Quality of Care NL

The Impact of COVID-19 on Blood Testing in Eastern Health by Family Physicians

Objective

To determine the degree to which blood testing was reduced by family physicians (FPs) during the COVID-19 epidemic, for how long the reduction was maintained in Eastern Health (EH), which categories of blood tests were reduced, and whether selection of patients for testing had improved.

Practice Points

1. The state of emergency for COVID-19 started 16 Mar 2020 necessitating restrictions on visits to FPs and dependence on communication with patients by phone or virtually.

2. The need for Protective Personal Equipment (PPE) slowed the rate at which patients could be processed for blood collection to less than 50% of pre-COVID-19 rates. As a result less urgent/ unnecessary test ordering had the potential to delay more critical testing.

3. A measure of appropriateness of testing is percent abnormal. So, an increase in per cent abnormal suggests a reduction in unnecessary tests.

Methods

1. Weekly average tests ordered by FPs from 6 Jan 2020 – 15 March 2020 (10 weeks) in Eastern Health were compared to those ordered from 16 Mar 2020 – 22 Jun 2020 (14 weeks). This included hemoglobin (Hb), serum creatinine, INR, TSH and HbA1c .

Results

Table 1. Average Weekly Number of Each of the Five Tests Ordered by FPs Within Eastern Health in the 10 Weeks Pre-COVID-19

Test Pre-COVID	Average N Weekly	Annualized Rate/100 Population
Creatinine	3,950	40
Hemoglobin	4,184	42
TSH	2,094	21
HbA1c	1,940	19
INR	1,222	12

- Rate of testing/100 people in the population is high pre-COVID-19.

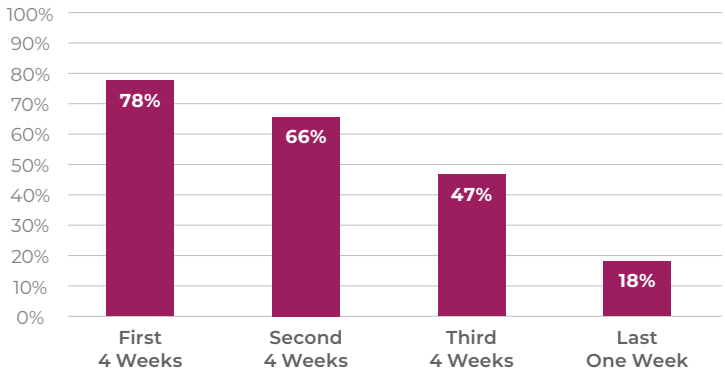

Figure 1A. Percent Reduction in Number of Hemoglobin Tests Done Weekly During the First 13 Weeks of COVID-19

- ≥70% reduction in Hb testing was observed for the first six weeks of COVID-19.

- By week 13 of the epidemic, the reduction was 18%.

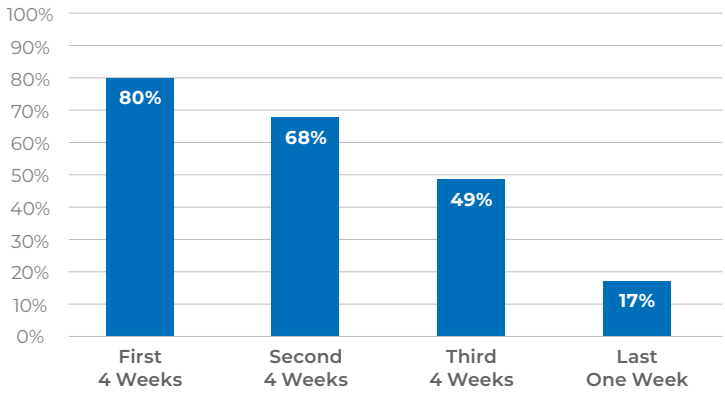

Figure 1B. Percent Reduction in Number of eGFR Tests Done Weekly During the First 13 Weeks of COVID-19

- Reduction in eGFR testing mirrored that of Hb testing.

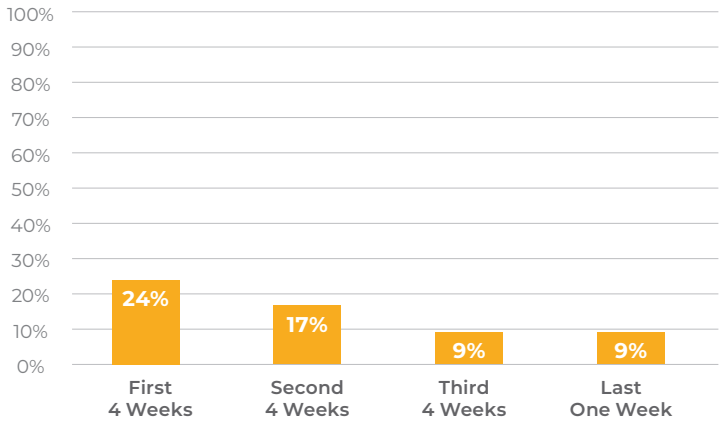

Figure 1C. Percent Reduction in Number of INR Tests Done Weekly During the First 13 Weeks of COVID-19

- Reduction in INR testing was never greater than 30%.
- By week 10, the reduction was 10%.

