

Development of Critical Care Pharmacotherapy Toolkits for Hospital Pharmacists in Québec, Canada

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1 Introduction

Patients admitted to the intensive care unit (ICU) require complex pharmaceutical care.

Pharmacists newly entering critical care practice often face a steep learning curve related to:

- ~ Mechanical ventilation
- 📊 Physiologic monitoring
- ♥ Shock management
- ⚙ Pharmacokinetic alterations in critical illness

Members of the RPESI identified a need for concise, evidence-based, practice-ready resources that could support pharmacists unfamiliar with ICU practice and provide rapid clinical guidance during routine care and on-call shifts.

2 Aim

To develop a series of concise critical care pharmacotherapy clinical toolkits that:

- ✔ Facilitate knowledge acquisition
- ✔ Promote standardized pharmacy practice
- ✔ Support pharmacists with limited ICU experience
- ✔ Provide quick-reference clinical resources

3 Methods

PHASE 1 · TOPIC SELECTION

RPESI members conducted brainstorming sessions and selected priority topics based on common ICU practice needs. Selected topics:

Mechanical ventilation	System-based patient assessment	Shock and vasoactive medications	Pharmacokinetics in critically ill patients
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PHASE 2 · DEVELOPMENT PROCESS



4 Results

✔ TOOLKIT PORTFOLIO PUBLISHED IN 2026

- Mechanical Ventilation
- System-Based Clinical Assessment

🔴 UNDER DEVELOPMENT

- Shock and Vasoactive Medications
- Pharmacokinetics in Critical Illness

5 Key Features of the Toolkits

- 📖 **Evidence-based**
Grounded in peer-reviewed literature, current clinical practice guidelines, and expert ICU pharmacist consensus
- 🕒 **Accessible**
Concise, bedside-ready format designed for consultation in under two minutes
- 📊 **Standardized**
Provincial expert consensus supporting a uniform approach across all Québec health institutions
- 🎓 **Educational**
Supports structured onboarding and is used in the training of pharmacists, residents, and pharmacy students

6 Published Clinical Toolkits (2026)

~ Mechanical Ventilation	📖 System-Based Clinical Assessment
FOCUS Ventilation support and medication optimization	FOCUS Comprehensive assessment of critically ill patients
KEY TOPICS Ventilation modes Ventilator settings Monitoring parameters Complications Extubation Sedation & analgesia	KEY TOPICS Neurologic Cardiovascular Respiratory Gastrointestinal Renal & metabolic Hematologic Infectious diseases
PHARMACIST APPLICATIONS Pharmacotherapy adjustment Ventilator-associated care Sedation optimization	PHARMACIST APPLICATIONS Medication reconciliation Monitoring parameters Drug-related problems ICU-specific pharmacotherapy

Conclusion

A province-wide collaborative initiative led by the RPESI successfully developed and published the first two critical care pharmacotherapy toolkits. Through literature review, interdisciplinary peer review, and expert consensus, the project produced practical resources designed to support pharmacists unfamiliar with critical care settings while promoting standardized, evidence-based ICU pharmacy practice.

These resources aim to enhance safe and effective pharmaceutical care for critically ill patients across Québec hospitals.

IMPACT — THE FIRST TWO CLINICAL TOOLKITS PROVIDE PHARMACISTS WITH:

- Structured ICU assessment tools
- Standardized critical care references
- Practical pharmacotherapy guidance
- Educational support for workforce development

