Diagnosing the Cause of Microcytosis

Adult with microcytosis (mean corpuscular volume < 80 \( \mu \)m\(^3\) [80 fl])

- Check ferritin level
  - Ferritin level < 15 ng per mL (15 mcg per L), or < 50 ng per mL (50 mcg per L) with chronic inflammation
    - Iron deficiency anemia
      - Serum iron level decreased
        - TIBC increased
          - Transferrin saturation decreased
            - Suggests iron deficiency anemia
      - Serum iron level decreased
        - TIBC decreased
          - Transferrin saturation decreased
            - Suggests anemia of chronic disease
          - Perform hemoglobin electrophoresis (consider earlier in the evaluation of children and young adults)
            - Normal hemoglobin A2 level
              - Sideroblastic anemia
                - Alpha-thalassemia trait
            - Increased hemoglobin A2 level
              - Beta-thalassemia trait
            - Diagnose other hemoglobinopathy
    - Ferritin level normal to high
      - Check serum iron level, TIBC, and transferrin saturation

Information from references 1, 2, 5, 17, 18, 20, and 21.