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CONTRIBUTORS

# Opinion | The silent epidemic that is plaguing Ontario

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DREAMSTIME

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By Duncan Rozario Contributor

Dr. Duncan Rozario is a general surgeon in Oakville, Ontario, former Chief of Surgery at Oakville Trafalgar Memorial Hospital and medical consultant for Sigma Life Sciences.

“Water, water everywhere, nor any drop to drink,” wrote Samuel Taylor Coleridge, describing a sailor surrounded by undrinkable seawater.

Similarly, despite iron constituting 32.1 per cent of Earth’s mass, iron deficiency remains paradoxically common.

[Iron deficiency](#) represents a silent epidemic in our health care system, particularly among surgical patients. Its scarcity in many human bodies poses a significant and frequently underestimated challenge that profoundly impacts patient outcomes.

As a surgeon, I’ve witnessed firsthand how addressing this overlooked condition can transform surgical care.

In Canada, [12.6 per cent of our population experiences iron deficiency](#), with rates climbing to 21.3 per cent among women of reproductive age, and over 50 per cent in pregnancy.

Children born to iron deficient mothers have a higher risk of neurodevelopmental deficits. As alarming is that preoperative iron deficiency affects 30 to 40 per cent of patients undergoing major surgery — a rate significantly higher than in the general population. Globally, the numbers are staggering, with nearly 1-in-4 people worldwide suffering from some form of anemia, making it the third-largest cause of disability globally.

This isn’t merely a statistical concern; it translates to real patients experiencing debilitating symptoms like fatigue, impaired exercise tolerance, reduced concentration, cognitive decline and depression—all severely impacting quality of life and capacity for surgical recovery.

For health-care systems, it means increased complications, longer hospital stays, and higher costs. Many women suffering from years of these symptoms are often told their hemoglobin is close to normal, or simply to take oral iron supplements.

The medical community has long relied on hemoglobin levels as the primary measure to screen for anemia, with standard thresholds of less than 130 g/L for males and less than 120 g/L for females. However, this approach falls critically short in assessing a patient’s true iron status, as they only measure circulating hemoglobin, and do not measure iron stores.

Iron deficiency represents a spectrum, beginning with depleted iron stores that impair cellular metabolism long before hemoglobin levels drop enough to diagnose anemia. The powerhouses in our cells, mitochondria are highly dependent on iron to produce the energy that allows us to move, breathe and think.

This means patients can suffer consequences-including poor wound healing, reduced immune function and decreased exercise tolerance — even with seemingly normal hemoglobin levels. Recent evidence suggests that even borderline low hemoglobin levels are associated with increased post-operative risks, challenging our conventional anemia thresholds in surgical contexts.

Accurate diagnosis requires looking beyond hemoglobin to markers of iron storage. In our blood and body tissues, iron is stored in a protein called ferritin. Serum ferritin serves as a key indicator, acting as a proxy for the body's iron reserves.

Yet interpreting ferritin levels requires caution, as inflammation — common in surgical patients due to underlying conditions or the surgical stress response — can artificially elevate ferritin levels, masking true iron deficiency. Recently updated guidelines in Ontario recommend diagnosing iron deficiency with ferritin below 30  $\mu\text{g/L}$ , with levels of 30-50  $\mu\text{g/L}$  suggesting probable iron deficiency.

Once identified, treating iron deficiency preoperatively becomes a cornerstone of modern patient blood management — an evidence-based approach focused on managing a patient's own blood resources, minimizing loss, and improving their physiological tolerance to anemia.



Traditional oral iron supplements face significant limitations in restoring iron levels.

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Traditional oral iron supplements face significant limitations: poor absorption (around 10 per cent), substantial gastrointestinal side effects affecting adherence (up to 70 per cent of patients), and ineffectiveness during inflammation. Furthermore, they require four to eight weeks for repletion, often exceeding the available preoperative window.

Newer oral agents such as sucrosomial iron have been demonstrated in Europe to have very few gastrointestinal side effects and have almost equivalent effect as intravenous (IV) iron.

Modern IV iron formulations offer significant advantages, bypassing intestinal absorption limitations to rapidly replenish stores even during inflammation. Studies show preoperative IV iron effectively increases hemoglobin, reduces transfusion needs by 30 to 40 per cent and improves functional outcomes. For patients with limited time before surgery or moderate to severe anemia, IV iron presents a compelling option.

Implementing systematic iron deficiency screening and treatment protocols at least 30 days preoperatively yields substantial benefits. Beyond reducing the need for blood transfusions, which carry risks of immune suppression, infection, and increased mortality — early intervention decreases infection rates, shortens hospital stays, improves wound healing, enhances recovery, reduces fatigue and ultimately leads to significant cost savings despite initial investment.

The evidence is clear: universal screening for iron deficiency, using appropriate diagnostic markers — both hemoglobin and ferritin — represents a high-value intervention critical for optimizing surgical care and the assessment of high risk populations. As health care providers and policymakers seek to improve outcomes while managing limited resources, addressing iron deficiency offers a rare opportunity to simultaneously enhance patient care and reduce overall costs.

Our patients deserve nothing less than this evidence-based approach to a common and correctable condition with a disproportionate impact on women and the most vulnerable in our society. The hidden crisis of iron deficiency in surgical care demands our attention-and our action.

Opinion articles are based on the author's interpretations and judgments of facts, data and events. More details