**September 13, 2022 Learning Objectives AHD**

**Iron Metabolism**

1. Describe several causes of iron malabsorption. (Note that this is a less common reason for iron deficiency than blood loss, but it should be included in your differential of iron deficiency states.)
2. Distinguish between iron deficiency anemia and anemia of chronic disease based on clinical pre-test probability and laboratory studies including ferritin, transferrin, and percent saturation.
3. Describe the roles of each of the following in iron metabolism: hepcidin, ferritin, transferrin. What happens to each of these molecules during periods of prolonged inflammation?
4. Describe the consequences of iron overload to the organs of

the body.

1. Describe the clues that may alert a clinician to hemochromatosis both by clinical findings (symptoms) and laboratory findings.

**Anemia Jeopardy**

1. Make a table and distinguish between the clinical presentation, the laboratory findings (such as RDW, peripheral smear, etc), and the associated conditions seen in each of the four causes of microcytic anemia: 1) iron deficiency, 2) globin synthesis (thalassemia), 3) porphyrin synthesis (sideroblastic anemia and lead poisoning), and 4) anemia of chronic disease.
2. Explain how to correct a reticulocyte count to determine whether the bone marrow has

adequate or inadequate response to an anemia.

1. Give a differential diagnosis for macrocytic anemia. (Note that this is not the same differential as B12 deficiency).
2. Know how to diagnose alpha-thalassemia trait and beta-thalassemia trait based on

clinical presentation and hemoglobin electrophoresis results.

1. Describe the evaluation for suspected hemolytic anemia and the appropriate work up for hemolysis that is suspected due to mechanical destruction, immune destruction, or intrinsic red cell defects (hereditary or acquired). Know the findings on peripheral blood smear that are seen in microangiopathic anemia and autoimmune hemolytic anemia.

**Myelodysplastic syndrome**

1. Define myelodysplastic disorder. Describe the clinical syndrome (including laboratory findings) that makes the internist suspect myelodysplastic syndrome.
2. Describe the differential diagnosis of myelodysplastic syndrome. What must be ruled out before the diagnosis can be made?
3. Describe the cytopenias, bone marrow findings, and cytogenetics that confer low and high risk MDS.
4. Describe the treatment options for patients with:
   1. High-risk MDS
   2. Low risk 5q- cytogenetics MDS