Introduction
The misuse of drugs in the workplace is well-publicised. It affects every single company in South Africa in one way or another. Also, it is not confined to the use of illicit drugs; alcohol abuse as well as the abuse of prescription drugs such as benzodiazepines or barbiturates pose the same potential problems as marijuana (cannabis), morphine or cocaine.

The annual cost of drug use among civilian workforce is in the millions, primarily due to loss of productivity, medical expenses and workplace crimes related to drug abuse. In addition, drug abusers suffer from impaired memory, lethargy and/or reduced coordination which, in turn, is responsible for work-related performance problems and increased employee absenteeism. Marijuana and alcohol, for example, interfere with driving ability and negatively affect other skills needed to operate equipment safely and effectively. Drugs are continuously being implicated in railway collisions and derailments, bus and heavy equipment accidents and poor product assembly.

Why implement testing for drugs-of-abuse?
There are three frequently cited reasons that constitute grounds for conducting drug testing:

- **Public safety:** This is one of the utmost concerns in businesses where employees are directly responsible for the well-being of large numbers of people, e.g. airlines and other modes of transportation.
- **Employee safety:** Accidents can lead to injuries and the failure to remove drugs from the workplace could lead to possible legal action for liability and negligence.
- **Fitness for duty:** This concerns all employers, since the inability of employees to perform their job adequately can have grave financial and legal consequences that may seriously damage the reputation of a company.

When to test for drugs-of-abuse?
In recognising the severity of the problem, many companies have drug testing programmes in place. This is commonplace internationally. By far, the most prevalent use of drug testing is for pre-employment screening. The goal is to control the influx of individuals who are drug abusers. In addition, urine testing gives prospective job candidates and current employees a clear message about the organisation’s position on employee drug use. Urine testing can also be used on a random basis, targeting selected employees in sensitive positions involving public safety, public trust, finances and so forth. The purpose here is not only to prevent drug abuse, but also to identify users as early as possible so the public, co-workers and company are not at risk because of drug-related impairment.

In addition, when job performance problems are observed or when incidents occur, urine drug testing can be an important diagnostic tool to uncover the source of the employee’s problem and to assist in the action to be taken.

How can the University of Pretoria help?
The Forensic Toxicology Laboratory specialises in the screening and confirmation of drugs-of-abuse. All procedures employed at the facility are carried out according to international standards, which are ethically and scientifically correct and legally defensible.

The current internationally accepted philosophy for the detection of drugs-of-abuse involves a two-stage testing procedure:

- **A screening test/preliminary test:** This is the general term used for the examination of samples for the presumed presence of one or several drugs. These tests typically involve immune chromatographic or enzymatic colour-strip testing. Although the screening tests are usually easy to perform, the results can at best be regarded as preliminary since: (1) these tests are well-known to be subject to interference from other (and often legal) compounds, which may lead to false accusation of an innocent individual, or (2) these tests can be masked by adulterants taken purposefully, which may lead to a guilty drug abuser passing undetected. It is therefore unacceptable to take any action, especially legal/disciplinary action, based solely on a screening result.

- **A confirmatory test:** All presumptive positive screening results need to be confirmed by a laboratory specialising in drugs-of-abuse testing to provide a conclusive test result that allows for legal/disciplinary decisions. The Forensic Toxicology Laboratory uses Gas Chromatography Mass Spectrometry (GC-MS), which is the gold standard for confirmation of presumptive positive screening tests. This procedure is highly sensitive and specific, and not subjected to interferences. If employed in a scientifically correct manner, GC-MS provides a result that can be regarded as a “fingerprint” of an illicit compound in urine.
The Forensic Toxicology Laboratory also assists clients with the following aspects of urine drug testing:

- Obtaining written consent.
- Following a legally defensible sampling protocol.
- Providing forensic urine drug sampling kits.
- Implementing a chain-of-custody. Chain-of-custody is desirable since it documents each individual who handled the sample as well as the ongoing condition of the sample. This procedure helps to eliminate the possibility of sample tampering.
- Providing affidavits for disciplinary hearings/court purposes.

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