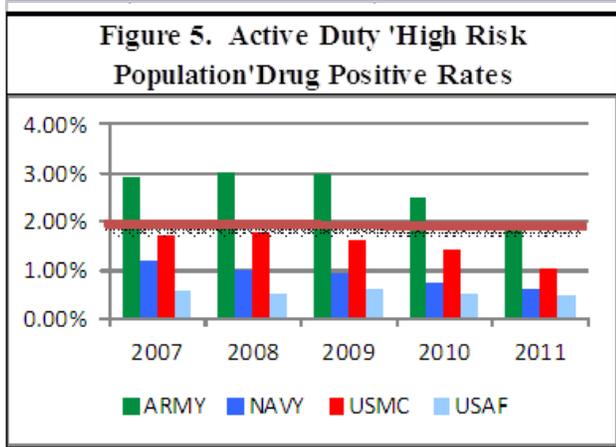
<b>Table 3. Active Duty Drug Positive and Drug Testing Rates</b>							
<b>Fiscal Year</b>	<b>Average End Strength</b>	<b>Unique Member Tests</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>2011</b>	<b>1,592,724</b>	<b>1,251,724</b>	<b>8,988</b>	<b>1,168</b>	<b>0.72%</b>	<b>3,537,241</b>	<b>2.22</b>
<b>2010</b>	<b>1,576,520</b>	<b>1,230,452</b>	<b>10,790</b>	<b>592</b>	<b>0.88%</b>	<b>3,436,394</b>	<b>2.18</b>
<b>2009</b>	<b>1,564,445</b>	<b>1,222,488</b>	<b>12,368</b>	<b>639</b>	<b>1.01%</b>	<b>3,355,435</b>	<b>2.14</b>
<b>2008</b>	<b>1,486,687</b>	<b>1,204,331</b>	<b>12,856</b>	<b>1,049</b>	<b>1.07%</b>	<b>3,259,019</b>	<b>2.19</b>
<b>2007</b>	<b>1,555,074</b>	<b>1,194,159</b>	<b>12,866</b>	<b>1,252</b>	<b>1.08%</b>	<b>3,206,041</b>	<b>2.06</b>

last five years and continued the downward trend from 1.45 percent reported in FY 2001. The decline in drug use among active duty personnel conceals a subpopulation that contributes a significant proportion of the positive drug test observed within each Service and Service Component, namely those individuals in the high risk category between the ages of 18 - 25. While the high risk active duty population is 35 percent of the total active duty force, they account for 66 percent of the active duty drug positive specimens. The DoD drug positive rate for active duty, ‘high risk population’ (Table 4) has consistently

<b>Fiscal Year</b>	<b>Average End Strength</b>	<b>Unique Member Tests</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>2011</b>	<b>628,418</b>	<b>525,321</b>	<b>6,287</b>	<b>503</b>	<b>1.20%</b>	<b>1,563,513</b>	<b>2.49</b>
<b>2010</b>	<b>631,650</b>	<b>523,325</b>	<b>7,829</b>	<b>244</b>	<b>1.50%</b>	<b>1,549,320</b>	<b>2.45</b>
<b>2009</b>	<b>637,929</b>	<b>533,622</b>	<b>9,398</b>	<b>255</b>	<b>1.76%</b>	<b>1,563,679</b>	<b>2.45</b>
<b>2008</b>	<b>588,850</b>	<b>529,524</b>	<b>9,749</b>	<b>375</b>	<b>1.84%</b>	<b>1,522,064</b>	<b>2.58</b>
<b>2007</b>	<b>634,420</b>	<b>523,984</b>	<b>9,666</b>	<b>567</b>	<b>1.84%</b>	<b>1,486,999</b>	<b>2.34</b>

recorded a drug positive rate higher than the overall active duty population (Table 3). While the drug positive rate has decreased over the five year period, greater efforts must be expended to further reduce the “high risk population” drug positive rate. An increased mean testing ratio and a focused anti-drug education program directed to the 18 - 25 year old population may decrease drug use. Increasing the frequency of testing within this age population may result in a greater return in reducing drug use at a nominal cost to program execution.

For the past five years, the Army tested the ‘high risk population’ at over 200 percent, and the Navy and Marine Corps tested this population at over 300 percent; while, the Air Force tested the same population at approximately 125 percent (Figure 4).



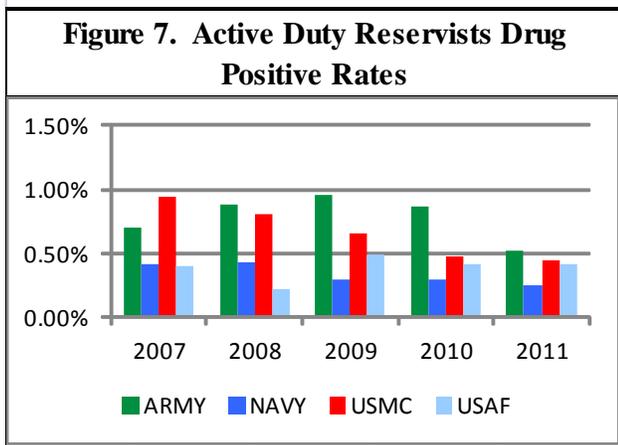
Over the five year period, drug positive results for high risk populations decreased significantly in the Army, Navy, and Marine Corps (Figure 5). The Air Force drug positive rate remained unchanged. In FY 2011, the drug positive rate for the active duty 'high risk population' ranges from 0.51 percent for the Air Force to 2 percent for the Army. The Army active duty 'high risk population' was at the DoD 'Wellness of the Force' drug positive rate goal of 2 percent in FY 2011.

***Service Reservists Testing Results***

The drug positive rate for Active Duty Reservists has remained below 1 percent for the past five years (Table 5), with a notable decrease in FY 2011, from 0.66 percent in FY 2010 to 0.45 percent in FY 2011.

Fiscal Year	Average End Strength	Unique Member Tests	Unique Positive Personnel	MRP Unknown	Positive Rate	Total Specimens Tested	Mean Test Ratio
2011	173,542	96,764	431	114	0.45%	194,687	1.12
2010	189,063	103,299	677	75	0.66%	198,948	1.05
2009	195,821	102,524	781	81	0.76%	187,791	0.96
2008	158,880	94,274	700	119	0.74%	171,353	1.08
2007	170,277	89,322	590	133	0.66%	158,833	0.93

As indicated in Figure 6, the Navy and Marine Corps Active Duty Reservists had testing ratios above 1.5 in FY 2011. Both the Army Reserve and Air Force Reserve on active duty maintained testing ratios at 1.0 and 0.3, respectively.



