Patterns in drug use in the United Kingdom as revealed through analysis of hair in a large population sample

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AIMS: Hair analysis provides a retrospective window of detection able to show changes in use over time and identify what drugs were used. It facilitates detection of drug use by random testing because it is able to detect intermittent use by individuals and as a result is particularly appropriate for monitoring the success of treatment in a clinical setting. Since 1993 TrichoTech has provided hair analysis screening service for a wide variety of agencies including drug dependency clinics, hospitals, Police investigations, sports clubs, Social Services, Probation Services, Institutions and the legal profession. In the last few years, hair analysis has been increasingly used in the workplace, in pre-employment or in-employment settings.
The aim of this paper is to provide an overview of the most common sectors that make use of hair analysis, as well look at the patterns and results for the different drug groups in samples of hair samples analysed at TrichoTech between 2001 and 2005.

METHODS: A total of 34,626 hair samples were analysed. Samples were washed, extracted then screened using ELISA coated-plates for each drug group using an automated analyser. Samples above the cut-off were extracted using solid-phase extraction methods and analysed by GC-MS, GC-MS/CI or GC-MS/MS.

RESULTS: A total of 186,084 tests were performed: amphetamines (14%), barbiturates (8%), benzodiazepines (11%), cannabinoids (12%), cocaine (16%), methamphetamine (14%), methadone 11%) and opiates (15%). The positive screens corresponded to 145,799 tests, which were confirmed by GCMS for the following drug groups: Cocaine (29,100), Opiates (28,065), Amphetamines (25,649), Cannabinoids (23,031), Methadone (20,024) and Benzodiazepines (19,940). The two major sectors were the Medico-Legal sector (65%) and Workplace (20%). Police investigations, Clinical Monitoring, Schools, Research and Insurance accounted together for the remaining 15% of the samples.
Combinations of several sections patterns were requested covering periods from the most recent month up to 24 months. The most common sectioning pattern was one single section measuring 3 centimetres, to cover the most recent 3 months (44%), which in some cases was complemented by a further 3 centimetres to cover together 6 months (13%). The second most common sectioning pattern was the analysis of three sections of one centimetre each to cover the most recent 3 months (28%). Samples collected from other areas of the body such as axilla, pubic, chest, beard and leg, constituted 6% of the samples.
The levels detected for each analyte will be presented including the analysis of wash residues and geographical profile within the UK. The sectors with the highest rates of positive results were Police (78%), Medico-Legal (62%) and Clinical (54%). The common analytes in each drug group were Cannabinol (27%), Cocaine (25%), Morphine (17%), Amphetamine (13%) and Diazepam (15%). The positive rate for the Workplace sector was 10%. The most common analytes in each drug group detected in the Workplace samples were: THC (4%), Codeine (2%), Cocaine (2%), MDMA (0.5%) and Diazepam (0.1%).

CONCLUSIONS: The analysis of one three-month section was most common; however analysis of monthly sections also play an important role in the evaluation and interpretation of drug use, particularly in certain Medico-Legal cases. The Medico-Legal sector is the most prevalent sector using hair analysis but the Workplace sector use of hair testing is increasing in the UK. One in 10 workplace hair samples analysed showed the presence of at least one drug, which is twice the rate of detection using urine, which is 1 in 20 urine samples (source: Medscreen). This means that the chances to identify people on drugs in the Workplace by testing hair samples are twice more likely than urine samples.

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