

Stancliff Declaration

Exhibit B

Drugs, Crime, and the Justice System

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The sensitivity and specificity of drug tests vary

Sensitivity is the ability of a procedure to detect minute amounts of substances. The use of a very sensitive technique reduces the possibility of false negative results (failure to detect a drug that is present). Commonly used drug screens have different sensitivities for different drugs. Immunoassays, for example, can detect smaller concentrations of many drugs in urine than thin-layer chromatography. More sensitive tests can detect drugs for a longer time after use.

Specificity is the ability of a procedure to differentiate between chemically similar substances. Highly specific tests rarely produce false positive results (the detection of a drug that is truly absent). Some immunoassays detect classes of drugs (such as opiates) but do not distinguish among particular drugs in the class (such as codeine, morphine, hydromorphone), some of which may be present in legally prescribed or over-the-counter medications.

What determines if a drug test is positive or negative?

Manufacturers of tests set a cutoff level above which a test may be considered positive. This level is set well above a test's sensitivity limit (the concentration below which the test does not detect a drug reliably) to reduce the number of false positive results. Positive results at or near the cutoff level are less reliable than positive results that are considerably above the cut off level. Policymakers and practitioners can oversee the accuracy of their testing programs by specifying cutoff levels in program guidelines.

Several factors can affect the outcomes of drug tests

The American Medical Association (AMA) and the National Institute on Drug Abuse (NIDA) have pointed out that whether a test is positive or negative depends on a variety of factors including drug type, usage habits, user's physical characteristics and condition, and testing procedures. Different drugs take different lengths of time to pass through the body. Cocaine, for example, clears the body fairly quickly and, thus, is detectable in urine for a relatively short time. THC (from marijuana) tends to be stored in fatty tissue. With repeated use, it accumulates faster than it can be eliminated.

Whether there is a high enough concentration of a drug in urine to be detected also depends on the amount taken, frequency of use, and sensitivity of the urinalysis test used. The larger the dose taken, the longer the body takes to process it, and the longer it is detectable in urine.

Drug tests detect drug use but not impairment

A positive test result, even when confirmed, only indicates that a particular substance is present in the test subject's body tissue. It does not indicate abuse or addiction; recency, frequency, or amount of use; or impairment.

The length of time drugs can be detected in urine varies by drug

Type of drug	Average time detectable after ingestion*
Cocaine (metabolite)	2-3 days
Cannabinoids (marijuana)	
Single use	3 days
Moderate use (4 times per week)	5 days
Heavy use (daily smoking)	10 days
Chronic heavy use	21-27 days
Opiates (including heroin, morphine, codeine)	48 hours
Phencyclidine (PCP)	About 8 days
Amphetamines & methamphetamines	48 hours
Benzodiazepines (including Valium®, Librium®)	
Therapeutic dose	3 days
Barbiturates	
Short-acting (including secobarbital)	24 hours
Intermediate acting	48-72 hours
Long-acting (including phenobarbital)	7 days or more
Propoxyphene (including Darvon®)	
Unchanged	6 hours
Metabolite	6-48 hours

*Interpretation of the time detectable must take into account many variables such as drug metabolism and half-life, subject's physical condition, fluid balance and state of hydration, route and frequency of ingestion, and testing technique and cutoff level used. These are general guidelines only.

Sources: American Medical Association, Council on Scientific Affairs, "Scientific issues in drug testing," *Journal of American Medical Association* (1987), 257(22):3112, table 2, and NIDA, Richard L. Hawks and C. Nora Chiang, eds., *Urine testing for drugs of abuse*, NIDA Research monograph 73, 1986.