In terms of drug positive rates as indicated in Figure 7, the Army and Marine Corps Reserve on active duty recorded a significant decrease of drug positive Service members in FY 2011. All Services, with the exception of the Air Force Reserve recorded significant decreases in the drug positive rates for Reserve personnel over the five year period.

As observed in Table 6, Active Duty Reservists in the high risk population were tested at slightly higher ratios than the total active duty Reservists (Table 5). While the high risk active duty reservist population comprises 29 percent of the total active duty Reservists, they accounted for 63 percent of the total active duty Reservist drug positive specimens. Reservists in the high risk population had on average, an illicit drug positive rate nearly twice that of the total active duty Reservist population (Table 5).

Fiscal Year	Average End Strength	Unique Member Tests	Unique Positive Personnel	MRP Unknown	Positive Rate	Total Specimens Tested	Mean Test Ratio
2011	50,159	32,701	273	16	0.83%	65,216	1.30
2010	56,153	34,348	415	15	1.21%	66,158	1.18
2009	59,368	34,875	467	18	1.34%	63,926	1.08
2008	45,293	31,842	436	19	1.37%	59,350	1.31
2007	49,222	28,813	354	24	1.23%	53,051	1.08

As indicated in Figure 8, the Navy and Marine Corps active duty Reservists in the high risk population increased their testing ratio above 1.5 over the past two fiscal years; while the Army and Air Force Reservists in the high risk group had testing ratios of 0.9 and 0.6, respectively.

In terms of drug positive rates, as indicated in Figure 9, Army active duty Reservists in the high risk population recorded a significant decrease of drug positive Reserve members in FY 2011. All Services, with the exception of the Air Force Reserve recorded significant decreases in the drug positive rates over the five year period.

As observed in Table 7, Reservists not on active duty met the DoD goal of a drug positive rate below two percent; however, the drug positive rate for Reservists not on active duty was approximately 3-fold greater than total active duty Reservists (Table 5). The significantly higher drug positive rates for Reservists not on active duty is not easily explained since Reservists on active duty had a mean test ratio only 20 percent higher than Reservists not on active duty.

<b>Fiscal Year</b>	<b>Average End Strength</b>	<b>Unique Member Tests</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>2011</b>	<b>367,907</b>	<b>188,497</b>	<b>2,877</b>	<b>453</b>	<b>1.53%</b>	<b>335,192</b>	<b>0.91</b>
<b>2010</b>	<b>356,768</b>	<b>176,263</b>	<b>2,929</b>	<b>289</b>	<b>1.66%</b>	<b>301,401</b>	<b>0.84</b>
<b>2009</b>	<b>250,008</b>	<b>164,539</b>	<b>2,392</b>	<b>181</b>	<b>1.45%</b>	<b>266,864</b>	<b>1.07</b>
<b>2008</b>	<b>268,160</b>	<b>167,518</b>	<b>2,043</b>	<b>253</b>	<b>1.22%</b>	<b>265,664</b>	<b>0.99</b>
<b>2007</b>	<b>274,659</b>	<b>168,456</b>	<b>2,154</b>	<b>285</b>	<b>1.28%</b>	<b>269,530</b>	<b>0.98</b>

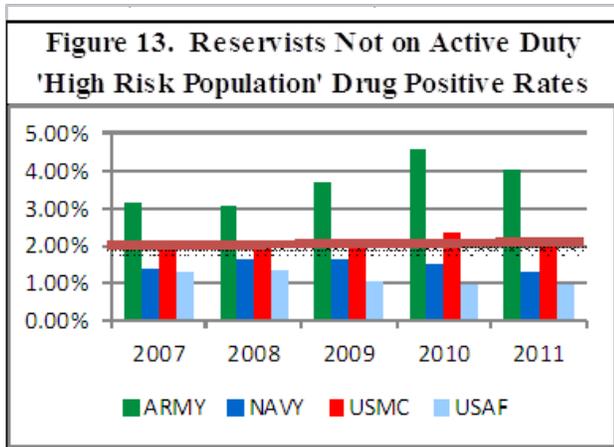
As indicated in Figure 10, Navy Reservists not on active duty had a testing ratio at or above 1.5 over the past five years. On average, Army and Marine Corps Reservists not on active duty were tested at rates slightly below 1.0; while, Air Force Reservists not on active duty were tested at an average rate of 0.3, well below the DoD required testing ratio of 1.0.

As indicated in Figure 11, Reservists not on active duty showed no decline in drug positive rates over the five year period. Army and Marine Corps Reservists not on active duty in FY 2011 had drug positive rates four-fold greater than their Active Duty Reservist counterparts (Figure 7). Notably, the Navy and Air Force Reservists not on active duty had significantly lower drug positive rates than Army and Marine Corps Reservists not on active duty counterparts. The Navy and Air Force Reservists not on active duty (Figure 11) had slightly higher drug positive rates as compared to Navy and Air Force Active Duty Reservists (Figure 7).

As observed in Table 8, Reservists not on active duty in the high risk population were tested at lower testing ratios than the high risk population Active Duty Reservists (Table 6). While the high risk population of Reservists not on active duty comprises 27 percent of the total Reservists not on active duty, they accounted for 71 percent of the total drug positives. Reservists not on active duty in the high risk population had on average, a drug positive rate nearly twice that of the total Reservists not on active duty (Table 7) and nearly four times higher than the high risk population of active duty Reservists. (Table 6).

<b>Fiscal Year</b>	<b>Average End Strength</b>	<b>Unique Member Tests</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>2011</b>	<b>99,356</b>	<b>55,546</b>	<b>2,047</b>	<b>102</b>	<b>3.09%</b>	<b>96,065</b>	<b>0.97</b>
<b>2010</b>	<b>97,176</b>	<b>52,032</b>	<b>1,784</b>	<b>85</b>	<b>3.43%</b>	<b>86,282</b>	<b>0.89</b>
<b>2009</b>	<b>60,290</b>	<b>46,876</b>	<b>1,384</b>	<b>48</b>	<b>2.95%</b>	<b>72,829</b>	<b>1.21</b>
<b>2008</b>	<b>65,396</b>	<b>46,005</b>	<b>1,188</b>	<b>38</b>	<b>2.58%</b>	<b>70,106</b>	<b>1.07</b>
<b>2007</b>	<b>66,653</b>	<b>46,039</b>	<b>1,212</b>	<b>76</b>	<b>2.63%</b>	<b>70,907</b>	<b>1.06</b>

As indicated in Figure 12 the Navy Reservists in the high risk population not on active duty had a testing ratio of 1.7, significantly higher than the other Service counterparts. While the Navy Reservist high risk population had increased testing ratios over the past five years, the Army, Marine Corps, and Air Force Reservists had decreased testing ratios over the past three years.



