

14 Drug Panel (Barbiturates, Cocaine, Benzodiazepine, Cannabis, Methamphetamine) – [Serum] Analysis

Objective

The objective of this test is to detect and quantify the presence of multiple commonly abused drugs, including barbiturates, cocaine, benzodiazepines, cannabis, and methamphetamines, in a patient's serum. This panel is often used for clinical toxicology, forensic investigations, and workplace drug testing.

Materials and Methods

Materials:

- Serum sample from patient
- Immunoassay kits and confirmatory methods (e.g., GC-MS, LC-MS/MS)
- Standard laboratory equipment (centrifuge, pipettes, vials)

Methods:

1. Sample Collection: Collect venous blood and separate serum via centrifugation.
2. Screening: Perform an initial immunoassay screen to detect the presence of drug metabolites.
3. Confirmation: Confirm positive results using chromatographic techniques such as Gas Chromatography-Mass Spectrometry (GC-MS) or Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS).
4. Quantification: Measure drug concentrations and compare against standard cut-off values.
5. Quality Control: Utilize internal standards and controls to ensure accuracy of results.
6. Interpretation: Assess results for clinical or legal significance based on concentration and presence of multiple drugs.

Results

- Negative: No drugs detected or concentrations below cut-off thresholds.
- Positive: One or more drugs detected above cut-off thresholds (requires confirmation testing).
- Quantitative results provide concentrations for clinical or forensic interpretation.

Conclusion

The 14-drug panel test provides comprehensive screening for multiple substances of abuse, assisting in clinical management, legal investigations, and workplace compliance programs. Confirmatory testing ensures accurate and defensible results.