CANADIAN ANESTHESIOLOGISTS' SOCIETY
Société canadienne des anesthésiologistes

Dr. Cynthia K. Colapinto
Director, Policy and Data Division
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Health Canada
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Ottawa ON K1A 0K9

Re: Canadian Anesthesiologists' Society feedback on the Critical and Vulnerable Drug List

Dear Dr. Colapinto,

On behalf of Canadian Anesthesiologists' Society (CAS), we want to thank you for giving us the opportunity to provide input into the Critical and Vulnerable Drug List. Over the last few years, the ability to deliver safe and consistent anesthesia care has been challenged by continuous drug and equipment shortages, which have required multiple safety initiatives. We are grateful that CAS was invited to become part of these conversations, and we are most encouraged to see follow-up on an earlier suggestion to create and maintain a list of critical drugs for proper access to medical care for Canadians.

Unfortunately, we believe that many of the critical drugs used in both anesthesia and critical care are missing and could have dire consequences if they were to become back ordered.

Below is a list of medications that are essential for anesthesia and critical care, that should be considered for inclusion on the Critical and Vulnerable Drug List:

1. Propofol

Use: Induction and maintenance of general anesthesia. Used in the vast majority of IV anesthesia induction.

Why Critical: Rapid onset and smooth recovery, often used for both sedation and general anesthesia. Propofol is the only safe option for anesthesia in patients in whom anesthetic gases are unsafe & contraindicated, e.g., malignant hyperthermia, mitochondrial disorders, multiple pediatric syndromes. Propofol is also used extensively in critical care for both sedation and treatment of acute conditions

such as status epilepticus and severe head injuries A shortage would have tremendous effects on our capacity to give timely anesthetics to elective, emergent and critically ill patients.

2. Sevoflurane

Use: Volatile anesthetic for inhalation (used to maintain general anesthesia).

Why Critical: One of the most commonly used agents for both pediatric and adult anesthesia. It is particularly critical in pediatrics where inhalation induction is the default practice.

3. Rocuronium

Use: Non-depolarizing neuromuscular blocker used for muscle relaxation during surgery.

Why Critical: Often used in rapid sequence intubation and for general muscle relaxation. Many surgeries could not be performed without it, rocuronium does not have any equivalent replacement.

4. Midazolam

Use: Benzodiazepine, used for preoperative sedation and anxiolysis.

Why Critical: Fast onset and short duration of action; commonly used to reduce anxiety or induce conscious sedation. It is the agent of choice for sedation for many diagnostic procedures such as gastroscopies, colonoscopies, bronchoscopies, minor surgery, etc.. It is the only sedative which has an antidote (flumazenil) and therefore makes it a safer alternative for sedation purposes. It is extensively used in pediatric anesthesia practice for 'pre-sedation' in frightened, nervous children. Like Propofol, Midazolam is also an important factor in the treatment of status epilepticus.

5. Lidocaine and Bupivacaine

Use: Local anesthetics, also used intravenously to treat arrhythmias (lidocaine).

Why Critical: Provides local anesthesia for various procedures (allows for surgeries under regional anesthesia for better pain control, faster discharge and safer anesthetics (for patients at risk for general anesthesia) and as an antiarrhythmic agent for emergency situations (Lidocaine). Its shortage would increase length of stays in hospitals as well as increased opioid consumption in the post-operative period.

6. Dantrolene

Use: Treatment for malignant hyperthermia (a rare but life-threatening complication of anesthesia).

Why Critical: Essential for the treatment of malignant hyperthermia (which can be fatal), which can occur during the administration of certain anesthetics. Dantrolene is THE ONLY treatment available for MH and, as per CAS standards and guidelines, its physical proximity to the anesthesia provider is a mandatory requirement before administering general anesthesia.

7. Sugammadex

Use: Reversal agent for rocuronium (non-depolarizing neuromuscular blockers).

Why Critical: Rapid and effective reversal of neuromuscular block, especially important in surgical settings.

8. Furosemide (Lasix)

Use: Diuretic, sometimes used in anesthesia to manage fluid overload or pulmonary edema. Used in critical care regularly to manage fluid overload. One of the agents used in the treatment of hyperkalemia, which applies to both anesthesia and critical care.

Why Critical: In certain situations, managing fluid balance and edema is crucial in perioperative care. Furosemide does not have any equivalent replacement.

9. Ephedrine

Use: Vasopressor, used to treat hypotension during anesthesia

Why Critical: Effective in treating intraoperative hypotension, especially during spinal or epidural anesthesia.