As indicated in Figure 13, Army Reservists in the high risk population not on active duty recorded significant increases in the percentage of drug positives between FY 2007-2010. In FY 2011 the percentage of drug positive Army Reservists declined 0.5 percent from FY 2010; however, their drug positive rate was twice the 2 percent DoD goal. Air Force Reservists high risk population not on

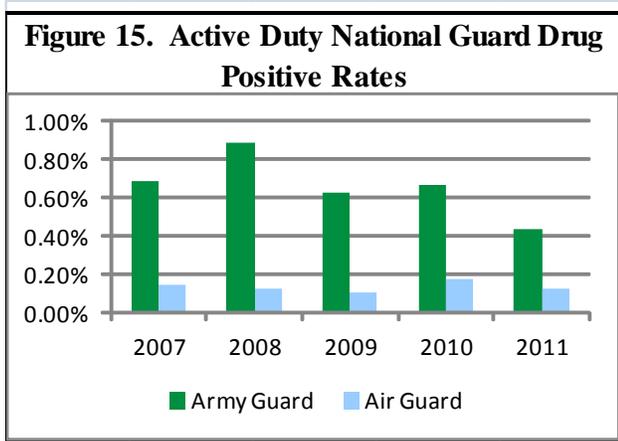
active duty had a slightly higher drug positive rate than their counterpart high risk Reservists on active duty (Figure 9). High risk populations of Reservists in the Army, Navy, and Marine Corps had a drug positive rate three to four times higher than high risk counterpart Reservists on Active Duty (Figure 9).

### ***National Guard Bureau Drug Testing Results***

The positive rate for active duty National Guard Service members remained below one percent for the past five years (Table 9), with a notable decrease in FY 2011.

Fiscal Year	Average End Strength	Unique Member Tests	Unique Positive Personnel	MRP Unknown	Positive Rate	Total Specimens Tested	Mean Test Ratio
2011	174,268	102,086	394	215	0.39%	163,763	0.94
2010	188,241	114,159	678	132	0.59%	188,090	1.00
2009	187,916	112,799	625	194	0.55%	176,092	0.94
2008	148,172	97,923	759	145	0.78%	143,000	0.97
2007	156,773	85,703	509	183	0.59%	122,210	0.78

As indicated in Figure 14, Army and Air National Guard active duty personnel were tested at a relatively constant testing ratio of 1.1 and 0.5, respectively, over the past four fiscal years. The Air Guard testing ratio remains well below the DoD required testing ratio of 1.0.



As noted in Figure 15, there was a significant decrease in the active duty Army Guard drug positive rate between FY 2008 - 2011. The drug positive rate for the active duty Air Guard averaged 0.13 percent over the past five fiscal years and remained well below that of their active duty Army Guard counterpart.

As observed in Table 10, active duty Guard personnel in the high risk population were tested at similar testing ratios as the active duty National Guard (Table 9). While the high risk active duty Guard population comprised 21 percent of the total Active Duty Reservists, they accounted for 48 percent of the total drug positive specimens from active duty Guard personnel. However, the 48 percent drug

Fiscal Year	Average End Strength	Unique Member Tests	Unique Positive Personnel	MRP Unknown	Positive Rate	Total Specimens Tested	Mean Test Ratio
2011	35,859	20,026	188	24	0.94%	30,956	0.86
2010	40,622	25,266	361	23	1.43%	40,587	1.00
2009	42,391	25,136	328	36	1.30%	38,112	0.90
2008	30,638	22,797	425	33	1.86%	32,441	1.06
2007	33,029	18,062	248	30	1.37%	25,385	0.77

positive rate comparison between the Guard high risk population and total active duty Guard is significantly lower than previous comparisons for similar counterparts in the Reserve. This suggests a significant contribution in drug use by Guard personnel not in the high risk population. Still, the drug positive rate of active duty Guard personnel in the high risk population is over twice that of the total active duty Guard (Table 9).

As indicated in Figure 16, the active duty Army Guard high risk population mean test ratio fluctuated around 1.0, while the counterpart Air Guard mean test ratio fluctuated around 0.38. These mean test ratios were slightly lower than the total active duty Army and Air Guard (Figure 14).

It is a concern that the high risk population is tested at lower rates especially in the Air Guard, as the high risk active duty drug positive rate (Figure 17) is four-fold higher than the total active duty Air Guard rate (Figure 15). The active duty Army Guard high risk group had a drug positive rate twice that of the total active duty Army Guard.

As noted in Table 11, between FY 2009 - 2011, Guard personnel not on active duty have illicit drug positive rates consistently four to five-fold higher than active duty Guard personnel (Table 9).

<b>Table 11. National Guard Not On Active Duty Drug Positive and Drug Testing Rates</b>							
<b>Fiscal Year</b>	<b>Average End Strength</b>	<b>Unique Member Tests</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>2011</b>	<b>439,573</b>	<b>274,561</b>	<b>5,835</b>	<b>1,033</b>	<b>2.13%</b>	<b>444,112</b>	<b>1.01</b>
<b>2010</b>	<b>444,674</b>	<b>262,608</b>	<b>6,185</b>	<b>669</b>	<b>2.36%</b>	<b>412,204</b>	<b>0.93</b>
<b>2009</b>	<b>339,625</b>	<b>254,818</b>	<b>5,735</b>	<b>580</b>	<b>2.25%</b>	<b>382,004</b>	<b>1.12</b>
<b>2008</b>	<b>362,274</b>	<b>246,671</b>	<b>5,330</b>	<b>392</b>	<b>2.16%</b>	<b>342,987</b>	<b>0.95</b>
<b>2007</b>	<b>365,416</b>	<b>234,453</b>	<b>5,408</b>	<b>713</b>	<b>2.31%</b>	<b>313,514</b>	<b>0.86</b>

As indicated in Figure 18, in FY 2011, the Army Guard not on active duty had a mean test ratio nearly 1.8 fold higher than the Air National Guard not on active duty. Over the past five years, the Army Guard and Air Guard not on active duty had relatively constant testing ratios of 1.0 and 0.7, respectively.

As noted in Figure 19, the drug positive rate for the Army and Air Guard not on active duty averaged 2.48 percent and 0.39 percent over the past five fiscal years. Between FY 2007 – 2011, the drug positive rate in both Guard components remained essentially unchanged. The drug positive rate for the Army Guard not on active duty is nearly six-fold higher than the active duty Army Guard (Figure 15). The drug positive rate for the Air Guard not on active duty is three-fold higher than the active duty Air Guard (Figure 15).

