### Blood Test Results: CBC Explained

**Definition:** Measures essential components of the blood

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| White blood cell count (WBC)       | Measures the total number of white blood cells, which defend the body against infection; there are several different types of white cells: lymphocytes, monocytes, neutrophils, eosinophils, and basophils | USA: 4,500-10,000 cells/mcL  
UK/EU: 4,500-10,000 cells/mcL  
Australia/Canada: 4,500-10,000 cells/mcL | Autoimmune diseases, immunosuppression, bone marrow failure, chemotherapy, viral infections  
Infection, inflammation, leukemia, interexercise, stress, corticosteroids | Vitamin infections, leukemia, lymphoma                                                                                       |
| Lymphocytes, absolute (LT, abs) or percentage (LT, pct) | Measures the number or percentage of lymphocytes, which are white blood cells that include B-cells, T-cells, and natural killer cells | USA: 0.8-2.0 g/dL  
UK/EU: 0.8-2.0 g/dL  
Australia/Canada: 0.8-2.0 g/dL | Immunosuppression, HIV/AIDS, bone marrow failure, chemotherapy  
Infection, inflammation, leukemia, interexercise, stress, corticosteroids | Chronic infections, autoimmune diseases, leukemia                                                                                 |
| Monocytes, absolute (MO, abs) or percentage (MO, pct) | Measures the number or percentage of monocytes, which are white blood cells of monocytes, neutrophils, eosinophils, and basophils | USA: 0.5-2.0 /L  
UK/EU: 0.5-2.0 /L  
Australia/Canada: 0.5-2.0 /L | Immunosuppression, bone marrow failure, chemotherapy  
Infection, immunosuppression, leukemia, interexercise, stress, corticosteroids | Vitamin infections, leukemia, lymphoma                                                                                       |
| Granulocytes, absolute (GR, abs) or percentage (GR, pct) | Measures the number or percentage of granulocytes (neutrophils, basophils, and eosinophils), which are involved in defense against infection | USA: 5-7.5 /L  
UK/EU: 5-7.5 /L  
Australia/Canada: 5-7.5 /L | Immunosuppression, bone marrow failure, chemotherapy  
Infection, immunosuppression, leukemia, interexercise, stress, corticosteroids | Chronic infections, autoimmune diseases, leukemia                                                                                |
| Neutrophils, absolute (NE, abs) or percentage (NE, pct) | Measures the number or percentage of neutrophils, which are the most abundant circulating white blood cells and respond quickly to infection | USA: 1.8-5.0 g/dL  
UK/EU: 1.8-5.0 g/dL  
Australia/Canada: 1.8-5.0 g/dL | Immunosuppression, bone marrow failure, chemotherapy  
Infection, immunosuppression, leukemia, interexercise, stress, corticosteroids | Chronic infections, autoimmune diseases, leukemia                                                                                |
| Eosinophils, absolute (EOS, abs) or percentage (EOS, pct) | Measures the number or percentage of eosinophils, which combat parasitic infections and are involved in asthma or allergy responses | USA: 0.5-2.0 (pct)  
UK/EU: 0.5-2.0 (pct)  
Australia/Canada: 0.5-2.0 (pct) | Generally not a concern  
Parasitic infections | Generally not a concern  
Active allergy responses | General not a concern  
Parasitic infections |
| Basophils, absolute (BA, abs) or percentage (BA, pct) | Measures the number or percentage of basophils, which are involved in allergic responses | USA: 0 (pct)  
UK/EU: 0 (pct)  
Australia/Canada: 0 (pct) | Generally not a concern  
Anemia, recent blood loss, red blood cell hemolysis | Generally not a concern  
Anemia, recent blood loss, red blood cell hemolysis | General not a concern  
Anemia, recent blood loss, red blood cell hemolysis |
| Red blood cell count (RBC)          | Measures the number of red blood cells, which pick up oxygen from the blood and deliver it to tissues throughout the body | USA: 0-8.0 /L  
UK/EU: 0-8.0 /L  
Australia/Canada: 0-8.0 /L | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera |
| Hemoglobin (Hgb)                   | Oxygen-carrying pigment in red blood cells                                                                                                   | USA: 13.8-17.2 g/dL  