10. Phenylephrine

Use: A vasopressor for managing hypotension.

Why Critical: Used for intraoperative hypotension, especially when other agents like ephedrine are ineffective.

11. Milrinone

Use: Inotropic agent and vasodilator. Milrinone is primarily used in the management of acute heart failure (especially in patients with low cardiac output) and cardiogenic shock. It is often used in ICU settings to improve heart function temporarily.

Why Critical: Milrinone is considered a key drug in advanced heart failure management and in critically ill patients requiring temporary circulatory support. It is particularly useful for:

- Patients with low cardiac output who do not respond to other inotropes like dobutamine
- Patients with right-sided heart failure or those on mechanical circulatory support
- Post-cardiac surgery to support cardiac function

A shortage of milrinone could severely compromise the management of patients in shock or with severe heart failure, particularly those requiring inotropic support during critical moments, such as post-surgery or during acute exacerbations of heart failure. It may also result in the need to use other less effective or more risky alternatives.

12. Dobutamine

Use: Inotropic agent. Dobutamine is primarily used in the management of heart failure, particularly in patients with low cardiac output and cardiogenic shock. It's often utilized in acute settings to improve heart function temporarily, particularly after surgery or during severe cardiac decompensation.

Why Critical: Dobutamine is vital in acute heart failure and cardiogenic shock due to its ability to:

- Improve cardiac output by increasing contractility without significantly raising systemic vascular resistance
- Support patients with low cardiac output after major surgeries like coronary artery bypass grafting (CABG) or heart valve surgery
- Provide short-term support in critically ill patients while awaiting recovery, heart transplant, or other interventions

A shortage of dobutamine would be significant in the management of acute heart failure or cardiogenic shock, particularly in ICU and post-surgical settings. It would force healthcare providers to rely on alternatives like milrinone (which has different effects and potential risks) or dopamine, which may not be as effective or have a different side effect profile. In critical care, dobutamine is often preferred for its targeted inotropic effect and minimal impact on blood pressure, making it essential for stabilizing patients with compromised cardiac function.

13. Labetalol

Use: Beta-blocker with alpha- and beta-adrenergic blocking properties. Labetalol is primarily used to manage hypertension (high blood pressure) and control blood pressure in hypertensive emergencies. It is also used in the management of acute aortic dissection, preeclampsia, and perioperative hypertension.

Mechanism of Action:

- Beta-Blockade: Labetalol blocks β1 and β2 receptors, which results in decreased heart rate, decreased contractility, and reduced myocardial oxygen demand
- Alpha-Blockade: It also blocks α1 receptors, leading to vasodilation and a reduction in systemic vascular resistance, which helps to lower blood pressure
- This combined effect of alpha and beta blockade makes labetalol effective in reducing both heart rate and blood pressure, while also minimizing reflex tachycardia (a common side effect of alpha blockers)

Why Critical: Labetalol is particularly important in the acute management of severe hypertension due to its unique ability to:

- Rapidly lower blood pressure in hypertensive emergencies or crises (e.g., preeclampsia, eclampsia, acute aortic dissection, pheochromocytoma)
- Control perioperative hypertension, especially during surgeries involving the heart, brain, or large vessels, where blood pressure control is critical in preventing complications like stroke or myocardial infarction
- Manage hypertensive patients with comorbidities, especially those with heart failure or angina, because labetalol has less risk of worsening symptoms compared to pure beta-blockers

A shortage of Labetalol would be concerning because it is a first-line agent for hypertensive emergencies and acute blood pressure control in specific critical settings. Without labetalol, healthcare providers would likely turn to alternative medications like nitroprusside, nicardipine, or esmolol, which may have different dosing, side effect profiles, or less combined alpha and beta-blockade. The lack of a reliable and versatile blood pressure control drug in critical care settings could result in impaired management of hypertensive emergencies, leading to increased risk of organ damage, stroke, or cardiac events.

The 13 drugs listed are fundamental to anesthesia practice, and a shortage of any of them could significantly impair anesthesia care, increase risks for patients, and complicate surgical outcomes.

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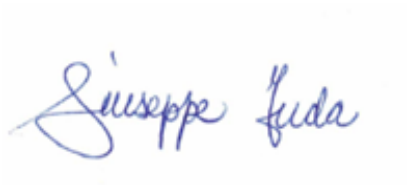
Shortages of these medications should be considered an emergency in healthcare systems. We ask that all be included on Canada's Critical Care and Vulnerable Drug List.

Should you have any questions, please contact us directly. We would be happy to discuss this matter further with you at your convenience.

Sincerely,



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