

DoD's Drug Testing Program - Past, Present and a Way Ahead

The incompatibility of drug use with military service remains a basic tenet of military readiness. Drug Abuse negatively impacts military discipline, adversely effects individual performance, and endangers fellow service members and entire units.

As leading researchers on health behaviors within DoD state, drug use interferes with the DoD mission of maintaining a high state of military readiness among the armed services. In addition, the DoD considers any use of illicit drugs to constitute abuse because of the potentially deleterious effect on military discipline resulting from defiance of laws and regulations. Consequently, a central aim of DoD policy is to prevent and minimize the effects of drug use on military performance.¹

Zero tolerance is the current DoD policy towards illegal drug use, no matter what the drug of choice is, because any illicit drug use is drug abuse.² DoD's Directive 1010.4, which describes the department's policy towards Alcohol and Drug Abuse, states that it is the goal of the Department of Defense to be free of the effects of alcohol and drug abuse. Alcohol and drug abuse is incompatible with the maintenance of high standards of performance, military discipline and readiness. Therefore, it is the policy of the Department of Defense to deter and detect drug abuse within the Armed Forces.³

Studies have shown that the sharp decline in military illegal drug use since the early 1980's, and its low rate in comparison to the civilian world, is due to the military's drug testing policy. Drug testing, mainly achieved through urinalysis, serves as a detection agent, allowing the military to remove drug users who jeopardize safety and readiness (and thus possibly saving millions in tax dollars). It also serves as a deterrent, preventing and inhibiting current service members from abusing drugs, and also preventing prospective service members who are already drug abusers from joining the military services

By understanding that drug testing is an effective deterrent to drug use in the military, the DoD must take steps to further strengthen the system to suppress drug use and increase readiness.

The Past:

A 1967 task force on drug abuse in the military resulted in a set of policies that emphasized the prevention of drug abuse through education, early intervention, and treatment for abusers.⁴ However, it was soon obvious that these policies were not

¹ Bray, Robert M., Kroutil, Larry A. and Marsden, Mary Ellen. (1995a). Trends in Alcohol, Illicit Drug and Cigarette Use among U.S. military Personnel: 1980-1992. *Armed Forces and Society*, 21, p. 271.

² Bray, Robert M., Marsden, Mary Ellen, Herbold, John R. and Peterson, Michael R. (1992). Progress Towards Eliminating Drug and Alcohol Abuse among U.S. Military Personnel. *Armed Forces and Society*, 18, p. 477.

³ Assistant Secretary of Defense, Health Affairs (1980, August 25). Directive No. 1010.04. *Alcohol and Drug Abuse by DoD Personnel*. Washington, DC: Department of Defense. p. 1.

⁴ National Institute on Alcohol Abuse and Alcoholism. (1982). *Alcohol and the Military: Topics in Brief*. Washington, DC: National Institute on Alcohol Abuse and Alcoholism.

working, because as author L. Robbins stated in his final report, "The Vietnam Drug User Returns"⁵, 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 (14,736 were Army personnel) servicemen voluntarily identified themselves as heroin users and sought treatment⁶.

The 1980 DoD Survey of Health Related Behavior Among Military Personnel showed that 27.6 percent of service members had used an illegal drug in the past 30 days and in some units, greater than 38 percent⁷.

The drug problem was generally viewed as an Army problem until May 26, 1981. An aircraft accident aboard the USS Nimitz resulted in 14 killed, 48 injured, 7 planes destroyed, 11 planes damaged, at an estimated cost of \$150M. The post accident investigation revealed that six of those that were fatally injured had marijuana metabolite in their bodies. The final conclusion was that illicit drug use may have been a contributing factor in the accident.

When the 1982 DoD Survey of Health Related Behavior Among Military Personnel showed similar results as the 1980 survey, drug abuse began to be viewed as a discipline problem, instead of an addiction problem.⁸ In December of 1981, Secretary of Defense Frank Carlucci approved in the use urinalysis results as evidence that drug testing became a deterrent.

The DoD struggled to build a credible and effective drug deterrence testing program. Despite its best efforts, a 1983 commission headed by Dr David Einsel reviewed the drug testing procedures and found the system broken. Procedures did not meet acceptable forensic standards. As a result, over 10,000 service members discharged for use of illegal drugs were offered reparations, including the option to return to active duty. Laboratory commanders were relieved or removed from the promotion list, and one brigadier general officer was forced to retire.

Since the Einsel report, DoD has provided close oversight of the drug testing program. State of the art analytical technology has been adopted, and in some cases developed, by the military drug testing laboratories. Effective DoD drug demand reduction policies have been crafted and executed. These efforts have resulted in a highly

⁵ Robins, LN. The Vietnam Drug User Returns. Special Action Office for Drug Abuse Prevention, Series A, Number 2, May, 1974.