In Table 12, the National Guard not on active duty high risk population had a FY 2011 drug positive rate of 3.9 percent, nearly twice the 2.1 percent drug positive rate for the total National Guard not on active duty (Table 11). This increase in drug positive rates is notable considering there is no significant difference in the mean test ratios between the Guard's data.

**Table 12. National Guard Not On Active Duty 'High Risk Population' Drug Positive and Drug Testing Rates**

Fiscal Year	Average End Strength	Unique Member Tests	Unique Positive Personnel	MRP Unknown	Positive Rate	Total Specimens Tested	Mean Test Ratio
2011	149,456	98,278	3,852	373	3.92%	162,803	1.09
2010	151,187	93,824	4,005	219	4.27%	150,366	0.99
2009	122,143	90,226	3,711	183	4.11%	137,213	1.12
2008	123,057	85,727	3,219	127	3.75%	121,051	0.98
2007	125,224	79,584	3,293	256	4.14%	108,204	0.86

As indicated in Figure 20, since FY 2008, the Army Guard not on active duty high risk population had a mean test ratio above 1.0. During the same period, the Air Guard not on active duty high risk population had a decline in the mean test ratio from 0.82 to 0.69.

In Figure 21, since 2007, the Army Guard not on active duty high risk population maintained a drug positive rate above 4 percent. During the same time period, with the exception in FY 2008, the Air Guard not on active duty high risk population had a drug positive rate above 1.0 percent. Between 2009 – 2011, when the Air Guard not on active duty high risk group mean drug test ratio decreased, the drug positive rate increased. Also of note, in spite of nearly identical mean test ratios (Figures 18 and 20), the drug positive rates of Army and Air Guard not on active duty high risk population (Figure 21) were significantly higher than the overall Army and Air Guard not on active duty (Figure 19). This highlights the need for increased testing of personnel in the high risk category and the separation of drug positive individuals from the Guard.

### ***DoD Drug Positive Distribution***

Table 13 shows the post MRP proportional contribution of a specific drug to the overall drug positive distribution. There was no attempt to account for multiple positive results. The proportional contribution of a specific drug to the overall drug positive distribution (Table 13) has remained relatively constant over the past five years with marijuana remaining the primary drug of abuse followed by cocaine. The percent positive distribution for marijuana has decreased over the past three years from 68.3 percent in FY 2009 to 65.6 percent in FY 2011, but the percent positive distribution for marijuana in FY 2011 is higher than the 62.2 percent recorded in FY 2008. During the past five years the proportional positive distribution for cocaine decreased from 22.4 percent in FY 2008 to 14 percent in FY 2011. The percent positive proportional distribution for designer amphetamine analogues (MDMA and MDA) both decreased during the past five years while the percent positive proportional distribution

for d-amphetamine increased significantly. The increase in d-amphetamine since FY 2008 may be linked to the number of military personnel who use Adderall<sup>®</sup>. Adderall<sup>®</sup> use results in a distinctive

<b>Drug</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
<b>Marijuana</b>	<b>59.9%</b>	<b>62.2%</b>	<b>68.3%</b>	<b>67.4%</b>	<b>65.6%</b>
<b>Cocaine</b>	<b>28.2%</b>	<b>22.4%</b>	<b>14.7%</b>	<b>13.2%</b>	<b>14.0%</b>
<b>Ecstasy (MDMA)</b>	<b>2.6%</b>	<b>2.8%</b>	<b>2.9%</b>	<b>2.8%</b>	<b>1.9%</b>
<b>MDA</b>	<b>1.2%</b>	<b>1.4%</b>	<b>1.5%</b>	<b>1.3%</b>	<b>0.9%</b>
<b>Phencyclidine* (PCP)</b>	<b>0.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Amphetamine</b>					
<b><i>d</i> -Amphetamine</b>	<b>2.5%</b>	<b>4.3%</b>	<b>5.0%</b>	<b>5.6%</b>	<b>6.6%</b>
<b><i>d</i> -Methamphetamine</b>	<b>1.7%</b>	<b>3.4%</b>	<b>3.2%</b>	<b>3.1%</b>	<b>3.5%</b>
<b>Opioids*</b>					
<b>Codeine</b>	<b>0.5%</b>	<b>0.3%</b>	<b>0.4%</b>	<b>0.4%</b>	<b>0.6%</b>
<b>Morphine</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.6%</b>	<b>0.8%</b>	<b>1.2%</b>
<b>Heroin</b>	<b>0.3%</b>	<b>0.4%</b>	<b>0.6%</b>	<b>0.6%</b>	<b>1.1%</b>
<b>Oxycodone</b>	<b>1.0%</b>	<b>0.9%</b>	<b>0.9%</b>	<b>1.7%</b>	<b>1.6%</b>
<b>Oxymorphone</b>	<b>1.8%</b>	<b>1.6%</b>	<b>1.8%</b>	<b>3.1%</b>	<b>3.1%</b>

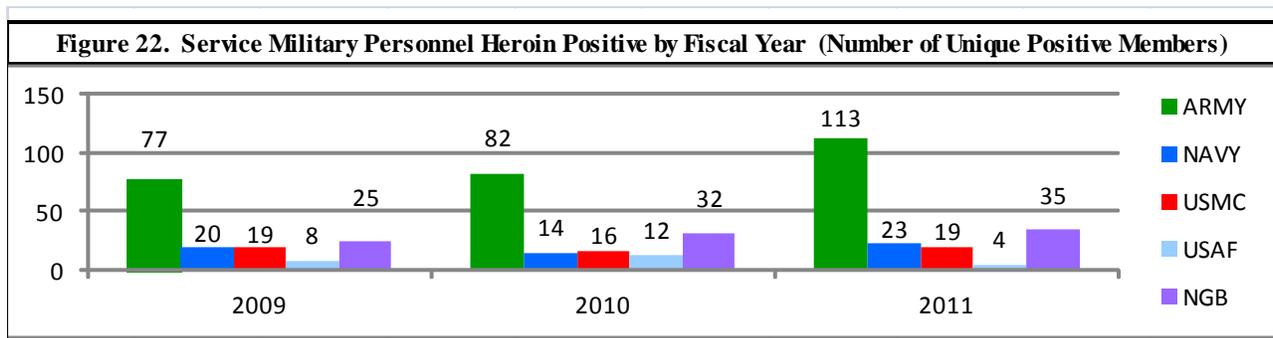
\* phencyclidine, codeine, morphine, oxycodone, oxymorphone are tested at a pulse rate of 20 percent of samples received in the Laboratory

amphetamine isomer ( *d* / *l* ) profile detectable by the testing laboratory. The proportional rates for oxycodone and oxymorphone in FY 2011 have nearly doubled since FY 2008. The proportional drug positive percentage for oxycodone and oxymorphone may be under estimated as this opiate drug class is pulse tested at 20 percent (one in five specimens submitted are tested for oxycodone/oxymorphone).