UK/EU: 13.8-17.2 g/dL  
Australia/Canada: 13.8-17.2 g/dL | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera |
| Hematocrit (HCT)                  | The percentage of red blood cells                                                                                                              | USA: 40.7-55.3 (pct)  
UK/EU: 40.7-55.3 (pct)  
Australia/Canada: 40.7-55.3 (pct) | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera | Iron, vitamin B12, or folate deficiency; bone marrow damage; leukemia or lymphoma; acute or chronic blood loss; red blood cell hemolysis  
Dehydration, renal problems, pulmonary disease, congenital heart disease, polycythemia vera |
| Mean corpuscular volume (MCV)      | Average size of a red blood cell                                                                                                            | USA: 82-95 fl  
UK/EU: 82-95 fl  
Australia/Canada: 82-95 fl | Iron deficiency  
Vitamin B12 or folate deficiency | Iron deficiency  
Vitamin B12 or folate deficiency | Iron deficiency  
Vitamin B12 or folate deficiency |
| Mean corpuscular hemoglobin (MCH)  | The amount of hemoglobin per red blood cell                                                                                                   | USA: 26.9-33.7 pg  
UK/EU: 26.9-33.7 pg  
Australia/Canada: 26.9-33.7 pg | Iron deficiency  
Vitamin B12 or folate deficiency | Iron deficiency  
Vitamin B12 or folate deficiency | Iron deficiency  
Vitamin B12 or folate deficiency |
| Mean corpuscular hemoglobin concentration (MCHC) | The average concentration of hemoglobin in a given volume of red blood cells | USA: 32.3-36.7 g/dL  
UK/EU: 32.3-36.7 g/dL  
Australia/Canada: 32.3-36.7 g/dL | Iron deficiency  
Vitamin B12 or folate deficiency  
Erythrocyte and polycythemia vera | Iron deficiency  
Vitamin B12 or folate deficiency  
Erythrocyte and polycythemia vera | Iron deficiency  
Vitamin B12 or folate deficiency  
Erythrocyte and polycythemia vera |
| Red cell distribution width (RDW)  | A measurement of the variation in red blood cell size                                                                                         | USA: 11-15%  
UK/EU: 11-15%  
Australia/Canada: 11-15% | Generally not a concern  
Iron deficiency, vitamin B12 or folate deficiency, recent blood loss | Generally not a concern  
Iron deficiency, vitamin B12 or folate deficiency, recent blood loss | Generally not a concern  
Iron deficiency, vitamin B12 or folate deficiency, recent blood loss |
| Platelet count (PLT)              | Measures the number of platelets, which are important for blood clotting                                                                   | USA: 150-450 Thousand/mcL  
UK/EU: 150-450 Thousand/mcL  
Australia/Canada: 150-450 Thousand/mcL | Bone marrow failure, chemotherapy, and infections, lupus, pernicious anemia (due to vitamin B12 deficiency), leukemia or lymphoma, sequestration in the spleen, certain medications | Leukemia, myeloproliferative disorders (which cause blood cells to grow abnormally in bone marrow), inflammatory conditions |
| Mean platelet volume (MPV)        | The average volume of a platelet; newer platelets tend to be larger than older ones                                                          | USA: 7.8-11.0 fl  
UK/EU: 7.8-11.0 fl  
Australia/Canada: 7.8-11.0 fl | Aplastic anemia, thrombocytopenia  
Certain inherited disorders | Aplastic anemia, thrombocytopenia  
Certain inherited disorders | Aplastic anemia, thrombocytopenia  
Certain inherited disorders |

**Reference ranges can vary by age, sex, methods of testing, and other factors. There are no nationally established reference ranges for CMP and CBC values; instead, each laboratory tests a population and establishes its own reference ranges. Therefore, the reference ranges quoted are only approximate.**

**KEY**

mg: milligram  
g: gram  
mmol: millimole  
MEq: milliequivalent  
l: liter  
mcL: microliter  
pg: picogram  
fL: femtoliter  
m: meter  
L: liter  
mcL: microliter  
mEq: milliequivalent  
dL: deciliter  
mEq: milliequivalent  
IU: international unit