

Improved Appropriateness of Ferritin Testing Following Introduction of Reflex Testing in Eastern Health’s Laboratory

Guideline from Ontario Association of Medical Laboratories

Screening of the general population for iron deficiency is not indicated.

Practice Points

1. Patients with microcytic anemia and at-risk groups with manifestations suggestive of anemia should be considered for ferritin testing.
2. Substantial screening for iron deficiency in low-risk groups without anemia (females >50 years, males) has been undertaken by Eastern Health (EH) family physicians (FPs).
3. In EH, audit, feedback and academic detailing were associated with a 14% reduction in ferritin testing, whereas in Central Health (CH), without this intervention there was an increase of 17%, and in Western Health (WH) a reduction of 4%.
4. In the EH biochemistry laboratory, reflex testing of serum ferritin was started in Jun 2020. A test was done when the blood count test revealed microcytic anemia, provided serum ferritin had not been performed within 90 days and sufficient blood sample was available.

Methods (PI: Dr. E. Randell)

1. Data on Hb, MCV and ferritin were obtained from EH from Jan 2019 to Nov 2020. Anemia was defined as Hb < 130 g/L, MCV < 80 FL, and hypoferritinemia as < 50ug/L.
2. COVID-19 pandemic started 16 Mar 2020.

Results

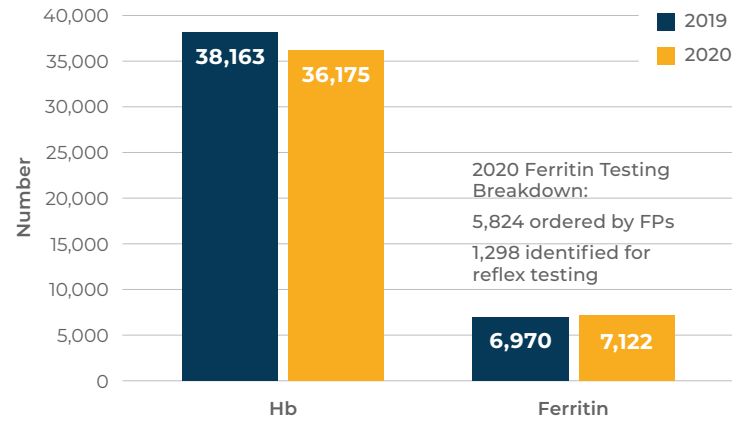


Figure 1. Average Monthly Hb and Ferritin Tests for 2019 and 2020

- There was no change in monthly number of ferritin tests in 2020, despite 1,298 tests being the result of reflex testing, and despite COVID-19.

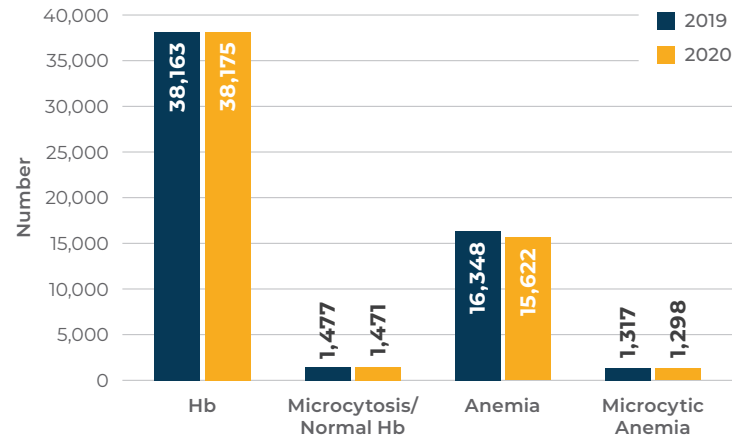


Figure 2. Monthly Average of Tests with Anemia and/or Microcytosis in 2019 and 2020

- 43% of blood count tests revealed anemia.
- 4% of tests revealed microcytosis.
- 90% of those with microcytosis were anemic.

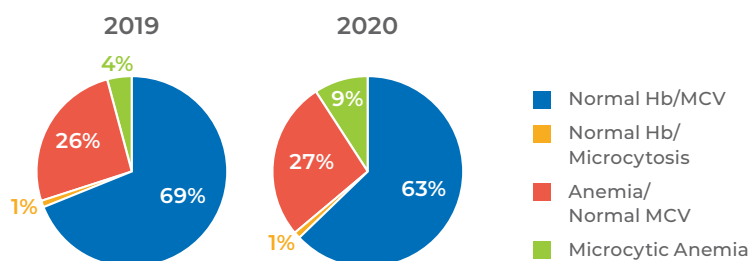


Figure 3. Percent Serum Ferritin Ordering by FPs Defined by Anemia and Microcytosis in 2019 and 2020

- The number of ferritins ordered monthly in patients with normal Hb and MCV decreased by 12%.
- The number of ferritins performed monthly in patients with Hb < 130 G/L and MCV < 80 increased by 153% when reflex testing is included.
- In 2019, 69% of ferritins were performed in patients without anemia and microcytosis, and 4% in patients with microcytic anemia. In 2020, these proportions improved: 63% of ferritins performed were in those without anemia or microcytosis, and 9% in those with microcytic anemia.

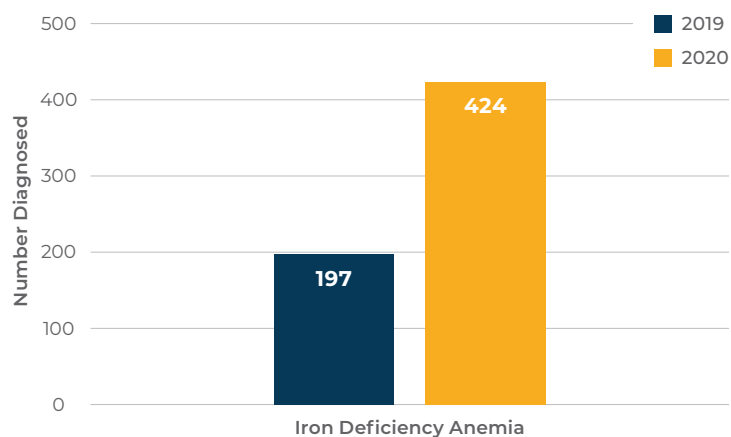


Figure 4. Diagnosis of Iron Deficiency Anemia in 2019 and 2020

- There was a 115% increase in the monthly number with anemia, microcytosis and hypoferritinemia following the use of reflex testing.

Conclusions

1. Although there was no change in the volume of ferritin testing comparing 2019 to 2020, despite COVID-19, introduction of reflex testing was associated with 115% increase in the diagnosis of iron deficiency anemia and 12% reduction of potentially unnecessary testing in those with normal Hb and MCV.
2. Further educational interventions to reduce potentially unnecessary testing of serum ferritin are required, particularly in low-risk groups such as women ≥50 years and men with normal Hb.