

Drug Testing: A Guide for Children and Families' Social Workers

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Hello!

Pioneers in hair testing

New Laboratory in Cardiff

International operations in Brazil and Australia

Speak with the experts (literally)

The Laboratory



Balancing priorities

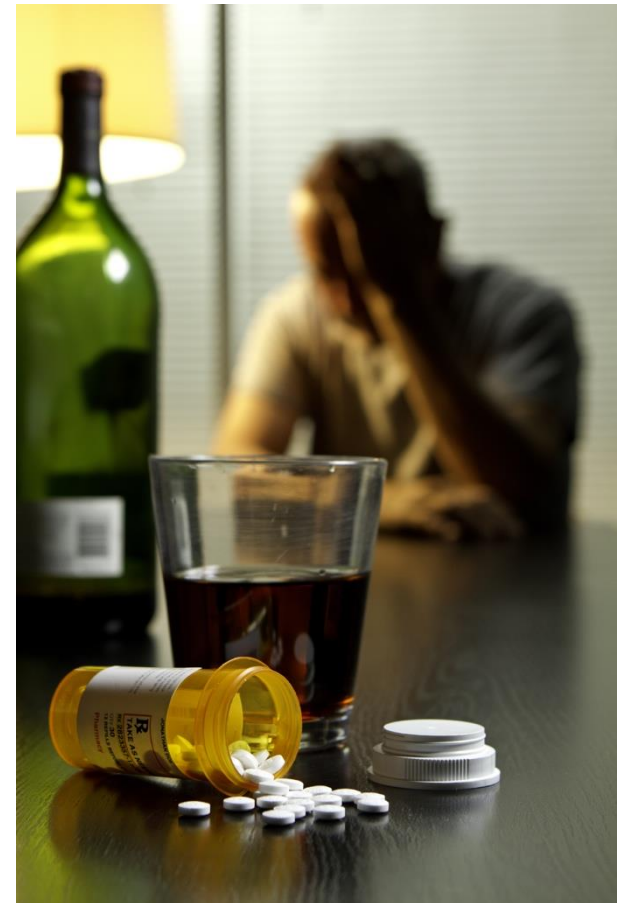
- Community Care workers need to understand what they are up against when faced with drink or drug abuse issues
- Choosing the right testing ensures the right guidance and information; allowing them to make crucial decisions and deliver the best value to stakeholders.

Clarity of information

- Hair Drug and Alcohol testing provides more complete information to the decision making process
- When combined with other test options, it can provide a more complete and cost effective solution over the duration of a case

Don't get it wrong

- Community Care workers are faced with a number of drug and alcohol test options
- Selecting the right one depends on the answers to some key questions:
 - Why are you testing?
 - What do you need to know?
 - What are the consequences of getting it wrong?



Here's how you choose

Test	Collection procedure	Window of detection	Advantages	Disadvantages	When to use
Hair test	A sample of hair is cut, usually the thickness of a shoelace. If the donor has no hair on their head, sample will be taken from elsewhere on the body.	Typically for alcohol: 0 – 6 months Typically for drugs: 7 days – 12 months	Able to detect usage over long periods Non-invasive collection Difficult to subvert test	Cannot indicate precisely the amount of drugs used. Cannot assess acute drug intake. Substances take one week to appear on scalp.	When an individual is accused of long-term substance abuse and assessment is required to go back months Useful for pre-employment tests
Blood test	Using special medical equipment, a sample is taken from the donor	Immediate: detects substances currently in the donor's system	Most effective method for assessing substance use in-the-moment Well-established method	Most invasive collection method Requires special equipment and a trained phlebotomist	When individual is accused of substance use in past days
Urine test	The donor is asked to urinate into a cup, possibly with supervision to prevent tampering	0.5 – 5 days (although some substances can stay in donor's system longer)	Able to assess acute drug intake Cost-effective test method Large specimen volume enables retesting	Medical condition or shy bladder may prevent donor from producing sample on demand Samples can be tampered with (including dilution using water)	When an individual has a history of substance use and must be tested over a long period to monitor for abuse. In this case, multiple tests should be taken over a period of weeks. Often used in pre-employment and workplace testing
Oral fluid (saliva) Test	An absorbent material is pressed into the mouth to take sample	0 – 2 days	Simple collection method Low risk of tampering	Low volume of sample means retesting is difficult Donor anxiety can cause dry mouth and make collection difficult	Often used to confirm results of other types of test Often used in pre-employment and workplace testing

