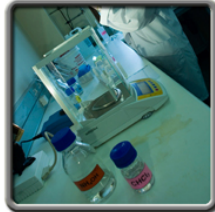


Forensic Analysis of Drugs of Abuse

Example of a Protocol for Urine Sample collection for Legally Defensible Drug Testing



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Introduction

The following guidelines represent an overview of the best practice for provision of workplace drug testing. They are based on the general principles that have been established internationally and are designed to ensure that the entire drug testing process is conducted to give accurate and reliable information about a donor's drug use. These Guidelines focus on urine, which is the usual specimen for analysis.

The guidelines are designed to:

- Provide a minimum set of criteria for workplace drug testing services in South Africa
- Ensure that the processes undertaken are capable of legal scrutiny.
- Provide safeguards to protect the specimen donors.

a. Collection Site

The procedure should provide for a designated collection site to be secure. During the collection process the collection site must be dedicated solely to drug testing and comply with all local health and safety requirements.

b. Chain of Custody

During the collection process chain of custody forms will be completed fully by the collection officer and donor.

c. Access to Authorised Personnel Only

Only authorised personnel shall be permitted in any part of the designated collection site when urine samples are being collected or stored.

d. Identification of the donor

When a donor arrives at the collection site, the collection officer will request that the donor presents photographic identification. If the donor does not have proper photographic identification, the collection officer will obtain a positive identification of the donor by an authorised supervisor or manager within the parent organisation. If the donor's identity cannot be established, the collection officer will not proceed with the collection.

e. Privacy

Procedures for collecting urine specimens shall allow individual privacy during urination.

f. Integrity of the Specimen

The collection officer must adopt procedures to minimise the risk of adulteration of the specimen during the collection procedure. The following minimum precautions shall be taken to ensure that unadulterated specimens are obtained and correctly identified:

- i. To deter the dilution of specimens at the collection site, toilet water colouring agents should be placed in toilet tanks wherever accessible or in the toilet bowl, so the reservoir of water in the toilet bowl always remains coloured. Any other sources of water in the enclosure where urination occurs (e.g. taps, shower) will be secured prior to collection.
- ii. The collection officer will ask the donor to remove any unnecessary outer garments such as a coat or jacket that might conceal items or substances that could be used to tamper with or adulterate the Laboratory donor's urine specimen. The collection officer will ensure that all personal belongings such as a purse or briefcase remain with the outer garments.
- iii. The donor will be instructed to wash and dry his or her hands prior to urination with inspection of the hands afterwards by the collection officer.
- iv. After washing hands, the donor will remain in the presence of the collection officer and will not have access to any unregulated source of water, soap dispenser, cleaning agent, or any other materials that could be used to adulterate the specimen.
- v. The collection officer will give the donor a clean specimen container. The donor may provide his/her specimen in the privacy of a toilet cubicle or otherwise partitioned area that allows for individual privacy. The collection officer will remain outside the cubicle until the specimen is collected. The donor will be instructed not to flush the toilet until the specimen is handed to the collection officer.
- vi. The collection officer will note any unusual behaviour of the donor on the chain of custody form.
- vii. Upon receiving the specimen from the donor, the collection officer will:
 - Check the volume of urine in the specimen container and
 - Check the temperature of the urine specimen. (The temperature measuring device used must accurately reflect the temperature of the specimen and not contaminate the specimen. The time from urination to temperature measurement is critical and in no case should exceed 4 minutes).
 - Inspect the specimen to determine its colour and appearance for any signs of contaminants. Any unusual findings will be noted on the chain of custody form. If the volume is approx. 50 millilitres (ml) or more and the temperature is within the acceptable range of 32-38 degrees Celsius, the collection officer will proceed with step (viii) below

If the volume is less than 50 ml, the specimen will be discarded and a second specimen will be collected. The donor may be offered a reasonable amount of liquid to drink for this purpose (e.g., 250ml of water every 30 min, but not to exceed a maximum of 1 litre). In these circumstances a donor should normally be able to provide a 50 ml urine specimen within 2 to 3 hours. If the donor fails to provide a specimen within this time period the collecting officer will contact the appropriate authority to obtain guidance on the action to be taken. If the temperature of the urine specimen is outside the acceptable range of 32-38 degrees Celsius a second specimen will be collected (as above). A temperature outside of the range is a reason to be suspicious that the donor may have altered or substituted the specimen.

(NB!: If there is any reason to believe (temperature outside of range, visible contamination etc) that a donor may have adulterated, diluted, altered or substituted the specimen, another specimen will be obtained as soon as possible and both specimens will be forwarded to the laboratory for testing)

- viii. Both the donor and the collection officer will keep the specimen container /specimen bottles in view at all times prior to the urine specimen being sealed and labelled.
- ix. The specimen is split into a minimum of two specimen bottles. When the specimen is transferred from the specimen container to the specimen bottles, it will be poured and the collection officer will request the donor to observe the transfer of the specimen and the attachment of the tamper-evident seal/tape on the bottles. The tamper-evident seal ensures that any tampering with the specimen will be evident to laboratory personnel during the laboratory receipt.
- x. Direct contact tests can only be carried out on the residue of the specimen after the sample has been split and sealed into specimen bottles (NB to prevent contamination).
- xi. A minimum of two sealed specimens together with the corresponding chain of custody documentation in a tamper evident container must be dispatched to the Lancet Toxicology Centre. One bottle will be used for the drug test while the second bottle will remain sealed at the analytical laboratory in case the donor wishes to challenge a positive result.
- xii. At an appropriate time after the urine specimen has been collected and sealed into the transport bottles the collection officer will invite the donor to wash his/her hands.
- xiii. The specimen bottle will have an identification label that contains at a minimum the date, the donor's specimen number and the donor's signature/initials. The collection officer will enter all information on the chain of custody form to identify the origin of the specimen. Both specimen bottles and all pages of the chain of custody will be labelled at the time of collection with a unique identifier.
- xiv. The collection officer will ask the donor questions relating to the drugs and medicines consumed within a minimum of 14 days prior to the provision of the urine specimen. These questions will be specific and wide ranging; covering areas such as medications prescribed or dispensed by a doctor, dentist or hospital department and over-the-counter preparations.

- xv. The donor will be asked to read and sign a statement on the chain of custody form (Lancet request form) certifying that the specimen identified on the form was in fact the specimen provided by the donor and giving informed consent for the work to be undertaken.
- xvi. The collection officer will complete the specimen chain of custody form (Lancet request form) and package with the urine specimen ready for dispatch together to the analytical laboratory as soon as possible. If the specimen is not dispatched at once, the collection officer during storage prior to dispatch must give appropriate consideration to the temperature and security of the specimens. It is advised that the specimens should be stored at 4 degrees Celsius (do not freeze) when ever possible.
- xvii. Other pages of the chain of custody form will be given / forwarded to the appropriate persons.
- xviii. The collection officer and the donor will be present throughout the procedures outlined in the paragraphs of this section.

g. Transportation to Laboratory

Collection officers will arrange to dispatch the collected specimens to the Lancet drug-testing laboratory. The specimens will be placed in containers designed to minimise the possibility of damage during shipment. Since specimens and the corresponding documents are sealed in packages that would indicate any tampering during transit to the laboratory by couriers, carriers, and postal services there is no requirement for documented chain of custody procedures for the transport of the package.

1 United Kingdom Laboratory Guidelines for Legally Defensible Workplace Drug Testing: Urine Drug testing.

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