

How a Quality Improvement Initiative by Central Health Helped Reduce Unnecessary Pre-operative Testing at two Central Newfoundland Hospitals

Choosing Wisely Canada Recommendation

Do not perform standard baseline laboratory studies, electrocardiogram, or chest x-ray for asymptomatic pre-operative patients undergoing low-risk, non-cardiac surgery. <https://choosingwiselycanada.org/toolkit/drop-the-pre-op/>

Practice Points

1. Choosing Wisely Canada (CWC) offers guidance discouraging routine pre-operative testing for low-risk procedures, including tests such as hemoglobin (Hb), creatinine (CR), international normalized ratio (INR), and chest x-rays when there is no clinical indication.
2. These tests do not improve patient outcomes and may lead to further unnecessary investigations, anxiety, and cost.

Methods

1. In alignment with CWC, the legacy Regional Health Authority of Central Health initiated a quality improvement initiative to reduce low-value pre-operative testing by developing a standardized testing grid. This project supports the broader goal of establishing a Learning Health and Social System that integrates evidence-based practices into routine care.
2. A standardized pre-operative testing grid was developed to guide appropriate test ordering for adult surgeries across Central Health. This initiative was driven by local collaboration and involved iterative engagement across Surgery, Laboratory, Radiology, and Health Information Services.
3. The grid underwent 17 Plan-Do-Study-Act (PDSA) cycles before finalization in Dec 2018. Since implementation, the guidelines have required no revisions, and no further requests for changes have been submitted.
4. The initiative began in 2017 as a quality improvement project to develop a single, region-wide pre-operative testing form. The development process included multiple iterations informed by real-time feedback and consultation with a range of clinical and operational stakeholders.

5. The finalized testing grid was launched in Dec 2018. It has since served as a consistent tool to guide appropriate pre-operative ordering practices.

Results

- Two Central Health hospitals participating in the initiative, Central Newfoundland Regional Health Centre and James Paton Memorial Hospital, demonstrated clear reductions in low-value pre-operative testing. From 2017 through 2024, the use of all four targeted tests declined in low-risk surgical patients, with the most significant and consistent reduction seen in chest x-rays.
- Adherence to the grid became routine over time, and the decline in test ordering was sustained without further intervention. This demonstrates the effectiveness of local, engagement-driven quality improvement in changing clinical practice.

PRE-OPERATIVE TESTING GUIDELINES

Optional Label

Patient Name: _____

DOB: _____ HCN #: _____

Procedure Type: _____

Date of Surgery: _____

Physician: _____ (Signature Required)

White Blocks indicate **recommended** tests.

Dark blocks indicate tests **NOT recommended**.

Light Grey blocks indicate physician discretion

☐ Pre-Operative Testing **NOT** Required

Diagnostic Test	CBC	Kidney Profile (BCL)	Group & Screen	INR/PTT	Blood Glucose	Total Bilirubin	TSH	Urine	UPreg	EKG
	CBC	REN/FUP	BLTYABS	PT-INR/APTT	GLUCO	BILTO	TSH	URINAP	HCGU	
Pre-Operative Condition										
Age: greater than 70										
MSBOS Surgical Procedure (on Back)										
Hx of HTN, PVD, OSA, stroke, cardiac, pulmonary or renal disease.										
Diabetes										
Hx of Thyroid Disease										
Hx of Liver Disease, Bleeding Disorder, Anti-Coag Therapy (excluding Plavix or ASA)										
Steroid use within last 6 months										
Child bearing age (i.e. Menses, up to age 50, or, to one year post last menses)										
Procedures requiring Urinalysis										
Other										

Maximum Time Results Accepted
EKG – 3 mos
Upreg – 7 days

Labs – 30 days
INR/PTT – 7 days

NOTE: Patients can have their Blood Work or EKG done at the nearest Health Centre. Patients from other Health Authorities **MUST** bring all reports with you on the day of surgery.