⁶ 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/hiostory/casey1.htm>

⁷ Reference In: Highlights, 1998 Department of Defense Survey of Health Related Behaviors Among Military Personnel, <http://www.tricare.osd.mil/analysis/survey/98survey/survey.html>

⁸ Allen, John and Mazzuchi, John. (1985, May). Alcohol and Drug Abuse among American Military Personnel: Prevalence and Policy Implications. *Military Medicine*, 150. p. 252.

29 December 2006

effective and credible work place drug testing program supported by a substantial amount of case law.

As testimony to the DoD work place drug testing program the Washington Office of National Drug Control Policy recently award the DoD the Director's Award for Distinguished Service.

The Present:

Counternarcotics funding supports the operations of six Service operated laboratories: Navy Drug Testing Laboratories at Great Lakes, IL, San Diego, CA and Jacksonville, FL; Army Drug Testing Laboratories at Fort Meade MD and Tripler Army Hospital, HI; and the Air Force Drug Testing Laboratory at Brooks City Base, TX. In Fiscal Year 2005 the laboratories tested over 4 million specimens with average reporting times of 1.5 and 4.5 days for negative and positive results respectively.

Four years ago the Army decided to certify the Fort Meade laboratory under the Department of Human Health Services (DHHS) National Laboratory Certification Program (NLCP). This allowed the Fort Meade laboratory to test and report results for the 30,000 Army civilian personnel that fall under the DHHS definition for Testing Designated Positions (TDP). Fort Meade is the only dual certified laboratory in the country, testing both DoD military and DoD civilian specimens.

The Service programs have attained considerable standardization over the recent years leading to increase efficiency and decreased costs. Central to the standardization effort has been the development of a DoD specific Laboratory Information Management Software (LIMS) which provides standard forensic and quality control standards for all six laboratories. Data results from DoD member specimens are centrally archived providing timely, secure, and world-wide reporting of results through a web portal system back to supported units as well as to the Defense Manpower Database Center (DMDC). The DMDC can link the drug testing data to other DoD databases for program metric reporting.

The current mean test ratio (number of specimens tested divided by the average end strength) is 2.06, twice the DoD goal. Data from Fiscal Year 2005 showed that out of 1,196,874 unique tests; 1.11 percent were positive for at least one illicit substance. To put this in perspective, data from Quest Laboratories, the largest work place drug testing laboratories in the United States, has reported drug positive rates over 2% and 4% for federal mandated and general civilian workforce drug testing.

The Way Ahead:

To support the continuous improvement of the program, the following recommendations are presented to assure that the DoD Drug Demand Reduction Program (DDRP) remains robust and adaptive to change.

(1) Alternative Matrix Considerations:

Urine has been the specimen of choice for workplace drug testing for the past thirty years. Laboratory analytical methods have been based on the urine chemical matrix. Drug metabolism and urine excretion are well documented in the scientific literature, and provide a solid base for the reagent industry to formulate drug screening kits that are both relatively specific and sensitive with respect to any given illicit drug. The scientific literature also provides information that allows for setting urine drug concentration cutoff levels that provide a good balance between guarding against false negatives and false positives.

With the increased drug testing in the civilian work place, there has been a corresponding increase in a growing industry to circumvent the testing process. This is particularly problematic in the civilian testing environment by the fact that observed urinalysis under Department of Human Health Services (DHHS) guide lines is not allowed during routine random drug collection.

In response to this threat to the drug testing system, alternatives, such as hair and oral fluid testing, have received considerable attention by DHHS.

Hair Testing:

Advantages:

- Relative to urine analysis, provides the possibility for a longer window of detection. Depending on the particular drug, hair analysis may be able to detect exposure to a drug weeks or even months after the exposure.
- Given some assumptions concerning hair growth, it may be possible to determine time of exposure based on segmented hair analysis.
- Controlled hair specimen washing may be able to eliminate exogenous hair exposure such would be the case with narcotics agents that are routinely exposed to illicit drugs in the environment.

Disadvantages:

- Hair concentration has been shown to be affected by the chemical composition of hair color such that dark colored hair potentially could accumulate more of any given drug or metabolite than lighter colored hair.

- The efficacy of the wash procedure for removing exogenous contamination is technically challenging.
- There is currently a lack of scientific information available to set appropriate hair concentration drug cutoffs that can support litigation proceedings under the current military standards.

