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UNIVANTS™
OF HEALTHCARE EXCELLENCE

World-renowned research leads to live-saving measurably better healthcare for patients undergoing non-cardiac surgery

Approximately 200 million people undergo major non-cardiac surgery each year and, unfortunately, millions of patients experience complications. In more than a million cases annually, the complications can be life-threatening, including post-operative death within 30 days of surgery.

Leading experts at Hamilton Health Sciences Population Health Research Institute (PHRI) and McMaster University sought to improve patient outcomes by developing and implementing a clinical model that predicts risk of major perioperative events.

(L-R): P. J. Devereaux, MD, PhD, Director, Division of Perioperative Care, McMaster University; Matthew McQueen, MB ChB, PhD, Professor Emeritus, Pathology and Molecular Medicine, McMaster University; Peter Kavsak, PhD, Clinical Biochemist, Juravinski Hospital and Cancer Centre, Hamilton Regional Laboratory Medicine Program, and Professor, Department of Pathology and Molecular Medicine, McMaster University; Not pictured, but part of this winning care team, are: Daniel Sessler, Ralph M. Meyer and Emmanuelle Duceppe.

Their Vascular Events in Non-cardiac Surgery Patients Cohort Evaluation (VISION) became a massive global initiative that included over 40,000 patients from 23 hospitals in 14 countries on 5 continents. The insights and unprecedented outcomes from their research led to over 30 peer-reviewed publications and multiple sub-studies with continued projects that further advance patient care. One of the most significant outcomes from their novel work includes a new diagnosis category of Myocardial Injury Due to Ischemia After Non-Cardiac Surgery (MINS) which was characterized and determined to be prognostically relevant as an independent predictor of 30-day mortality.

Their studies indicate that 84.2% of patients who experienced MINS would have undetected risk without their novel implementation of systematic troponin testing post-surgery.

Validity of the findings have been verified across different generations of troponin assays as well as different isoforms (Troponin I and Troponin T), enabling widespread application into routine clinical care.

One of the most notable recommendations from this work has been to implement pre and post-surgical troponin testing in patients undergoing non-cardiac surgery.

The testing allows for better identification of MINS and facilitates timely earlier interventions that lead to improved outcomes for patients and their families.

Another key recommendation originating from VISION studies is pre-surgical use of statins. Patients receiving pre-surgical statins experience significantly lower risk of all-cause mortality.

The findings from the VISION studies coupled with the data from the MANAGE trial (an international, randomized, placebo-controlled trial published in *The Lancet*) provides impressive evidence for the recommended use of 110 mg dabigatran twice daily to reduce the risk of a major vascular complication in patients with MINS.

All the above recommendations were developed and implemented with excellence into clinical use by an innovative and integrated clinical care team who were recognized with distinction for the 2019 UNIVANTs of Healthcare Excellence Program.

Among the many contributors who unified to achieve measurably better healthcare performance were the project leads and team recipients of the 2019 healthcare excellence award from UNIVANTS, as follows: **Dr. P.J. Deveraux, MD**, scientific leader of Perioperative Medicine at the Population Health Research Institute; **Dr. Matthew McQueen, MD, PhD**, professor emeritus in the Department of Pathology and Molecular Medicine at McMaster University; **Dr. Peter Kavsak, PhD**, clinical biochemist at the Juravinski Hospital and Cancer Centre and the Hamilton Regional Laboratory Medicine Program; **Dr. Daniel I Sessler, MD**, chair of Outcomes Research at the Anesthesiology Institute of the Cleveland Clinic; **Dr. Ralph M. Meyer, MD**, president of the Juravinski Hospital and Cancer Centre; and **Dr. Emmanuelle Duceppe, MD**, head of Perioperative Medicine PHRI.

Their novel use of laboratory medicine insights translated into actionable clinical care enabled measurable benefits to patients, payors, clinicians and their entire health system.

THREE KEY TAKEAWAYS:

1. Post-operative complications in patients undergoing non-cardiac surgery are common and can be mitigated.
2. Strategic use of pre and post-operative cardiac troponin testing can lead to significantly improved risk classification and better patient outcomes.
3. Interdisciplinary collaboration that integrates the VISION research findings into clinical practice can lead to improved clinician confidence, better patient management, mitigated health risks, and lower overall healthcare expenditures.