Glucose-6-Phosphate Dehydrogenase (G-6-PD), Quantitative

CPT Code: 82955
Order Code: 1438
Alternative Names: G-6-PD, G-6PDH, G6PD, Glucose-6-PD (RBC)
ABN Requirement: No
Specimen: Whole Blood
Volume: 3.0 mL
Minimum Volume: 1.5 mL
Container: EDTA (Lavender Top) Tube

Collection:

1. Collect and label sample according to standard protocols.
2. Gently invert tube 8-10 times immediately after draw. Do not shake.
3. Do not centrifuge.

Special Instructions: A separate EDTA whole blood tube is needed for G-6-PD. Collect additional samples for other testing that requires EDTA whole blood. Refrigerate immediately.

Transport: Store EDTA whole blood at 2°C to 8°C after collection and ship the same day per packaging instructions included with the provided shipping box.

Stability:

Ambient (15-25°C): 24 hours
Refrigerated (2-8°C): 7 days
Frozen (-20°C): Not Acceptable

Causes for Rejection: Specimens other than EDTA whole blood; improper labeling; samples not stored properly; samples older than stability limits; sample received frozen; gross hemolysis; clotted sample

Methodology: Kinetic

Turn Around Time: 3 to 5 days

Reference Range: 9.8-15.5 U/g Hgb

Clinical Significance: Glucose-6-phosphate dehydrogenase (G6PD) deficiency is the most common enzyme deficiency in the world, affecting an estimated 400 million people worldwide [1]. It is more common in people of African, Mediterranean, and Asian descent. G6PD deficiency is an X-linked genetic disorder and, in general, affects males more than females. Severity ranges from mild to severe subtypes. Newborns with G6PD deficiency may have prolonged and more pronounced neonatal jaundice than other newborns. Adults with G6PD deficiency may have episodes of acute hemolytic anemia, and symptoms may include jaundice, fatigue, splenomegaly, and dark urine. Episodes may be induced by illness (infections), certain foods (fava beans), and particular medications (for example some sulfonamides and antimalarial drugs)[2]; therefore, some precautions may be recommended to avoid offending triggers.

Quantitative Glucose-6-Phosphate Dehydrogenase is an assay that measures the G6PD enzyme level. A low value may indicate G6PD deficiency (as opposed to values either within or above the reference range). [Perkins[3]] has found that some females with G-6-PD deficiency have difficulty in carrying a pregnancy to term. Erythrocytic G-6-PD appears to be sensitive to the endocrine changes associated with pregnancy. [Vergnes and Clerc [4]] found that 65% of their patients showed a significant fall in the G-6-PD activity in the later months of pregnancy with return to normal after delivery. Of note, as reticulocytes have higher G6PD activity than mature erythrocytes, if the blood sample is collected just after an acute hemolytic episode, G6PD activity levels can be falsely normal [5]. Therefore, if G6PD deficiency is suspected, consider repeating the test. Molecular genetic testing may also be indicated in cases where the disorder is suspected, or where there is a family history of G6PD deficiency, as enzyme activity may be normal in heterozygous females.

Preferred initial screening test for Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency. Patients who have been recently transfused have normal donor cells that may mask G6PD deficient erythrocytes.

References:

1. https://www.who.int/malaria/mpac/mpac-october2019- session7-updating-

G6PD-classification.pdf
2. Luzzatto L, Nannelli C, Notaro R. Glucose-6-Phosphate Dehydrogenase Deficiency. Hematol Oncol Clin North Am. 2016 Apr;30(2):373-93.
3. Perkins, R. The significance of glucose-6-phosphate dehydrogenase deficiency in pregnancy. Amer. J Obstetr. And Gynec. 1976. May;125(2):215-223.
4. Vergnes, H and Clerc, A. Erythrocyte Enzyme Activity in Pregnancy. Lancet 1968 Oct;292(7572):834.
5. Frank J. Diagnosis and Management of G6PD Deficiency. Am Fam Physician. 2005 Oct;72(7):1277-82.

The CPT codes provided are based on AMA guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.