

Why test?

Many companies have Drug and Alcohol testing programmes. Traditionally, these companies have company policies which describe the testing programmes and the possible consequences to an employee if drugs or alcohol are detected.

For a company which is considering developing a policy, or implementing a test regime based on a historical policy, there is usually a series of simple but difficult questions to consider.

- How are you going to determine who to test and when?
- What are you going to test for?
- What will you do with the results?

Types of Companies Engaged in Testing

Transport drivers, railroad, aviation and coastguard workers are all mandated to be tested, and urine is the specified matrix. People can be instructed to generate a sample. So Department of Transportation, prison and military donors were simply ordered to donate a sample.

Matrices - what to sample?

Hair, urine, blood and oral fluid are all common sample types.

Hair does not by its nature indicate recent drug use. Each quarter inch of hair typically represents one month in time. Chopped hair samples can show drug use, or abstinence but would not detect what the donor did yesterday or two weeks ago. In an industry where a drug free environment is expected e.g. aviation, military, prisons a hair testing programme offers benefit and is cost effective.

Urine, historically considered the "gold standard" in drug testing attained that label because: In the United States after a long a bitter struggle, a Federally Mandated Testing programme was promulgated. This resulted in a huge urine testing regime for what is now more commonly known as DOT Testing. A very limited drug panel, which was based on the influx of drugs to the USA from the post-Vietnam war era.

There is usually excess sample generated, so many laboratory tests can be performed. Samples can be shared between labs and this generated many scientific papers on drug concentrations and their metabolites. Human liver when functioning properly tries to break down drugs and other exogenous material in to soluble metabolites so they can be passed out via the bladder. With many drugs, the urine contains no or very little parent drug. The metabolic pathways of the traditional drugs are well known, but as urine volumes vary it is impossible to back calculate metabolite concentrations versus time and historical human behaviour.

All scientists agree however, that urine concentrations cannot be used to indicate current cognitive state. The bladder is a waste container, and drugs present in the bladder are not participating in present psychoactive behaviour. These urine concentrations do of course indicate recent drug use.

Blood is better for the scientists. Drug concentrations in donor blood are a current indication of what is physiologically happening at that point in time. Clinical establishments will also take blood samples, especially if a course of medication or treatment is being prescribed or considered. Blood can also provide large sample volumes.

Blood sampling does of course need a phlebotomist or similarly trained medical professional. For this reason, blood drug testing is not popular in the workplace.

Oral fluid sampling is gaining in popularity; indeed, it has led to large increases in workplace drug testing.

- Easy to sample
- Difficult to adulterate as sampling is observed
- Drug concentrations are indication of recent use due to the short detection window.