Screening test: CBC with MCV

MCV<80 fL

Order ferritin (test code FERR)

<15 ug/L
Iron deficiency anemia

15-220 ug/L

>220 ug/L
Iron deficiency anemia unlikely *

Order serum iron and transferrin saturation (test code FE)

Ferritin (<30 ng/mL)
serum iron
transferrin saturation (<15%)
consistent with iron deficiency anemia

/normal ferritin
/normal serum iron
/normal transferrin saturation (<15%)
suggests anemia of chronic inflammation


MCV>100 fL

Order vitamin B12 (test code VB12)

<200 ng/L
B12 deficiency anemia

200-300 ng/L
B12 deficiency unlikely **

>300 ng/L

Order methylmalonic acid - MMA (test code MMA)

MMA + clinical symptoms
likely B12 deficiency

normal MMA
B12 deficiency unlikely **

* Consider other causes of microcytic anemia (thalassemia, sideroblastic anemia, chronic disease, etc)
** Consider other causes of macrocytic anemia (liver disease, alcoholism, hypothyroidism, myelodysplasia, drugs/toxins, etc)
** Of note, folate deficiency has become a rare event in the United States, extremely limiting the utility of folate measurement (PMID 17516752).

Reviewer: Mark Lu, MD. Last updated: 2/21/2014