

## CMP Meaning and Interpretation

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An assessment of a person's health is based on the medical history of the individual, the physical evaluation or examination of the person by a doctor, and then the interpretation of the blood tests ordered. Specifically, the blood and urine tests will or should correlate with the history and physical evaluation. A comprehensive metabolic panel (CMP) is a group of blood tests that can evaluate data for a broad spectrum of diseases and is commonly used as a screening device on a periodic basis to rule out these disease conditions. The complete blood count (CBC) and a urinalysis (UA) are commonly ordered at the same time to complete the screening assessment. Specifically, these tests can give the Doctor a great deal of information such as:

- Evaluate how well organs—such as the kidneys, liver, thyroid, and heart—are working
- Diagnose diseases and conditions such as cancer, HIV/AIDS, diabetes, anemia and coronary heart disease
- Find out whether you have risk factors for heart disease
- Check whether medicines you're taking are working
- Assess how well your blood is clotting

The group of tests that comprise the CMP can be evaluated, both individually or together, to assess the patient's health or potential disease state, such as:

**Albumin, globulin, total protein, and albumin/globulin ratio (A/G Ratio):** These protein levels and ratio may be higher or lower than average in the case of certain health disorders. These include:

- bone marrow disorders
- edema (a buildup of fluid in the tissues)
- hepatitis (liver infection)
- HIV
- inflammatory bowel diseases
- kidney disease
- Leukemia
- liver disease
- malnutrition

**Calcium, Potassium, Sodium, and Chloride:**

These tests are collectively referred to as blood minerals. They are involved with fluid balance, nerve transmission, muscle motion and many other metabolic reactions that are required for normal body function and well being. Abnormal results should be followed up on with the doctor and medical staff. Some of these tests are seriously affected by improper sample collection.

**Liver function tests:** AST, ALT, GGT, total bilirubin, and alkaline phosphates will be elevated in diseases causing destruction of liver cells. Various enzymes are correlated with certain diseases or conditions such as the following:

**Hepatitis C (HCV):** The ALT is elevated in about 75% of people that have HCV. HCV is a chronic active form of hepatitis and the ALT indicates the on-going destruction of liver cells. The AST may or may not be moderately elevated.

**Hepatitis A and Hepatitis B:** The liver enzymes are elevated in both of these conditions in the early stages of infection and will return to normal when the disease is treated.

**Alcoholic Liver Disease:** The GGT is an excellent marker for this disease along with the MCV from the CBC.

**Heart Disease:** The cholesterol and triglycerides will be elevated. Other tests such as HDL and LDL normally found in the Lipid Panel will give further information as to the risk factors for heart disease.

**Kidney Disease:** BUN (blood urea nitrogen) and creatinine will give indication as to how toxins are removed from the body through the kidneys. These two measurements are also given as the BUN/Creatinine ratio.

**Diabetes:** The single best marker for this disease is glucose. The elevated level of glucose in a sample that has been drawn 2 hours after the last meal is a good indicator as to how glucose is being metabolized by the body. If the glucose value is moderately to severely elevated, then a follow up evaluation with the clinician would be required.

In summary the interpretation of a CMP gives the clinician valuable information about a patient's health status, and will indicate follow up testing to determine the additional information for diagnosis and treatment. The periodic use of the CMP group of tests, along with the CBC and the UA, will help the clinician in the evaluation, treatment and guidance of the patient in terms of diet and exercise to increase his quality of life.

### ??? Did You Know ???

- Men reported higher rates of illicit drug dependence than women, 3.8% to 1.9%.
- American Indians and Alaska Natives have the highest rates of illicit drug dependence at 6%, followed by African Americans at 3.6%. Asian Americans reported the lowest rate at 1%.
- About 14% of adults with illicit drug dependence reported receiving treatment in the past year, which did not vary by gender.
- Each year, approximately 5,000 youth under the age of 21 die as a result of underage drinking.
- In 2012, 58.3% of people who tried alcohol for the first time were younger than 18.
- More than 50% of people aged 12 or older in 2011-2012 who used pain relievers for non-medical reasons in the past year got them from a friend or relative. Source: SAMHSA

### Question of the Month

**Question:** What is the relationship between the peak and trough values?

**Answer:** Ideally, the peak and trough values should be nearly the same. This would indicate that the methadone absorbed by the patient in the daily dose is being distributed uniformly throughout the vascular and organ storage volume of the patient's body. The methadone is then available at a uniform rate at the opioid receptor binding sites.