In FY 2005, 100 percent screening for heroin was initiated. The proportion of heroin-positive specimens increased from 0.2 percent of total positive reported drugs in FY 2006 to 1.1 percent of total positive reported drugs in FY 2011. The proportional increase in heroin-positive specimens from FY 2006 - 2011 is reflected in the concurrent proportional increase in morphine-positive reported specimens. While the proportional number of heroin-positive results is 1.1 percent (Table 13), the addiction potential of heroin and the 4.3 fold increase in heroin-positive Service members identified between FY 2005 - 2011 (Table 14) cannot be dismissed. The number of heroin-positive military members by Service Component is listed in Table 14. When comparing the number of heroin-positive members between Services, the difference in testing rates between the Services must be considered. The Army, and the Navy-Marine Corps components have testing rates of 200 percent and 300 percent, respectively while the Air Force testing rate is 100 percent.

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Army Active Duty	16	25	26	43	67	67	95
Army National Guard	5	6	9	16	23	31	34
Army Reserve	6	9	5	11	14	15	18
<b>TOTAL ARMY</b>	<b>27</b>	<b>40</b>	<b>40</b>	<b>70</b>	<b>104</b>	<b>113</b>	<b>147</b>
Navy Active Duty	4	10	13	15	16	11	21
Navy Reserve	2	0	0	0	4	3	2
<b>TOTAL NAVY</b>	<b>6</b>	<b>10</b>	<b>13</b>	<b>15</b>	<b>20</b>	<b>14</b>	<b>23</b>
USMC Active Duty	7	4	7	12	19	14	16
USMC Reserve	3	2	1	1	0	2	3
<b>TOTAL USMC</b>	<b>10</b>	<b>6</b>	<b>8</b>	<b>13</b>	<b>19</b>	<b>16</b>	<b>19</b>
USAF Active Duty	1	1	3	4	6	12	4
USAF Guard	1	3	1	1	2	1	1
USAF Reserve	0	0	0	0	2	0	0
<b>TOTAL USAF</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>10</b>	<b>13</b>	<b>5</b>
<b>TOTAL DOD</b>	<b>45</b>	<b>59</b>	<b>65</b>	<b>103</b>	<b>152</b>	<b>156</b>	<b>194</b>

The active duty end strength of the Army and the end strength of Navy-Marine Corps Components are nearly equal; however, the number of Army heroin-positive Service members was approximately 3.6-fold higher than the number of Navy-Marine Corps heroin-positive Service members identified in FY 2011. Of the 147 heroin positive Army Service members, 65 percent were on active duty, 23 percent were in the Army Guard, and 12 percent in the Army Reserve. The greatest increases in heroin positive Service members have been in the Army components (Figure 22).



**Deployment Testing**

The results of deployment drug testing are shown in Table 15. The overall DoD deployment testing ratio has improved incrementally over the past five years from 48 percent in FY 2007 to

<b>Table 15. Deployment Drug Testing (All Service values includes Reservist on active duty)</b>								
<b>Service</b>	<b>Fiscal Year</b>	<b>Total Deployed</b>	<b>Unique Member Tested</b>	<b>Unique Positive Personnel</b>	<b>MRP Unknown</b>	<b>Positive Rate</b>	<b>Total Specimens Tested</b>	<b>Mean Test Ratio</b>
<b>Total DoD</b>	2011	592,806	190,328	427	75	0.23%	323,880	0.55
	2010	624,855	175,186	445	49	0.25%	281,480	0.45
	2009	655,064	186,930	362	181	0.19%	302,519	0.47
	2008	638,959	169,535	422	193	0.25%	269,115	0.42
	2007	604,777	150,729	308	142	0.20%	241,308	0.40
<b>Army</b>	2011	252,843	94,226	248	43	0.27%	147,849	0.58
	2010	284,005	89,231	297	15	0.33%	134,062	0.47
	2009	291,367	96,356	219	132	0.23%	149,756	0.52
	2008	285,466	90,174	315	131	0.35%	134,466	0.47
	2007	267,514	70,523	188	108	0.27%	101,632	0.38
<b>Navy</b>	2011	99,945	50,511	41	21	0.08%	100,696	1.01
	2010	89,447	42,196	23	8	0.05%	84,586	0.95
	2009	94,824	41,792	26	8	0.06%	78,523	0.78
	2008	100,866	44,081	42	34	0.10%	87,057	0.86
	2007	93,699	47,215	50	7	0.11%	93,540	1.00
<b>USMC</b>	2011	76,467	23,894	91	4	0.39%	46,795	0.61
	2010	64,600	11,036	31	2	0.28%	17,469	0.27
	2009	75,647	21,331	60	1	0.28%	35,665	0.42
	2008	85,316	14,474	23	0	0.16%	21,898	0.26
	2007	82,326	11,478	28	0	0.24%	17,984	0.22
<b>USAF</b>	2011	87,386	1,535	4	0	0.26%	1,753	0.02
	2010	92,326	2,079	5	2	0.24%	2,274	0.02
	2009	91,046	2,155	2	0	0.09%	2,494	0.03
	2008	90,636	2,864	3	1	0.10%	3,108	0.03
	2007	86,562	4,326	6	0	0.14%	4,543	0.05
<b>NGB</b>	2011	76,165	20,061	43	7	0.22%	26,787	0.35
	2010	94,477	30,644	89	22	0.29%	43,089	0.46
	2009	102,180	25,296	55	40	0.22%	36,081	0.47
	2008	76,675	17,942	39	27	0.22%	22,586	0.29
	2007	74,676	17,187	36	27	0.21%	23,609	0.32

55 percent of the deployed force in FY 2011. While the DoD ‘Wellness of the Force’ goal for drug testing is a minimum testing ratio of 1.0, the deployed drug testing rate must be considered in relationship to the in-theater Operating Tempo (OPTEMPO). In FY 2011, the Navy and Marine Corps had the highest deployed personnel drug testing ratio 1.01 and 0.61, respectively, followed by the Army and the National Guard Bureau at 0.58 and 0.35, respectively. The Air Force conducted nearly no deployment drug testing as noted by a drug testing ratio of 0.02. For FY 2011, all Service deployed components had a drug positive rate below 0.4 percent, well below the DoD ‘Wellness of the Force’ goal of 2 percent.

***Military Entrance Processing Station Testing***

The results of the initial MEPS drug testing are shown in Table 16. In FY 2011 the overall DoD MEPS drug positive rate was 0.8 percent, the lowest it has been in the past six years. Also, all Services recorded a notable decrease in the number of applicants who tested drug positive in FY 2011 as compared to FY 2009.