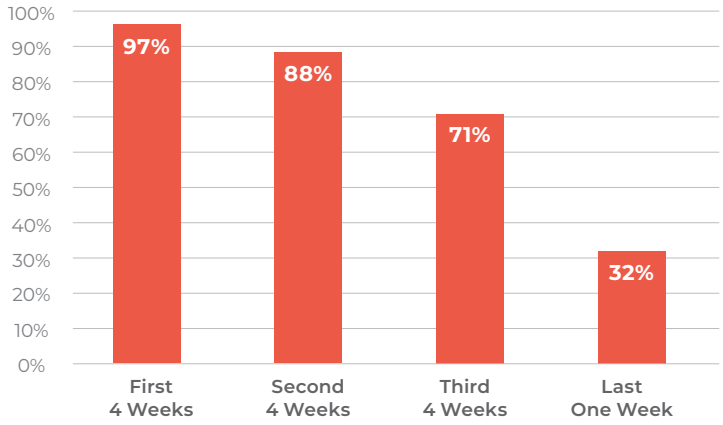

Figure 1D. Percent Reduction in Number of HbA1c Tests Done Weekly During the First 13 Weeks of COVID-19

- HbA1c testing was reduced by ≥ 90% for the first six weeks of COVID-19.
- By week 13, the reduction was 32%.

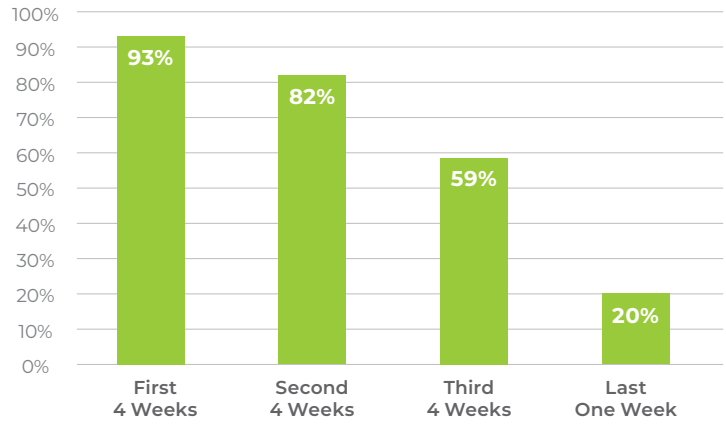

Figure 1E. Percent Reduction in Number of TSH Tests Done Weekly During the First 13 Weeks of COVID-19

- Initial reduction in TSH testing was similar to HbA1c.
- By week 13, the reduction was 25%.

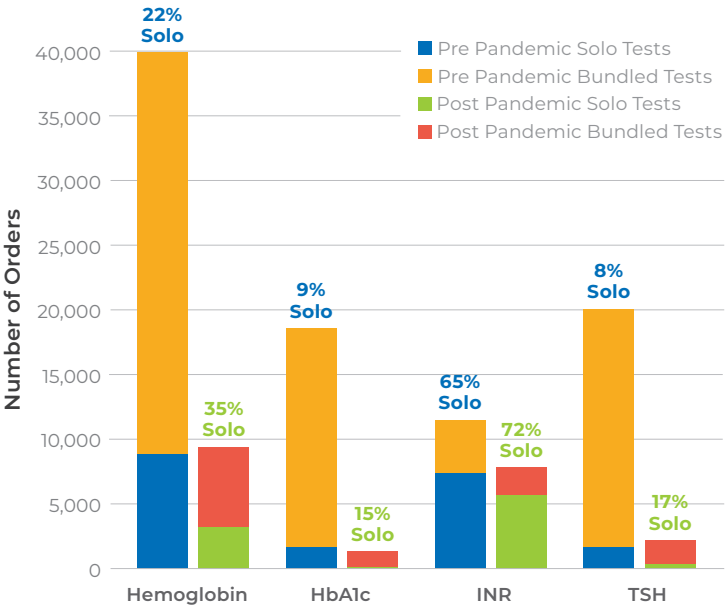

Figure 2. Number and Combination of Tests Ordered by FPs in the 8 Weeks Pre and During the First 8 Weeks of the COVID-19 Period

- INR is frequently ordered as a solo test, whereas Hb, HbA1c and TSH are frequently ordered with other tests, a practice that changed little during the epidemic.

