

Anemia Lab Values

Lab Value	Reference Range		Anemia		Iron Deficiency	
	Female	Male	Female	Male	Female	Male
Hemoglobin (Hb)	12-15 g/dL	14-17 g/dL			< 12 g/dL*	< 13 g/dL
Mean Corpuscular Volume (MCV)	80-100 femtoliters (fL)		MCV > 100 is associated with B12 or folate deficiency or myelodysplasia (MDS) MCV < 80 is associated with iron deficiency and thalassemia		< 80fL MCV > 80 fL can also be seen in patients with iron deficiency MCV < 80 fL may be seen in thalassemia	
Red Cell Distribution Width (RDW)	CV: 11.6 – 14.6 %; SD: 39-46 fl		> 14 in nutritional deficiency anemias		>14 fl	
Reticulocyte Count	25,000 – 85,000/microliter 0.5-1.5 % (must be adjusted for degree of anemia)		Reticulocyte count < 75,000 with anemia indicates RBC loss with inadequate marrow response to correct anemia Reticulocyte count > 85,000 with anemia indicates RBC loss with an increased compensatory production of reticulocytes to replace the lost red blood cells			
Reticulocyte Hemoglobin Content (CHr)	27 -32 picograms (pg)				CHr < 28 pg	
Soluble transferrin receptor (sTfR), serum	1.8 – 4.6 mg/L		Usually normal in absence of iron deficiency		>5.0 mg/L	
Ferritin (serum)	45-340 ng/dL		Increased in inflammation independent of iron status		< 100 ng/dL	
Transferrin saturation	20-45%				<20%	
C –Reactive Protein (CRP), (serum)	≤ 0.8 mg/L		> 0.8 mg/L = inflammatory state		Independent of iron status	

*WHO defines anemia in women as Hb < 12 g/dL but there are many women who are iron deficient, have a Hb > 12 g/dL and whose Hb increases by 1 g/dL or more when treated with iron.

References

Greer JP, Arber DA, Glader BE, List AF Means RT and Rodgers G authors. Wintrobe's Clinical Hematology. 14th edition. Wolters Kluwer. Philadelphia, Pa; 2018.

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