<b>Table 16. Military Accessions Drug Testing Positive Rate</b>									
Applicant Source	FY 2009			FY 2010			FY 2011		
	Number Tested	Number Positive	Percent Positive	Number Tested	Number Positive	Percent Positive	Number Tested	Number Positive	Percent Positive
Army	114,339	1,404	1.2%	92,786	948	1.0%	78,996	632	0.8%
Army Reserve	29,650	294	1.0%	18,823	128	0.7%	21,227	143	0.7%
NGB Army	55,178	1,292	2.3%	54,809	1,210	2.2%	43,148	605	1.4%
NGB Air Force	9,718	73	0.8%	7,000	79	1.1%	6,737	43	0.6%
Navy	58,444	635	1.1%	44,384	495	1.1%	41,440	395	1.0%
Navy Reserve	7,239	57	0.8%	5,723	41	0.7%	6,943	52	0.7%
USMC	46,249	710	1.5%	39,541	306	0.8%	42,025	235	0.6%
USMC Reserve	8,209	132	1.6%	8,078	70	0.9%	7,395	38	0.5%
USAF	41,538	310	0.7%	32,879	231	0.7%	30,900	167	0.5%
USAF Reserve	7,157	74	1.0%	7,426	68	0.9%	7,093	60	0.8%
<b>TOTAL DoD</b>	<b>377,721</b>	<b>4,981</b>	<b>1.3%</b>	<b>312,243</b>	<b>3,610</b>	<b>1.2%</b>	<b>285,904</b>	<b>2,370</b>	<b>0.8%</b>

### **DoD Agency Drug Testing**

The drug testing results for the fifteen DoD Agencies that have civilians in TDPs are shown in Table 17. In FY 2011, the DoD Agencies tested nearly 140,700 TDP civilians and nearly 42,300 Agency applicants. The percent total civilian drug positives in the DoD Agencies have remained at 0.3 percent for the last three fiscal years, a positive rate well below the DoD goal of less than 1 percent.

In FY 2011, the DoD transitioned to a random testing frequency for TDP civilians of 100 percent over a two year period in lieu of a 100 percent annual testing requirement. The reduced random testing frequency did not affect pre-employment, follow-up, reasonable suspicion, and accident testing which remained at current levels and periodicity.

**Table 17. FY 2011 DoD Agencies Drug Testing Results**

Agency	TDP Tested <sup>1</sup>	Applicants Tested	Total Civilians Tested	Percent TDP Tested <sup>2</sup>	Tested Positive <sup>2</sup>	FY 2011 Percent Positive <sup>3</sup>	FY 2010 Percent Positive <sup>2</sup>	FY 2009 Percent Positive <sup>2</sup>
Air Force	38,707	15,697	54,404	81%	131	0.34%	0.24%	0.16%
Army	47,246	11,695	58,941	100%	139	0.29%	0.26%	0.30%
Navy	26,900	6,082	32,982	56%	51	0.19%	0.24%	0.33%
DCAA	865	81	946	72%	0	0.00%	0.00%	0.00%
DCMA	0	906	906	0%	0	0.00%	0.00%	0.00%
DIA	2,642	1,084	3,726	N/A	5	0.19%	0.10%	0.04%
DISA	530	760	1,290	14%	0	0.00%	0.36%	0.66%
DLA	6,165	3,352	9,517	52%	77	1.25%	1.70%	0.95%
DODIG	868	125	993	51%	2	0.23%	0.00%	0.09%
DSS	28	143	171	NA	1	3.57%	0.43%	0.24%
DTRA	0	50	50	0%	0	0.00%	0.00%	0.00%
NGA	2,177	1,097	3,274	24%	2	0.09%	0.00%	0.18%
NSA	12,802	1,047	13,849	N/A	14	0.11%	0.33%	0.41%
USUHS	77	7	84	73%	1	1.30%	0.00%	0.00%
WHS	1,670	160	1,830	37%	2	0.12%	0.15%	0.15%
<b>TOTAL DOD CIVILIANS</b>	<b>140,677</b>	<b>42,286</b>	<b>182,963</b>		<b>425</b>	<b>0.30%</b>	<b>0.30%</b>	<b>0.31%</b>

<sup>1</sup>TDP Tested is the number of random tests only. Does not include applicant testing.

<sup>2</sup>Only includes random testing. Does not include applicant testing.

<sup>3</sup>Includes both random and applicant positives

## **Discussion and Conclusions**

Overall, the DoD has continued to meet the goal of an illicit drug positive rate below 2 percent. However, the ‘high risk populations’ not on active duty for the Army Reserve, the Marine Corps Reserve, and the Army National Guard all have drug positive rates that exceed the DoD goal. It is of particular concern that the ‘high risk populations’ not on active duty for both the Army National Guard and the Army Reserve have recorded drug positive rates above 4 percent for the past two years. In FY 2011, the drug positive rates for these two Army components were 4.21 percent and 4.02 percent, respectively. While the high risk population makes up 36 percent of the entire force, this population accounts for 66 percent of all the illicit drug positives in FY 2011. Queries to FY 2011 DMDC data files will be conducted to identify the base or unit locations and Service component associated with drug positive rates above the DoD goal of 2 percent. Data will be forwarded to the Service components to formulate a focused response to reduce drug use through anti-drug education, training, and increased testing. A directed effort towards increased testing of a high risk population is consistent with national drug use statistics that show that rates of drug use vary substantially by age<sup>7</sup>. The national survey completed in 2010 showed past month illicit drug use peaks of individuals between age 18 and 25. In 2010, an estimated 22.6 million (8.9 percent) Americans ages 12 or older reported using an illicit drug in the past 30 days. Accordingly, the Services should task their drug testing resources to target the high risk population at an increased frequency of testing, and outreach efforts.

The deterrence and detection of drug use through urinalysis drug testing has been substantiated over the history of the program. The rate of drug testing is directly related to the number of drug users identified per collection event and the probability of detecting a Service member using drugs. Overall, the Army, Navy, Marine Corps, Army Guard, and Army Reserve components have met the DoD goal of a 1.0 random testing ratio per year. However, the Air Force counterparts in the Air National Guard and Air Force Reserve are substantially below the mandated testing ratio, with a low of 0.25 (25 percent) in the Air Force Reserve not on active duty. While it may be argued that increasing the drug test ratio has no effect on the drug positive rate over the short term as the percent drug positive rate will remain unchanged, increasing the drug testing rate will increase the number of individuals detected for drug abuse. Over the long term, increased urinalysis testing identifies more drug users per testing event; thereby enhancing deterrence through the immediate and visible removal of the drug user from their unit and their administrative separation from military Service.