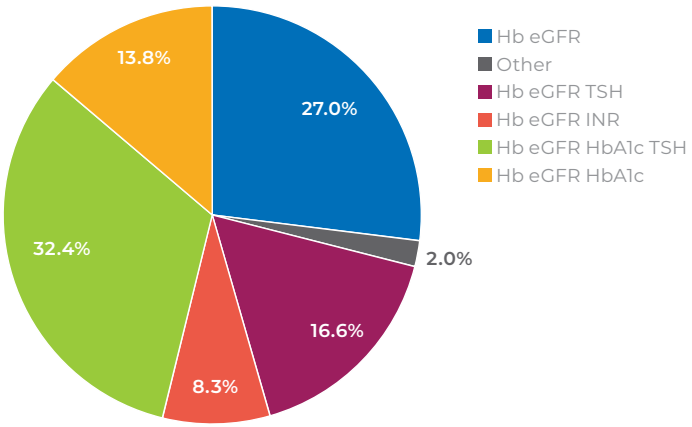

Figure 3A. Tests Bundled With Hb and e-GFR Pre-COVID-19

- Hb and eGFR are often bundled together. In these patients, blood draws usually include other tests.

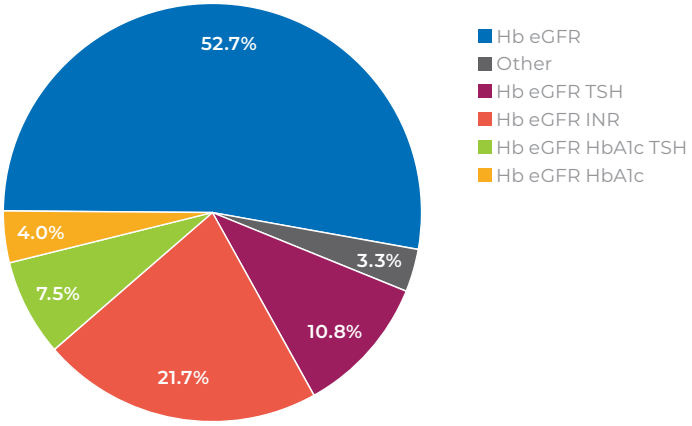

Figure 3B. Tests Bundled With Hb and eGFR During COVID-19

- Together with a reduction in the quantity of combined Hb and e-GFR testing during the epidemic, there was also a reduction in the tests bundled with Hb and eGFR.

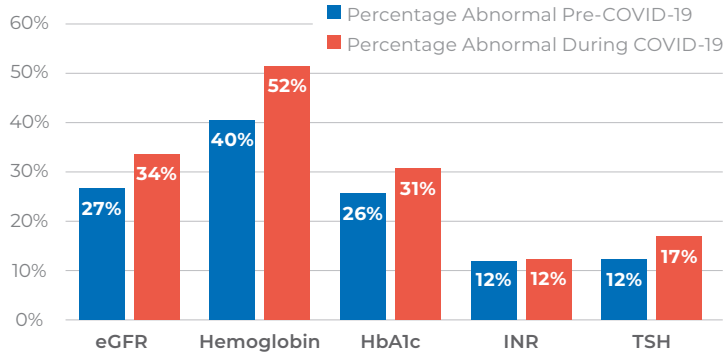

Figure 4. Percentage Abnormal Results for the 10 Weeks Pre and During the COVID-19 Epidemic

- Increase in the percent abnormal comparing COVID-19 to pre-COVID-19 was observed for eGFR (26% improvement), Hb (30% improvement), HbA1c (19% improvement), and TSH (29% improvement) but not for INR.

Conclusions

1. Even in a time of enforced rationing INR testing is considered essential, with relatively small reductions in volume during COVID-19, return to within 10% of the pre rate after 10 weeks, and no change in percent abnormal.

2. The frequency of INR testing should be considered by NLPDP when decisions are made on funding Xaralto.

3. Hb and kidney function testing occured in about 40/100 population annually pre-COVID-19, substantial reduction in testing occurred during COVID-19, selection of those who needed testing was undertaken (% abnormal went up) , and volume was within 20% of pre-rate after 10 weeks. Consideration should be given to ordering these tests 1–2 times/year in patients with mild, non-progressive chronic disease.

4. Monitoring of diabetic and thyroid control was surprisingly frequent pre-COVID-19 (about 20/100 population), there was a very substantial fall in volumes during COVID-19, selection of those who needed testing occurred, after 10 weeks volume was within 30% of pre for HbA1c and 20% for TSH.

5. Consideration should be given to testing 1–2 times/year in stable non-insulin dependant diabetics and in stable patients on thyroxine.