G6PD Genotyping Algorithm for Therapeutic Drug Recommendations

**G6PDB / Glucose-6-Phosphate Dehydrogenase (G6PD) Full Gene Sequencing**

- **Male (hemizygous)**
  - WHO Class I Variant
    - Positive
    - Deficient with congenital nonspherocytic hemolytic anemia (CNSHA) phenotype

- **Female (homozygous/compound heterozygous)**
  - WHO Class I Variant
    - Positive
    - Deficient with congenital nonspherocytic hemolytic anemia (CNSHA) phenotype

- **WHO Class II or III Variant**
  - Positive
  - Deficient with CNSHA phenotype

- **WHO Class I and II or III Variants**
  - Positive
  - Deficient, at risk for CNSHA phenotype

- **WHO Class II or III Variants**
  - Positive
  - Deficient

- **WHO Class IV Variant**
  - Normal

- **WHO Class IV and I, II, or III Variants**
  - Indeterminate phenotype
  - Indeterminate-G6PD enzyme assay needed
  - Order: G6PD1 / Glucose 6-Phosphate Dehydrogenase Enzyme Activity, Blood

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**Therapeutic Recommendation:**
- No G6PD-related contraindication of drugs/compounds

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**Diagnostic for G6PD deficiency**

**Therapeutic Recommendation:**
- Contraindication for drugs associated with hemolytic anemia in G6PD-deficient patients

See: Pharmacogenomic Associations Tables

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**G6PD Normal**

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**Therapeutic Recommendation:**
- No G6PD-related contraindication of drugs/compounds

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**<60% G6PD activity**
- symptomatic G6PD deficiency carrier

**>60% G6PD activity**
- unaffected G6PD deficiency carrier

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**Indeterminate-G6PD enzyme assay needed**

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**Diagnostic for G6PD deficiency**

**Therapeutic Recommendation:**
- Contraindication for drugs associated with hemolytic anemia in G6PD-deficient patients

See: Pharmacogenomic Associations Tables

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**G6PD Normal**

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**Therapeutic Recommendation:**
- Contraindication for drugs associated with hemolytic anemia in G6PD-deficient patients

See: Pharmacogenomic Associations Tables

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**Variants of uncertain significance (VUS) may be identified. If a VUS is identified, a WHO Class will not be assigned and enzyme studies are recommended.**

**WHO Class I Variant:** Severe G6PD enzyme deficiency (<10% activity) and chronic nonspherocytic hemolytic anemia (CNSHA)

**WHO Class II/III Variant:** Deficient G6PD enzyme activity (10%-60% activity)

**WHO Class IV Variant:** Normal G6PD enzyme activity

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