Original – Laboratory copy Yellow – EKG copy Pink – Attach to Booking Form November 2018

Figure 1. Perioperative Testing Guidelines Grid Implemented Across Central Zone Hospitals

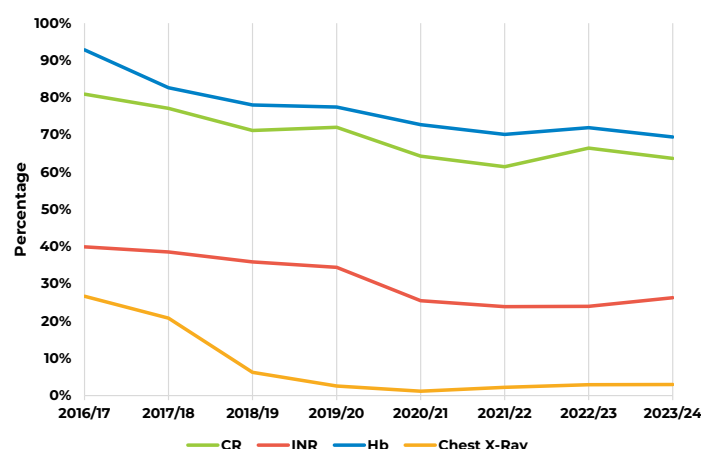


Figure 2. Percentage of Unnecessary Pre-operative Testing for Low-risk Surgical Patients Between 2016/17 and 2023/24 at Central Newfoundland Regional Health Centre

- Chest x-ray usage dropped dramatically from ~27% to under 5%.
- CR and Hb showed gradual declines, with CR decreasing from ~80% to ~64% and Hb from 93% to 69%.
- INR reduced from ~40% to ~26%, also showing a consistent downward trend.

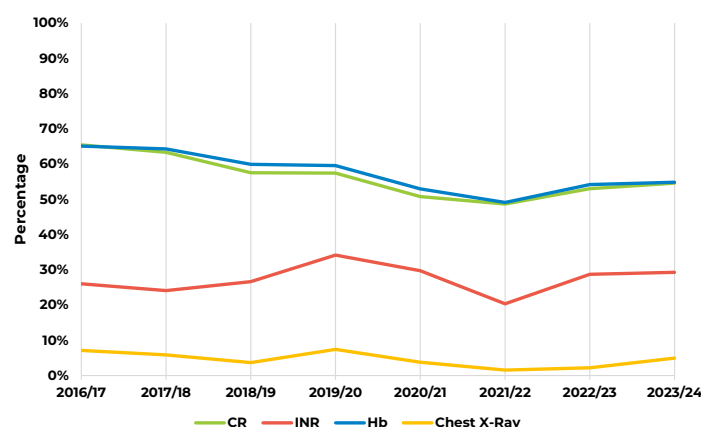


Figure 3. Percentage of Unnecessary Pre-operative Testing for Low-risk Surgical Patients Between 2016/17 and 2023/24 at James Paton Memorial Hospital

- Chest x-ray remained low throughout, starting around 7% and declining to under 5%.

- CR and Hb began near 65% and declined to about 55% by 2021/22, with a slight rebound post-COVID-19.
- INR showed more variability, peaking around 35% in 2019/20 before returning to 29% by 2023/24.

Conclusions

1. The development and implementation of a standardized pre-operative testing grid by Central Health represents a successful, locally led initiative aligned with CWC's recommendations. Through physician engagement, interdepartmental collaboration, and iterative quality improvement cycles, the project achieved lasting reductions in unnecessary testing for low-risk surgical patients.
2. The grid has remained unchanged since 2018 and has been embraced as part of routine practice. This long-term adherence underscores the value of clinician-driven change and supports a broader goal of establishing a Learning Health and Social System.
3. While pre-operative testing rates have declined, they likely remain higher than appropriate; continued learning cycles offer an opportunity for further reductions.
4. The pre-op testing guidelines developed in the Central Health Zone could be spread and scaled to benefit other hospitals and zones, while the Eastern and Western Zones have also undertaken initiatives with varying degrees of success.