Test Definition: BARBX

Barbiturates Confirmation, Chain of Custody, Random, Urine

Overview

Useful For

Detecting drug abuse involving barbiturates such as amobarbital, butalbital, pentobarbital, phenobarbital, and secobarbital

Chain of custody is required whenever the results of testing could be used in a court of law. Its purpose is to protect the rights of the individual contributing the specimen by demonstrating that it was always under the control of personnel involved with testing the specimen; this control implies that the opportunity for specimen tampering would be limited.

Additional Tests

Test Id	Reporting Name	Available Separately	Always Performed
COCH	Chain of Custody Processing	No	Yes
ADLTX	Adulterants Survey, CoC, U	Yes	Yes

Testing Algorithm

Adulterants testing will be performed on all chain-of-custody urine samples as per regulatory requirements.

Method Name

Immunoassay/Gas Chromatography Mass Spectrometry (GC-MS) Confirmation with Quantitation

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Supplies: Chain of Custody Kit (T282)
Container/Tube: Chain of custody kit (T282) containing the specimen containers, seals, and documentation required
Specimen Volume: 10 mL
Collection Instructions: Collect specimen in the container provided, seal, and submit with the associated documentation to satisfy the legal requirements for chain-of-custody testing.
Additional Information: Submitting less than 10 mL will compromise the ability to perform all necessary testing.

Forms

1. Chain of Custody Request is included in the Chain of Custody Kit (T282).
2. If not ordering electronically, complete, print, and send a Therapeutics Test Request (T831) with the specimen.

Specimen Minimum Volume

5 mL

Reject Due To

Gross hemolysis	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Ambient	72 hours	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information

Barbiturates represent a class of drugs that were originally introduced as sleep inducers. Butalbital is also used to control severe headaches. Mephobarbital and phenobarbital are frequently used to control major motor (grand mal) seizures. These drugs are commonly abused as "downers" to induce sleep after an amphetamine- or cocaine-induced "high."

Chain of custody is a record of the disposition of a specimen to document the personnel who collected, handled, and performed the analysis. When a specimen is submitted in this manner, analysis will be performed in such a way that it will withstand regular court scrutiny.

Reference Values

Negative
Positive results are reported with a quantitative result.

Cutoff concentrations:
Immunoassay screen: 200 ng/mL

Gas chromatography mass spectrometry:
Butalbital: 100 ng/mL
Amobarbital: 100 ng/mL
Pentobarbital: 100 ng/mL
Secobarbital: 100 ng/mL
Phenobarbital: 100 ng/mL

Interpretation

The presence of a barbiturate in urine indicates use of one of these drugs.

Most of the barbiturates are fast acting; their presence indicates use within the past 3 days.

Phenobarbital, commonly used to control epilepsy, has a very long half-life. The presence of phenobarbital in urine indicates that the patient has used the drug sometime within the past 30 days.

Cautions

No significant cautionary statements

Clinical Reference

1. Baselt RC. Disposition of Toxic Drugs and Chemicals in Man. 10th ed. Biomedical Publications; 2014
2. Langman LJ, Bechtel LK, Holstege CP. Clinical toxicology. In: Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:chap 43

Performance

Method Description

Preliminary screen is performed by immunoassay.

The barbiturate assay is based on the kinetic interaction of microparticles in a solution as measured by changes in light transmission. In the absence of sample drug, soluble drug conjugates bind to antibody-bound microparticles causing the formation of particle aggregates. As the aggregation reaction proceeds in the absence of sample drug, the absorbance increases. When a urine sample contains the drug in question, this drug competes with the drug derivative conjugate for microparticle-bound antibody. Antibody bound to sample drug is no longer available to promote particle aggregation, and subsequent particle lattice formation is inhibited. The presence of sample drug diminishes the increasing absorbance in proportion to the concentration of drug in the sample. Sample drug content is determined relative to the value obtained for a known cutoff concentration of drug.(Package insert: BARB. Roche Diagnostics; V 13.0, 09/2021)

The specimen is then analyzed by gas chromatography mass spectrometry for confirmation with quantitation.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday, Wednesday, Friday

Report Available

3 to 5 days

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Specimen Retention Time

14 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

80345
G0480 (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
BARBX	Barbiturates Confirmation, CoC, U	53746-4

Result ID	Test Result Name	Result LOINC® Value
6668	Barbiturates Immunoassay Screen	70155-7
36143	Butalbital-by GC/MS	16237-0
36144	Amobarbital-by GC/MS	16239-6
36145	Pentobarbital-by GC/MS	16240-4
36146	Secobarbital-by GC/MS	16238-8
36147	Phenobarbital-by GC/MS	16241-2
36148	Barbiturates Interpretation	69050-3
36149	Chain of Custody	77202-0