Megaloblastic Anemia Testing

**INDICATIONS FOR TESTING**
Patient presents with megaloblastic anemia and/or neurologic symptoms

**ORDER**
- Vitamin B₁₂
- Folate (for patient with known risk factors)

- **Vitamin B₁₂ >400 pg/mL**
  - Occasionally, clinician may find normal levels of B₁₂ in symptomatic patients (usually neurologic symptoms)
  - MMA and homocysteine may be appropriate to confirm B₁₂ deficiency, as homocysteine may have a role in detecting folate or B₁₂ deficiency

- **Vitamin B₁₂ 100-400 pg/mL**
  - **ORDER**
    - Methylmalonic Acid, Serum or Plasma (Vitamin B₁₂ Status)

- **Vitamin B₁₂ <100 pg/mL**
  - B₁₂ deficiency
  - **ORDER**
    - Methylmalonic Acid, Serum or Plasma (Vitamin B₁₂ Status)
    - Homocysteine, Total

- **Low folate levels only**

- **Low or normal folate levels and high suspicion for deficiency**
  - **ORDER**
    - Folate, RBC

**Optional antibody testing when MMA >0.4 µmol/L**
(MMA >0.4 µmol/L confirms B₁₂ deficiency)

**ORDER**
- Intrinsic Factor Blocking Antibody
  - **ORDER**
    - Gastric Parietal Cell Antibody, IgG
      - **ORDER**
        - Gastrin
          - Positive
            - Pernicious anemia
          - Negative
            - Pernicious anemia
            - **ORDER**
              - Gastrin
                - <100 pg/mL
                  - Not pernicious anemia
                - >100 pg/mL
                  - Pernicious anemia (indirect confirmation)

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