Conclusion: Because of the cost associated with the unique sample processing and testing methodology, hair testing has been confined to just a few laboratories. There are numerous pharmacological and metabolic issues that remain to be researched in well controlled scientific studies. While hair testing is useful in limited situations, the method is not suitable for replacing urine testing the military random drug testing program.

Oral Fluid Testing:

Advantages:

- Relative to urine, oral fluid is easy to obtain and ship.
- Sample collection can be openly observed leaving little chance of adulteration.

Disadvantages:

- Window of detection may be shorter than urine testing.
- Like hair testing, there is currently a lack of scientific information available to set appropriate hair concentration drug cutoffs that can support litigation proceedings under the current military standards.
- Current collection devices make it difficult to determine quantity of specimen collected affecting the ability to accurately quantify concentration.

Conclusions: Similar to the situation with hair testing, there is still a significant lack of information concerning oral fluid testing to consider this matrix as a replacement for urine testing in the military random drug testing program. However, oral fluid testing may be relevant to the military accession process. Unlike active duty results that can end a military career and can also end up in litigation, military accession results only deny employment. The drug concentration cutoff could be set at “detection limits” signifying drug exposure. The use of oral fluid at the Military Entrance Processing Stations (MEPS) would negate the need for both gender observers, cut shipping costs and possibly lower the discrepancy rate.

Recommendation: That DASD(CN/CP/GT) conduct a pilot study with the Military Accessions Command to test the efficacy of oral fluid testing in the MEPS environment.

(2) *Laboratory Consolidation:*

Given the increased efficiency supported by standardization and leveraging technology, the DoD could support the drug testing program with only 5 laboratories. Closing the excess sixth laboratory would result in approximately a \$3M annual savings to the DoD Drug Demand Reduction Program (DDRP).

The last Base Area Realignment and Closure decision identified the Brooks City Base for base closure. DASD(CN/CP/GT)'s recommendation in the FY08 Program Review was to not replace the Air Force Drug Testing Laboratory located at Brooks City Base, and to distribute the work load geographically among the other five laboratories. The standardization currently in place and the web portal reporting system can support this recommendation. In fact, precedence has been set for this move towards "purple labs", as Pacific Rim Navy specimens are being sent to the Army laboratory located in Hawaii, and some southwest region Army specimens are being sent to the Navy laboratory in Jacksonville, FL. In addition, Air Force National Guard specimens are currently being sent to the Army lab in Hawaii.

The latest information received from the Air Force was that they intend to fund the cost of moving their laboratory, and that they want OSD to continue to fund their lab.

Recommendation: That ASD(ISP) engage the Air Force at the ASD level to try and persuade them to not replace their laboratory, and to shift the work load to the remaining other 5 DoD laboratories.

(3) *Change the Urine Collection Procedure:*

Currently, all military urine collections are shipped in single 50 milliliter plastic bottles and are supported forensically by a DD Form 2624. This form can contain up to 12 specimens. While some slight variation occurs between services the general military collection system is as follows:

At the collection sight an NCO or equivalent civilian responsible person serves as the sight manager to control the entire collection process and assigns a same gender observer to the military member required to provide the urine specimen. The member is then provided with a clean 50 milliliter bottle and the observer follows the military member to the urinal and observes the "flow to cup" event to assure no substitution took place. The observer and military member return to the sight manager. The member is present as the manager labels the bottle with the member social security number, fills in one line of the DD2624 and makes an entry on the collection log. The member, along with the observer and sight manager,

verifies the correct name and social security number on the bottle, DD2624 and log sheet. The bottle is then sealed with tamper evident tape .

Recently, representatives from the DoD DDRP had an opportunity to view the British Army system of urine collection. At the collection site, the military member is observed while collecting the urine void in a large container similar to the container used by female military members under our current system. The observer and member then return to the NCO conducting the collection and the member pours the urine into two plastic bottles and one plastic *screening tube*. A single chain of custody is used to forensically document the collection. The chain of custody has a pre-assigned laboratory accession number (LAN) and has corresponding peel-off barcode labels and tamper evident tape with corresponding bar code. The LAN is then matched to the member's social security number in a database.

Recommendation: That ASD(ISP) staff a policy to change the urine collection system to mirror the British system. The single chain of custody will decrease the specimen discrepancy rate and enhance the forensic defensibility of the collection process. The addition of the *screen tube* poured at the point of collection rather than poured by accession personnel at the testing laboratory will significantly decrease the labor used at the laboratories in the urine processing section, possibly by as much as 70%. While this change will cause a minimum increase in collection costs, it will ultimately result in significant savings in labor at the laboratories as well as increase the forensic control of the entire process.

