

CHANGE AGENTS

Medical laboratory professionals play essential roles in lab utilization improvement projects across Canada >>





Within the last five or six years, a grassroots movement began across Canada to improve the utilization of health care resources by reducing unnecessary tests, treatments and procedures. Choosing Wisely Canada launched in April 2014,¹ but medical laboratory services in certain provinces already had started lab utilization projects on their own initiative. In some cases, they added Choosing Wisely recommendations to their own locally generated improvements. In another example, they participated in a groundbreaking study that informed Choosing Wisely's *Using Blood Wisely* campaign, launched last fall.²

Medical lab professionals (MLPs) have played a variety of essential roles in these lab utilization projects. They have served as members on provincial lab utilization committees, worked on the frontlines to implement and communicate changes to lab test ordering algorithms, and participated as gatekeepers in research, prospectively auditing lab orders in a study that investigated whether intervention and supporting educational efforts would reduce inappropriate transfusions.

Committee Stakeholders

Health PEI Provincial Laboratory Services formed their Lab Utilization Committee in 2014. The committee includes chief technologists, lab clinicians and clinical information system managers. The committee meets every few months to identify ways to foster appropriate testing, implement improvement projects and review progress.

One testing target the team identified was hemochromatosis testing, which involves additional costs as Health PEI needs to send the samples off-island for analysis. "We saw a substantial number of orders without much oversight in terms of who was ordering the test and why," explains Brian Timmons, provincial technical director of laboratory services at Health PEI.

Kristen Mead, MD, who is the provincial medical director of laboratory services at Health PEI, adds, "We discovered many patients hadn't had a ferritin test." To address the issue, they created a new algorithm in the clinical information system that triggers an order for an extra tube of blood for ferritin with a hemochromatosis order and only allows the hemochromatosis test to proceed when ferritin is high or if there is a family history of the condition. If ferritin is not elevated, the system cancels the hemochromatosis request.

Implementation of the algorithm significantly reduced inappropriate hemochromatosis tests by 44 per cent in 2017, according to Timmons.

“We have had great successes with many improvement projects, especially when we created algorithms that automated changes,” says Dr. Mead.

“MLPs were involved as committee members and critical for implementing changes in the lab running the tests. MLTs are also great educators to clinicians on appropriate testing,” adds Timmons.

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Implementation and Communication

Horizon Health Network in New Brunswick also launched a lab utilization initiative in 2014. Their efforts to restrict inappropriate test orders led to significant decreases in several tests, including A1C, lipid profile, thyroid hormones, BNP/NT-proBNP (a marker of heart failure), ferritin, vitamin D and PSA tests. “Engaging clinicians throughout the process was one of the main success factors,” says Jennifer Shea, PhD, FCACB, division head of clinical chemistry at the Saint John Regional Hospital. “One of clinicians’ first pieces of feedback that we put into place was to build in a way for them to bypass restrictions for rare but valid exemptions.” For example, a physician may override an 80-day restriction for a repeat A1C test for a patient with other same-day appointments at the hospital on day 75 who travelled a sizable distance to the hospital.

Medical laboratory assistants (MLAs) and MLTs were instrumental in implementing changes and communicating with physicians and patients. “MLAs and MLTs, especially those collecting blood, were responsible for handling patients’ complaints when physicians didn’t put the right exception on the requisition,” says Shea. “We developed patient education materials to help patients understand the goals of lab utilization, why changes were necessary and to remind their



physicians to indicate exceptions that fell outside the guidelines.”

Shea encourages MLPs to engage clinicians and ask them why they request specific tests in their practices, share how those tests are run and explain potential analytical conflicts. “Clinicians are experts in treating patients; MLPs are experts in running laboratory tests. I think it’s crucial to develop mutual respect through open communication. The more we talk, the more we accomplish,” she says.

Shea also has found that lunch-and-learn sessions work well to foster communication and build bridges of understanding between lab and medical staff. “The Q&A at the end of a presentation is particularly instructive. It has been wonderful to see MLTs have ‘aha’ moments, such as understanding what’s going on with a patient in ICU where very minimal blood has been sent to the lab for testing, or to see nurses gain an appreciation for what causes hemolysis and how technical the job of an MLP is,” explains Shea.

