
Blood Alcohol Level Fact Sheet

Introduction

Blood alcohol level (BAL, sometimes called BAC for blood alcohol concentration) is often used in emergency rooms to give insight into the severity of a patient's alcohol use and to help guide predictions about when they will be sober enough for a psychiatric evaluation and when they may start to experience withdrawal.

How Is BAL Measured?

BAL is the percentage of alcohol in a person's blood, usually expressed as grams per deciliter (a deciliter is one-tenth of a liter, or 100 milliliters). For example, a BAL of 0.1% means there is 0.1 gram of alcohol per 100 milliliters of blood. Most clinical settings prefer to express BAL as milligrams per deciliter (mg/dL), in which case the previous percentage is multiplied by 1000. This makes communicating BAL easier since you don't have to use fractions—for example, instead of saying, "His BAL is 0.1%," you can say, "His BAL is 100." In this fact sheet, we will express BAL as mg/dL.

BAL Facts

- The US and Canada define legal intoxication—at which point it is illegal to drive—as a BAL of 80.
- Most people will become visibly intoxicated above a BAL of 100. However, those with a lot of tolerance may still appear sober at 150 or above.
- One standard drink increases BAL by 20–40, depending on factors such as sex and weight. Legal intoxication generally requires three to four drinks consumed within about an hour.
- The body can metabolize 10–15 mg/dL of alcohol per hour, but chronic drinkers metabolize it faster, around 20–30 mg/dL per hour. A rule of thumb is that the liver can metabolize about one standard drink per hour.
- A patient's BAL does not help in determining when they will go into withdrawal. While one might assume that withdrawal correlates with a very low BAL, in fact many patients with severe alcohol use disorder drink so regularly that they "live" at a BAL of 400–500 and will often begin to have withdrawal symptoms at a BAL of 200 or higher.

Factors Affecting BAL

- *Weight:* Given the same consumption of alcohol, heavier individuals will have a lower BAL than lighter individuals.
- *Sex:* Men metabolize alcohol at a faster rate than women, so men will have a lower BAL given the same consumption.
- *Speed of drinking:* The faster people drink, the higher their BAL.
- *Alcohol and food:* Drinking on an empty stomach increases absorption, leading to a quicker increase in BAL.

How BAL Is Used Clinically

- To determine when a patient is "sober enough" to be evaluated by psychiatric clinicians. It's common for psychiatric services to require that a patient's BAL be lower than 200 before they conduct an interview. Sometimes, insurance companies will also require a low BAL before they will cover a psychiatric evaluation.
- To evaluate the causes of extreme agitation or sedation in patients who are unable to communicate their history. In these cases, blood is drawn for many tests, including a BAL, in order to document that alcohol is or is not related to the presentation.