### ***Drug Testing Frequency and Probability of Detecting Drug Use***

In addition to enhanced anti-drug prevention and education efforts, increasing the overall frequency of urinalysis testing and implementing a focused testing on the high risk population may provide greater deterrence to drug use and improve detection of both the casual and the habitual drug

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<sup>7</sup> U.S. Department of Health and Human Services, 2003 National Survey on Drug Use and Health: National Findings

user. Tables 18 and 19 show the statistical probability of detecting a drug user at different mean test ratios. Detection of drug use is dependent on several variables to include the drug window of detection (drug clearance rate from the body), the frequency of drug use in any given month, and the number of days in a year when random urinalysis collections are conducted (i.e., testing events are conducted only on 220 work days as opposed to 365 days a year).

If a Service member abuses a drug that has a three day window of detection and uses the drug only once a month, and the command considers every day of the year as a testable event with a testing

<b>Table 18. Percent Probability of Detecting Drug Use On Any Given Urinalysis Collection Based Upon Varying Testing Rates and Assuming a Single Incident of Drug Use Per Month at Various Urine Windows of Drug Detection</b>					
<b>Testing Frequency Number of Random Collections Per Year (Every day a testable event - 365 days)</b>	<b>Number of Day that Drug Use is Detectable by Urinalysis Testing (Assuming 1 drug use per month)</b>				
	<b>1-day window</b>	<b>2-day window</b>	<b>3-day window</b>	<b>4-day window</b>	<b>5-day window</b>
<b>1 (100%)</b>	<b>3</b>	<b>7</b>	<b>10</b>	<b>13</b>	<b>16</b>
<b>2 (200%)</b>	<b>7</b>	<b>13</b>	<b>20</b>	<b>26</b>	<b>33</b>
<b>3 (300%)</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>39</b>	<b>49</b>
<b>4 (400%)</b>	<b>13</b>	<b>26</b>	<b>39</b>	<b>53</b>	<b>66</b>
<b>5 (500%)</b>	<b>16</b>	<b>33</b>	<b>49</b>	<b>66</b>	<b>82</b>

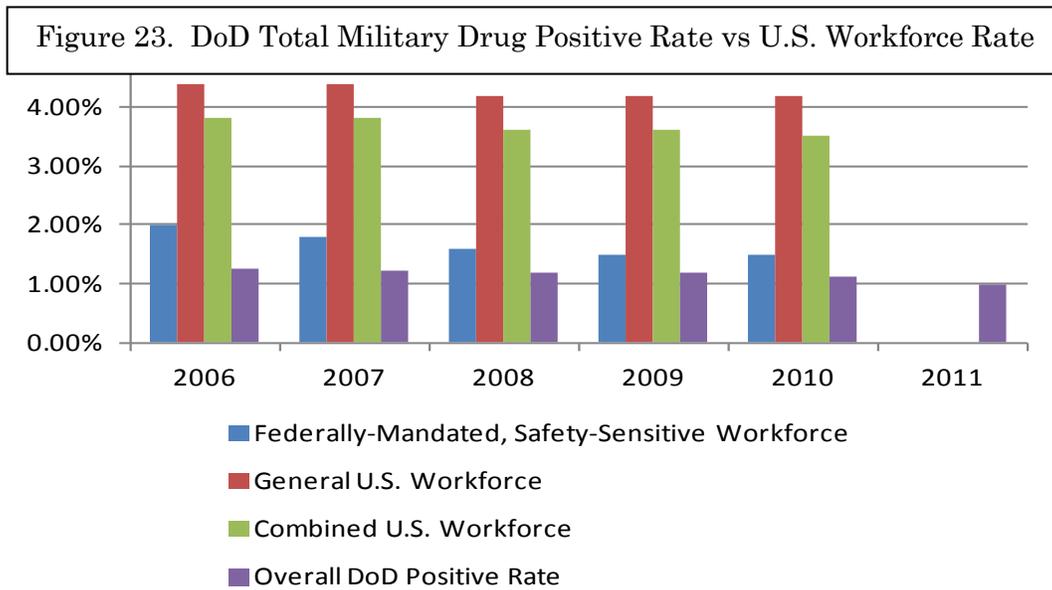
ratio of 100 percent, then the probability of detecting the Service member's use is approximately 10 percent. In the same scenario by increasing the testing ratio to 200 – 300 percent, the probability of detecting the Service member increases to 20 – 30 percent, respectively. In practice, most urinalysis testing is conducted on workdays, so the probability of detection is proportionally less by a factor of 0.6 (220 days/365 days). Any drug with a longer window of detection will increase the probability of detecting the Service member, keeping all other variables constant (Table 18). If a Service member abuses a drug that has a three day detection window and the use is more than once a month, then the probability of detection increases as a function of the testing ratio and frequency of monthly drug use (Table 19). For a Service member abusing a drug three times in a given month with a command testing ratio of 100 percent, the probability of detection at best, is 30 percent. Increasing the test ratio to 300 percent will increase the probability of detection.

<b>Table 19. Percent Probability of Detecting Drug Use on any Given Urinalysis Collection Based Upon the Testing Rate and Assuming a 3-Day Drug Detection Window at a Varying Frequency of Drug Use in the Month</b>						
<b>Testing Frequency Number of Random Collections Per Year</b>	<b>Number of Times Within a Month that Drugs are Used with a 3-day Urine Drug Detection Window</b>					
	<b>1 incident of drug use per month</b>	<b>2 incidents of drug uses per month</b>	<b>3 incidents of drug uses per month</b>	<b>4 incidents of drug use per month</b>	<b>5 incidents of drug use per month</b>	<b>6 incidents of drug use per month</b>
<b>1 (100%)</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>39</b>	<b>49</b>	<b>59</b>
<b>2 (200%)</b>	<b>20</b>	<b>39</b>	<b>59</b>	<b>79</b>	<b>99</b>	<b>118</b>
<b>3 (300%)</b>	<b>30</b>	<b>59</b>	<b>89</b>	<b>118</b>	<b>148</b>	<b>178</b>
<b>4 (400%)</b>	<b>39</b>	<b>79</b>	<b>118</b>	<b>158</b>	<b>197</b>	<b>237</b>
<b>5 (500%)</b>	<b>49</b>	<b>99</b>	<b>148</b>	<b>197</b>	<b>247</b>	<b>296</b>
<b>% Probability of Detection = frequency of use/month x 12 mo/yr x testing freq x detection window/365 days/yr x 100</b>						
<b>If collections occur only on work days (220) vice 365, then the probability percentages are reduced by a factor of approximately 0.6.</b>						