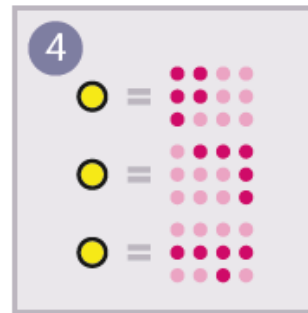
- Combining test methods may ensure that the correct information is available to make the best possible decisions for everyone involved
- Here's how you choose between urine, oral, hair and blood testing)

Table taken from: *The Complete Guide to Hair Testing for Drugs and Alcohol*

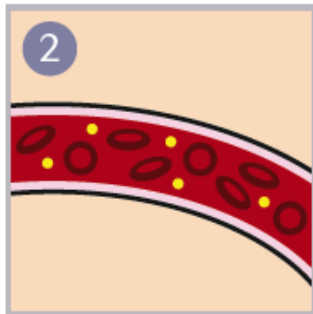
How hair testing works



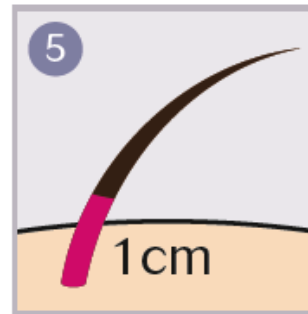
1 The body breaks down drugs and alcohol into metabolites



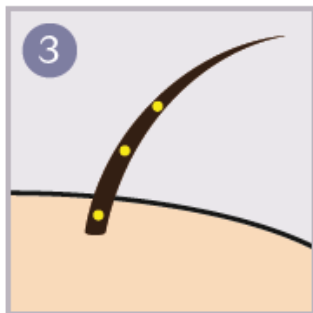
Each drug has its own chemical fingerprint.



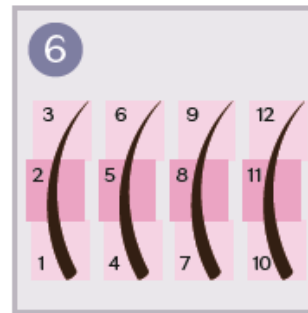
2 Drugs and Metabolites circulate in the bloodstream



