



Canadian Agency for Drugs and Technologies in Health (CADTH)
865 Carling Ave., Suite 600
Ottawa, ON Canada K1S 5S8

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Re: Capnography for Monitoring End-Tidal CO₂ in Hospital and Pre-hospital Settings

The Canadian Agency for Drugs and Technologies in Health (CADTH) has called for feedback on its report, "Capnography for Monitoring End-Tidal CO₂ in Hospital and Pre-hospital Settings: A Health Technology Assessment".

The Physician-Patient Alliance for Health & Safety (PPAHS), a non-profit dedicated to improving patient health and safety, believes that opioid safety, for patients receiving opioids in hospital and healthcare facilities, is the management and minimization of the risks of respiratory compromise, adverse events, and death through continuous respiratory monitoring with pulse oximetry for oxygenation and with capnography for adequacy of ventilation.

As the CADTH report states:

In 2012, the Canadian Anesthesiologists' Society (CAS) updated its guidelines to make capnography part of the standard of care in the practice of anesthesia in Canada. Specifically, the CAS guidelines require continuous use of capnography in monitoring patients during general anesthesia and sedation that corresponds to levels 4 through 6 on the Ramsay Sedation Scale. Despite strong clinical evidence for the use of capnography in general anesthesia and moderate to deep sedation, preliminary scoping discussions suggested that there may be a low rate of access or use of this technology in Canada.

PPAHS encourages the adoption of the CADTH report recommending the use of capnography monitoring by hospitals for monitoring the adequacy of ventilation of their patients receiving opioids for two major reasons - to save patient lives and to reduce hospital expenses and malpractice claims. Both of these reasons may not have been emphasized enough in the report.

Saving Patients' Lives

These are some of the patients that PPAHS has written about - all involving death or near death following administration of opioids:



PPAHS shared these patient stories at the inaugural meeting of the National Coalition to Promote Continuous Monitoring of Patients on Opioids. To read these patient stories, please click [here](#).

The National Coalition to Promote Continuous Monitoring of Patients on Opioids is a group of thought-leaders, producing data-driven financial results and sharing strategies to overcome barriers to continuous monitoring, in order to improve patient safety. Members of this coalition include the clinical community, patient advocacy, industry, regulators; hospitals representatives, and professional societies.

Co-convening organizations of the Coalition consisted of key health organizations, including the Anesthesia Patient Safety Foundation (APSF), the Institute for Safe Medication Practices (ISMP), the National Patient Safety Foundation (NPSF) and The Joint Commission.

Saving patient lives must never be forgotten, a point which may be overlooked by the reader of your report.

Reducing Hospital Expenses and Malpractice Claims

The CADTH report discusses the cost effectiveness of monitoring options, pointing out, for example:

for adult patients undergoing procedural sedation, the base-care incremental cost per respiratory failure averted for capnography with standard monitoring compared with standard monitoring alone was \$377 per respiratory failure avoided.

What may have missed in this discussion of cost effectiveness is the reduction of adverse events and decreased hospital costs, some of which include the experiences of these US hospitals (which have not been included in the report):

- **Joseph/Candler Hospitals** (Savannah, Georgia) celebrated more than 10 years of “event free” years of patient safety. As reported in the Anesthesia Patient Safety Foundation (APSF) newsletter, St. Joseph/Candler estimated that its potential expenses averted (not including potential litigation costs) was \$4 million and its 5-year return on investment was \$2.5 million.
- **Wesley Medical Center** (Wichita, Kansas) reduced its severe adverse events from 13% to 0%.
- **White Memorial Medical Center** (Los Angeles, California) has experienced a “better than fifty percent reduction in calls of rapid responses,” according to Richard Kenney, MSM, RRT, NPS, ACCS, RCP (Director, Respiratory Care Services, White Memorial Medical Center).

As Canada is a universal healthcare system, Canadian taxpayers themselves reap the rewards for improvements that reduce costs.

Improving Process

Lastly, the use of technology alone cannot improve patient safety and reduce adverse events. The involvement of people and process must also be considered, and may be missed by readers of the report who might adopt technology without an accompanying improvement of process.

As Eric Coleman, MD (Professor of Geriatric Medicine and Director of the Care Transitions Program, University of Colorado at Denver), said: “The value of medical checklists lies in their consolidation of a considered body of knowledge in one simple document.” As well, checklists assist with transitions of care and collaboration between different caregivers.

An example of such a checklist in the administration of opioids is the PCA Safety Checklist. The checklist was developed in conjunction with renowned medical experts, including intensive care specialist and a leader in medical checklist development Peter J. Pronovost, MD, PhD, FCCM, Professor, Departments of Anesthesiology/Critical Care Medicine and Surgery, The Johns Hopkins University School of Medicine and Medical Director, Center for Innovation in Quality Patient; and Atul Gawande, MD, Professor in the Department of Health Policy and Management at the Harvard School of Public Health, who is a surgeon at Brigham and Women's Hospital Professor of Surgery at Harvard Medical School and author of "The Checklist Manifesto."

The PCA Safety Checklist reminds caregivers of the essential steps needed to be taken to initiate patient-controlled analgesia (PCA) with a patient, and to continue to assess that patient's use of PCA. The PCA Safety Checklist is a free download at <http://www.ppahs.org/pca-safety-checklist-download/>

We encourage clinicians to read your report, "Capnography for Monitoring End-Tidal CO₂ in Hospital and Pre-hospital Settings: A Health Technology Assessment" and continuously electronically monitor patients receiving opioids.

Best regards,
Michael

A handwritten signature in cursive script that reads "Michael Wong".

Michael Wong, JD
Founder/Executive Director
Physician-Patient Alliance for Health & Safety