DETECTION WINDOWS

A drug's detection window is the range of time that a drug remains measurable in a biological sample. Detection windows can be helpful in further assessment of a patient; however, the evaluator needs to be aware of detection window limitations. Detection windows generally provide a ballpark average and should be used in combination with the patient's entire clinical picture to ensure accurate evaluation. Many factors, not limited to dose, frequency of use (acute vs chronic), route of administration, biological matrix collected from the patient, cutoff levels, and individual metabolic and renal clearance, affect drug metabolism and thus affect detection windows.[1-4]

A patient that is prescribed a medication daily, multiple times a day, or has a history of substance use may have lengthened detection windows compared to a single, one-time user.[4] This is especially true for lipophilic (fat-storing) drugs such as THC, benzodiazepines, and cocaine.[4, 5] Oral, sublingual, and intranasal administration may provide lengthened detection in the oral fluid cavity, whereas transdermal patches may be difficult to capture in the oral cavity but have an increased detection time in urine.[3, 4]

Urine is best suited for detecting parent drug and metabolite(s), while the oral fluid is generally better suited for detecting the parent drug.[1-4] Oral fluid detection times are 1 or 2 days on average while urine detection times are approximately 1.5 to 4 days on average.[4] This difference between the two matrices is heavily influenced by the 10-50-fold lower concentration of most drugs in oral fluid.[2, 4] Precision Diagnostics offers Precision NextGen cutoff levels in urine, many of which are lower than what is typically seen industrywide; such cutoffs can contribute to widening detection windows.[6]

The detection windows of a drug and its metabolite are affected by metabolic and renal clearance of the individual, related to genetic and non-genetic host factors, and in some cases, polypharmacy.[7, 8] The major cause of individual variation of drug clearance is due to genetic variation, involving genetic polymorphisms of drug-metabolizing enzymes.[7] This genetic variation results in subpopulations that differ in drug metabolism.[7, 8]

In addition to genetic variations, non-genetic factors such as sex, age, and disease among populations also give rise to variations in drug clearance.[8] Lastly, metabolic and renal clearance can be greatly affected by polypharmacy, in which drug metabolizing enzymes are inhibited due to the consumption of interacting drugs.[8]

Precision Diagnostics offers a list of average detection windows pertaining to the urine and oral fluid tests we offer. You can also find these detection windows listed on individual patient reports. The data is based on documented scientific literature.

A Precision Diagnostics trained Clinical Support Specialist can assist with further review of your patient's results

(800) 635-6901 Option 2

References:

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Precision Diagnostics is a leader in clinical laboratory testing and medication adherence monitoring. Specializing in qualitative and quantitative drug testing, our innovative state-of-the art technology provides new levels of data visibility and pricing transparency.

Precision's role is to ensure each participant, from the patient to the provider and the payor, benefits from our continued commitment to the principles of value-based care and medically necessary test utilization.

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