5 Hair typically grows 1cm per month – this relates use to time

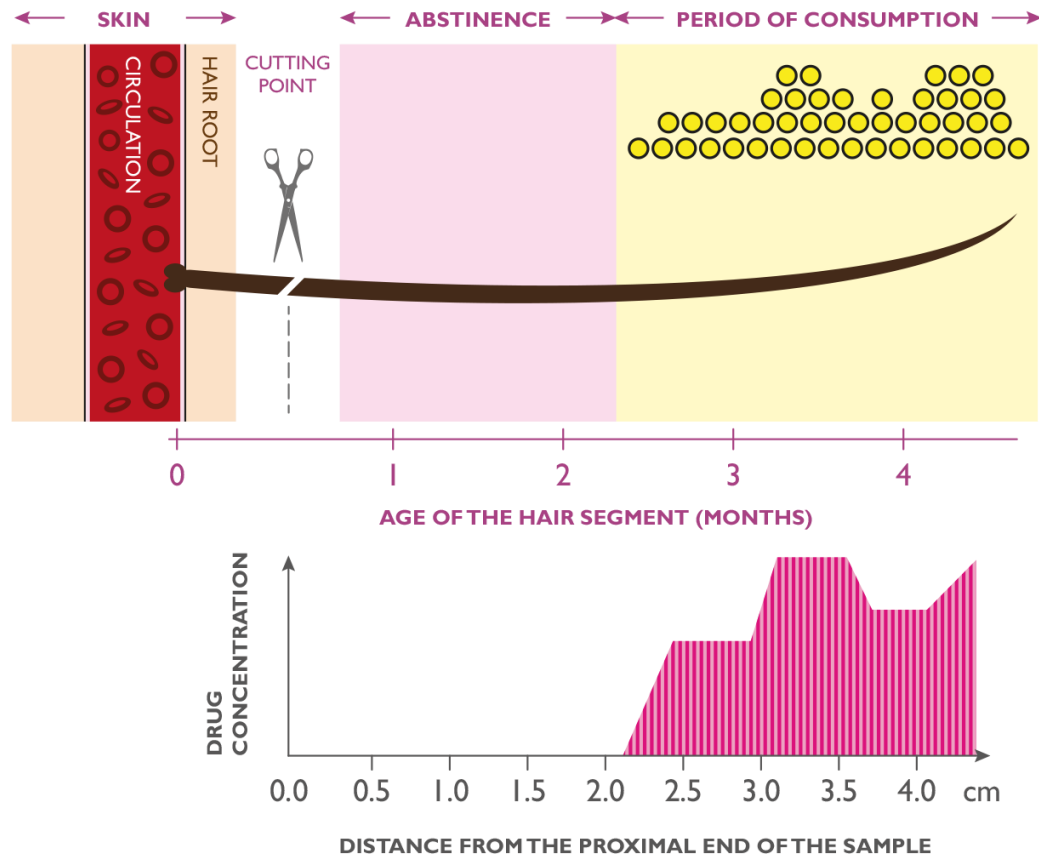


3 The metabolites are transferred into hair fibres



6 The study period determines the amount of time required for testing.

Hair testing at a glance



Case Study: Lack of initial information

- 3 cm Hair sample received February 2013
- Positive for Diazepam and Heroin
- Independent Expert recommended:
 - Sectional analysis
 - Analysis of wash residues
 - High level of drugs in wash v hair (ratio >0.5)

L. Tsanaclis, J.F.C. Wicks / Forensic Science International 176 (2008) 19–22

Table 1

Guidelines for the interpretation of results of the analysis of hair samples and wash residues based in this laboratory's results in cases when parent drug is present and relevant metabolite is not

W/H ratio	Drug use	External contamination	Interpretation
0 and <0.1	Likely	Less likely	Used drug
>0.1 and <0.5	Possible	Was wash effective?	Might have used drug; Indicates association with drug
>0.5	Questionable	Was wash effective?	Not sure of drug use; indicates association with drug

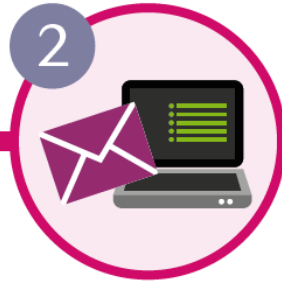
Case Study: Child at risk?

- Mother using Cocaine and Heroin
- Prolonged detection of Cocaine in Child's hair
- Many extended case conferences
 - Presence of Cocaine due to slow growing hair!??
 - Removal of child to foster care and Cocaine disappears
 - Child returned
- Cocaine reappears
 - Cocaine being sucked off mother's clothes

How to make it work for you



Sample Collection



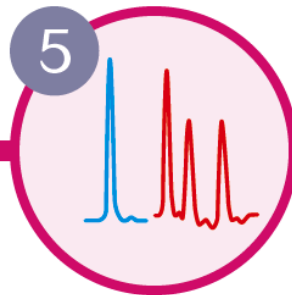
Witnessed Package
Secure Transport



Sample Preparation



Test Sample



Liquid
Chromatography
Analysis



Report and
Certificate of Analysis

Beat the cheats

- Be aware: there is a whole industry focused on 'beating the test' so you need the most robust solution available to ensure you are making the right decisions
- This is important: given their scientific nature, hair testing results must be interpreted by a toxicologist
- We only use Toxicologists to prepare our reports – and they are available to talk to our customers anytime



Image Credit: USA Today

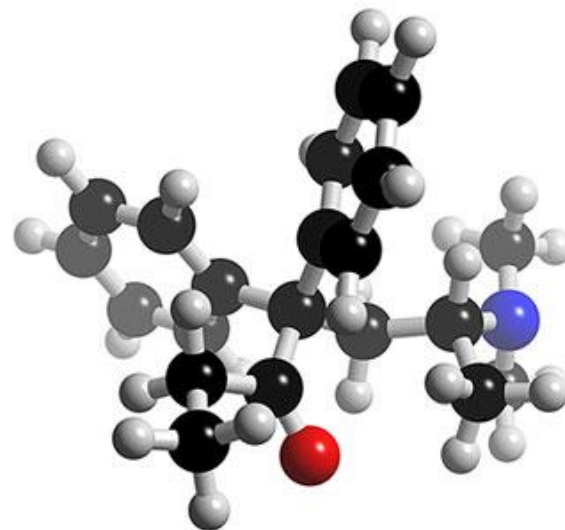
Case study: Hair colour challenge

- Hair testing examines the molecules the hair is made of
 - Which makes it difficult to manipulate the results of hair tests
 - Dyes generally do not affect results if the equipment used is sensitive enough
 - A case of methadone user who dyed her hair repetitively was solved by changing collection method
- Pair of similar users with very different levels in their hair
 - Melanin is responsible for hair colour and binds basic drugs very tightly
 - Different hair colours retain drugs differently
 - Expert interpretation of the results is required



Case Study: Methadone Poisoning

- An infant (18month) died due to methadone poisoning.
- Did methadone enter the infant's body just once or on multiple occasions?
- Hair Analysis Assisted the Investigation:
 - Consecutive sections give a history of drug use
 - A hair sample obtained was cut into multiple sections and tested for methadone.
 - Was methadone present throughout the length of the hair sample?