***DoD Workplace Drug Testing Program Comparisons***

Figure 23 provides a perspective on the DoD civilian workplace testing program with respect to the non-government United States workplace drug testing. These data compare the FY 2011 total DoD drug testing results to the most recent data available from Quest Diagnostics,<sup>8</sup> one of the country’s largest drug testing laboratories. The Quest results represent over 1.5 million tests in 2010 for tests performed for clients with TDPs that fall under the federally-mandated regulations and over six million tests in 2010 for tests conducted for the combined general U.S. workforce. These data shown are for amphetamines, cocaine, marijuana, opiates, and PCP. While these Quest data do not reflect MRP cleared results, DoD positive data does provide a general comparison. While the FY 2010 DoD positive rate is slightly lower than other federally mandated programs, it is more than two-fold lower than the combined general U.S. workforce. When compared to national surveys of illicit drug use and civilian work place drug testing programs, the DoD military drug testing program is successful in deterring drug use among military members. Regardless of these favorable comparisons, DoD must remain diligent in its efforts to deter military members from illicit or prescription drug abuse. History has shown that degradation of the DDRP adversely affects good order and discipline in the Force structure which could negatively impact national security.

<sup>8</sup> Quest Diagnostics Inc., 1290 Wall Street West, Lyndhurst, N.J. 07071,  
[http://www.questdiagnostics.com/employersolutions/dti2011\\_09/dti\\_index.html](http://www.questdiagnostics.com/employersolutions/dti2011_09/dti_index.html)



### ***Early Indicators for Increase in Prescription Drug Abuse***

The misuse and abuse of prescription medications such as opiates, depressants and stimulants in the military and the general population is a growing concern. Drug abuse within the military has substantial implications on force readiness as well as on the military healthcare system. In an attempt to minimize the instances of such abuse, the military Services have invested heavily in prevention programs focusing on education, awareness, deterrence (e.g. random drug screening), and discipline. Despite these programs, the Services have seen an overall increase in the prevalence of self-reported illicit drug use in the previous 30 days among Active Duty Service Members from three percent in 2002 to five percent in 2005 and 12 percent in 2008.<sup>2</sup> The same trend is observed for the nonmedical misuse of prescription drugs with self-reported prescription drug misuse increasing from 1.8 percent in 2002, to 3.8 percent in 2005, and 11.1 percent in 2008.<sup>2</sup> On the other hand, the civilian misuse of prescription drugs has remained relatively constant with a prevalence rate of 2.4 percent in 2010, 2.8 percent in 2009, and 2.7 percent in 2002.<sup>5</sup> The higher incidence of prescription drug misuse among military personnel may be related to the use of opiates for pain management of combat related injuries, and of hypnotic sedatives (benzodiazepines) for combat / deployment related stress and anxiety.

## **Results Summary**

- In FY 2011, 194 Service members tested positive for heroin use. While heroin abuse comprises a very low percentage of the overall drug statistics, heroin use in FY 2011 represents a 24 percent increase from FY 2010 and a 4.3-fold increase since FY 2005 (Table 14). Although heroin has a relatively low proportional drug positive rate, the addictive nature of heroin is a primary concern.
- The percent of illicit positive specimens containing oxycodone / oxymorphone increased 1.6-fold and 2.0-fold, respectively between FY 2007 – 2011 (Table 13).
- Reserve (Figure 9) and National Guard (Figure 19) personnel not on active duty had drug positive rates three to five fold higher than their counterparts on active duty (Figure 7 and Figure 15), respectively. Reserve and National Guard personnel in the high risk population, independent of duty status, had drug positive rates twice the overall Reserve and Guard populations (Tables 5-12).
- Active duty personnel in the Army, Navy, and Marine Corps are tested at mean test ratios at least twice the DoD minimum goal of 1.0 random test per Service member per year; while Air Force active duty personnel were tested at the minimum DoD goal. In FY 2011, the Army Reserve and Army National Guard attained a random test ratio of 0.98 and 0.99, respectively. However, Service members of the Air Force Reserve and Air Guard were tested at rates significantly less than their Army and Navy counterparts. Air Force Reservists not on active duty had a mean test ratio of only 0.25 (Tables 3-12).

## **Recommendations Summary**

- Expand the urinalysis prescription based drug testing panel to 100 percent testing of all samples received at the laboratories for morphine, oxycodone, hydrocodone, and benzodiazepines.
- Focus drug deterrence and detection efforts across the military Services and Components for personnel in the high risk population of 18-25 years old, regardless of gender and rank through increased testing and drug awareness training.
- Augment drug education and outreach programs to address the issue of prescription drug abuse and the adverse health effects of novel synthetic drug analogues, such as “Spice” and “Bath Salts”.
- Maintain a dialogue with commercial vendors to monitor developments in illicit synthetic drug analogue detection capabilities; and when feasible, conduct statistically relevant prevalence studies of drug use among military personnel.

**Two Year Goals:**

- Reduce the drug positive rates in the ‘high risk populations’ of the Army Guard and Reserve Components, especially those not on an active duty status to below 2 percent.
- Expand current DDRP prevention, education, and outreach efforts to caution Service members and their families on abuse of prescription drug and adverse health effects associated with the use of synthetic drug analogues (i.e., Spice, Bath Salts) and other illicit drugs.

## Appendix A

### CUTOFF CONCENTRATIONS IN THE MILITARY DRUG ABUSE TESTING PROGRAM

#### INITIAL TESTING CUTOFF CONCENTRATIONS

Drug Class	Cutoff Concentration (ng/mL)
Amphetamines	500
Cannabinoids	50
Cocaine Metabolites	150
Designer Amphetamines	500
Phencyclidine	25
Opiates (Morphine/Codeine)	2000
Opiate (6-monoacetylmorphine)	10
Opiates (Oxycodone/Oxymorphone)	100

#### CONFIRMATION CUTOFF CONCENTRATIONS

Initial Presumptive Positive Test	Confirmation Drug/ Metabolite	Cutoff (ng/mL)	Reported Drug Use
Amphetamines	Amphetamine	100	d-Amphetamine
	Methamphetamine	100	d-Methamphetamine
Designer Amphetamines	Methylenedioxymethamphetamine	500	MDMA
	Methylenedioxyamphetamine	500	MDA
Cannabinoids	Tetrahydrocannabinol-carboxylic acid	15	THC
Cocaine Metabolites	Benzoyllecgonine	100	Cocaine
Phencyclidine	Phencyclidine	25	PCP
Opiates Codeine/Morphine	Morphine	4000	Morphine
	Codeine	2000	Codeine
	6-monoacetylmorphine	10	Heroin
Opiates 6-monacetylmorphine	6-monoacetylmorphine	10	Heroin
Opiates Oxycodone/ Oxymorphone	Oxycodone	100	Oxycodone
	Oxymorphone	100	Oxymorphone