(4) Consolidate All Civilian Drug Testing:

Over the past two years, all the DoD civilian drug testing, except for Department of the Air Force, was gradually shifted to the Fort Meade Drug Testing Laboratory. This has provided significantly more oversight of the drug civilian drug testing results at no additional cost to the program.

Recommendation: That ASD(ISP) direct the Air Force to shift their 40,000 TDP civilian testing to the Fort Meade laboratory to complete the 100% shift in testing.

(5) Medical Review Officer Procedures:

Under DHHS guidelines, all drug positive results must be reviewed by a Medical Review Officer (MRO). By federal regulations, an MRO is defined as "a licensed physician responsible for receiving laboratory results generated by an agency's drug testing program." Over the years, the Services have evolved different approaches to assuring that a military member with a valid medical reason is not wrongfully accused of illicit drug abuse. While sufficient safeguards appear to be in place, there has been no formal method for recording the final MRO result in

the LIMS and ultimately to DMDC. This causes problems when acquiring metric data from the DMDC database. To circumvent this problem, annual reports do not account for codeine or morphine positives, assuming that most of these are due to valid medical use. Two years ago, the LIMS contractor was tasked with development of a web based reporting system for all MROs to use. The system was developed but the Army and Navy MROs refused to use the system at the beta test sites.

Recommendation: That ASD(ISP) staff a policy that requires all the Services to develop a mechanism to forward all MRO decisions into the LIMS database and ultimately to DMDC.

(6) DoD Education Random High School Drug Testing:

As part of the 2007 National Drug Control Strategy, the Administration supported screening for drug use in the nation's high schools. This initiative is supported by a June 2002 decision by the U.S. Supreme Court that expanded the authority of public schools to test students for drugs. The White House's Office of National Drug Control Policy (ONDCP) has approached DASD (CN, CP>) about drug testing in DoD schools.

Recommendation: DoD has historically been a leader in work place drug testing. Similarly, the Department has an opportunity to lead the nation in an equally important drug free high school initiative. The decision to drug test in high schools involves myriad complex and some times emotional issues. It is recommended that DoD use ONDCP's experience to create a dialogue between DASD (CN, CP>) and the DoD Education Activity.

(7) Non-Instrumented Testing Device Use in the DoD Drug Testing Program:

Over the past few years various manufacturers have developed and marketed urine testing devices that can be used at the collection site to identify drugs of abuse. These devices use an immunochemistry technique involving an antibody that is designed to identify the particular drug of interest coupled with some chemical method that develops a color reaction when the concentration of the drug of interest is at some pre-determined cutoff concentration. Because the color reaction is visually determined by the collection sight staff, these devices are referred to as non-instrumented testing devices (NITD).

The DoD policy has been to prohibit the use of NITDs in the active, reserve and guard testing programs for the following reasons:

- The Office of the Deputy of the Deputy Assistant Secretary of Defense for Counternarcotics, Counterproliferation and Global Threats (ODASD(CN,CP>)) is responsible for managing the drug testing

program. The primary goal is to maintain a system of forensic drug testing that is credible with the line commanders and produces results that withstand legal scrutiny. In the 36 years that the DoD has managed a drug testing program, experience has shown the any form of field screening opens to door to forensic discrepancies. Furthermore, a major forensic issue within one Service affects the entire DoD drug testing program.

- None of the current NITDs work well for the entire DoD drug testing panel of drugs. While most are fairly good at identifying marijuana and cocaine, they lack specificity for the opiate and amphetamine class of drugs.
- The use of NITDs are attractive based on apparent savings to any given collection site. However the total cost to the entire program is more complex. The NITDs are, in affect, chemical analyses that are subject to variations in temperature, storage conditions, and human error that is normally associated with any type of chemical test. In the laboratory setting the program has many checks and quality control measures in place to control the affects of these variables. If NITDs were used a complicated and expensive method of quality control would have be put into affect and further burden the current quality assurance program conducted by the Armed Forces Institute of Pathology.

Recommendation: The use of field screening in general, specifically NITDs, should be prohibited for active duty, reserve and guard random drug testing.

(8) Program Standardization:

Over the past 10 years the Service program managers, AFIP and the ODASD(CP,CN>) have work hard to standardize methods, procedures and IT support between the six drug testing laboratories. For example, by standardizing the type of screening and confirmation analyzers used by the laboratories, single contracts have been put in place for equipment purchase, maintenance and consumables at a significant cost savings. Standardizing the result reporting has allowed for a common LIMS support and development of a web portal reporting system.

Recommendation: DoD should continue to develop the drug testing system towards further standardization to make a true joint testing system. This is in sync with the overall trend within the military medical environment. The joint testing capability will allow for continued testing of specimens at each Service laboratory not necessarily on Service origin but based on lowest cost and customer service.