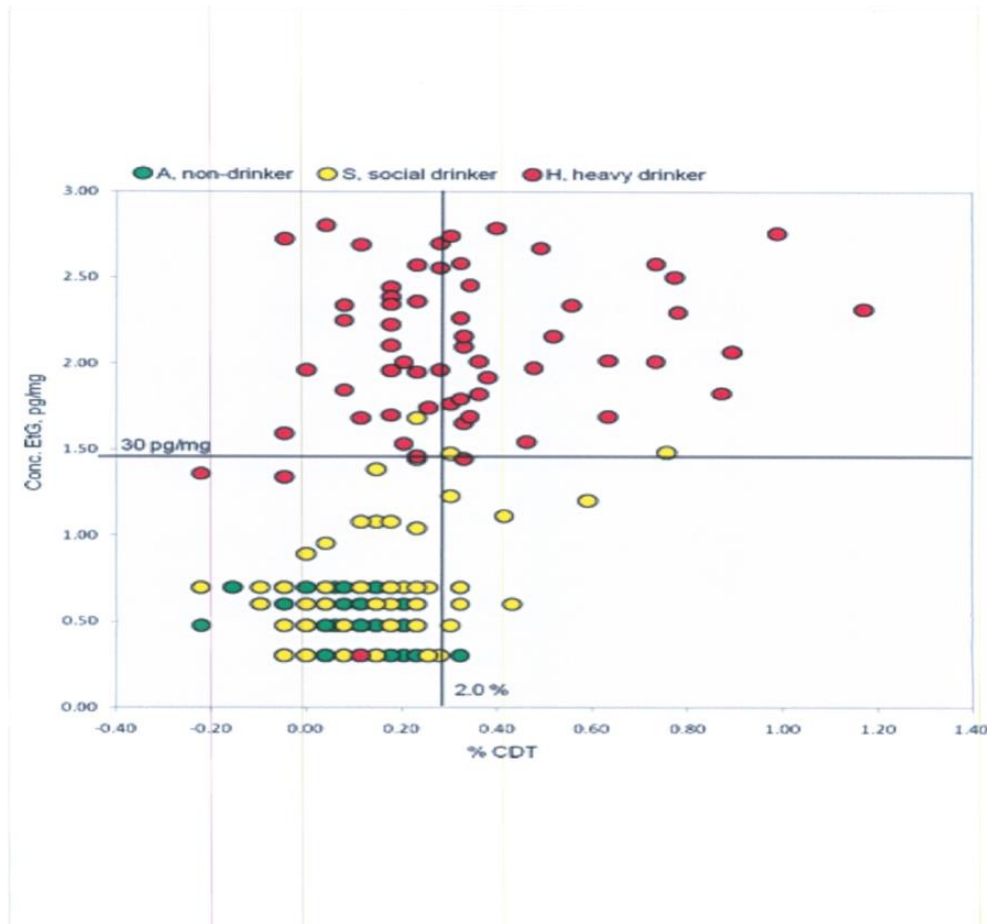


Results

Analyte	Root – 0.5 cm Mid Mar 07 to end Feb 07	0.5-1.5 End Feb 07 to End Jan 07	1.5-2.5 End Jan07 to End Dec07
Methadone	0.9	0.4	0.4
EDDP	ND	ND	ND
Methadone	0.5	0.5	0.4
EDDP	ND	ND	ND

Fetal Alcohol Syndrome

- Alcohol hair testing may be helpful in discovering mothers' at risk of damaging their children possibly before the event rather than after
- The utilization of two tests , CDT and hair EtG very nearly identifies all heavy alcohol users
- **BUT** there are exceptions! So the Social Worker needs to be aware – no single test will deliver 100% of the time.



We'd like to help

Hair Testing is a robust and reliable testing method that delivers good value

- Highly accurate and impossible to “beat”
- Can produce a history of use from a single sample
- Gives an indication of progress: Drug use up/down?
- Delivers better value than a series of cheaper tests