Prospective Auditors

Red blood cell (RBC) transfusions are commonly overutilized,^{3,4} with an estimated one in four to five orders deemed unnecessary.⁵ Overuse is a problem on two fronts: Blood is a scarce resource, and despite careful matching, transfusions carry an increased risk of adverse reactions for patients.

From 2019 to 2020, researchers at 13 hospitals across Canada



collaborated in a large-scale quality improvement study called the Screening by Technologist and Auditing to Reduce Transfusions (START) study. Blood bank MLTs participated directly in the study by auditing medical charts to assess the appropriateness of RBC transfusions based on pre-set, validated criteria. These baseline audits were followed by additional measures, including adopting standardized guidelines and providing education to physicians and nurses to remind them about appropriate use. MLTs then performed prospective audits and called transfusion medicine physicians to discuss orders that fell outside the guidelines, and clinical teams received monthly feedback summaries. The goal of the study was to assess the impact of this multi-faceted intervention on unnecessary RBC transfusions in hospitals identified as having a baseline appropriateness rate below 90 per cent.²

The screening and auditing approach by MLTs demonstrated marked increases in appropriate RBC transfusions and single-unit transfusions, as well as a reduction in total RBC units transfused, with no impact on patient safety. Over a 15-month period, rates of appropriate transfusions increased from 74 to 85 per cent, and single-unit orders grew from 46 to 68 per cent of total orders across the 13 hospitals.² The START study informed the *Using Blood Wisely* campaign launched across Canada in October 2020.^{2,6}

Transfusion teams at hospitals in Regina and Saskatchewan participated in the START study. They were well poised to do so:



Looking for more information on how to be an agent of change?

Visit the Lab Wisely website to find resource utilization tools specific to the profession. This website includes seven recommendations on better lab utilization, a searchable database of all Choosing Wisely recommendations, communication tools to raise awareness and engagement, and more.



Go to labwisely.ca to get started.

They had started working on quality improvement projects in 2016 in response to a province-wide audit of physicians' RBC ordering practices by the Saskatchewan Transfusion Medicine Working Group. The Regina team, for example, created educational posters promoting the key message of transfusing only one RBC unit at a time in stable, non-bleeding patients as recommended by Choosing Wisely Canada and the Canadian Society for Transfusion Medicine. They reviewed and updated orientation resources for new physicians. They created pre-printed order sets for RBCs and intravenous iron as an option for adult patients with low ferritin, and guidelines on ordering oral iron. The transfusion team also worked with patient family advisors to improve consent forms and processes and promoted appropriate patient blood management strategies through presentations at the annual Saskatchewan Transfusion Medicine Symposium.

Together, these initiatives achieved a 7.8 per cent reduction in the number of RBC units transfused in Regina in 2017, despite a 2.5 per cent increase in patient volume over the same period. For 2017 and 2018 combined, the number of RBC units decreased by 19 per cent. Participation in the START study in 2019–2020, resulted in a further 18 per cent reduction in RBC units.

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“The quality improvement work we have done over many years has been very successful in improving patient care,” says Paula Van Vliet, CLT, MLT, ART, a transfusion safety manager with the Saskatchewan Health Authority in Regina. “I am very proud of our transfusion medicine MLTs, clinicians, transfusion medicine consultants, patient family advisors, nursing partners and data analysts.”

In the spring of 2020, MLTs throughout the Saskatchewan Health Authority started prospectively screening blood requests against transfusion guidelines to help ensure the appropriateness of orders. The approach was instrumental in helping to protect against blood shortages during the COVID-19 pandemic. Most hospitals also participated in the *Using Blood Wisely* quality improvement initiative. So far, two hospitals in Regina and two in Saskatoon have received the *Using Blood Wisely* designation, recognizing their quality improvement efforts in transfusion medicine.

These examples illustrate three ways lab professionals can get involved with lab utilization projects, but there are many more. Unnecessary tests and treatments are driven by many factors. Among these are the challenges associated with changing practice habits, even in the face of new evidence: not enough information for patients about risks and benefits of tests and treatments; lack of time for decision-making between clinicians and patients; and, outdated information systems encouraging excess ordering. MLPs have a professional responsibility to be advocates for the profession and patient care. See how you can keep the conversation going and become a change agent in your lab. ■



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