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memo

Date:	April 13, 2020
To:	All Northern Health Staff
From:	Emergency Operations Centre (EOC) Dr. Ronald Chapman, VP Medicine NH COVID-19 Therapeutics & Treatment Committee NH Pharmacy Services
Re:	**Novel coronavirus (COVID-19)** – Medication Conservation Strategies for Critical Care Drugs

Demand for various medications has increased within the context of the COVID-19 pandemic. **Drugs of high concern are propofol, midazolam, ketamine, cisatracurium and fentaNYL.** We currently have sufficient supply of salbutamol and ipratropium inhalers; however, judicious use is advised as future availability may also be limited.

In an effort to reduce the risk of depleting NH stock, NH Pharmacy Services has worked to source additional product and redistribute existing stock throughout the region. There are also collaborative efforts at the provincial and national level including redistribution of medications between health authorities as required.

The following conservation strategies should be strongly considered at this time *(consider patient specific factors when determining appropriate alternatives*):

Sedatives:

- **Procedural Sedation:**
  - Consider benzodiazepines and opioids in place of or adjunct to propofol or ketamine.
- **Operating Room Use:**
  - Consider using alternate induction agents or adjuncts to reduce propofol induction dose as clinically appropriate (i.e. avoid TIVA as appropriate).
- **ICU Sedation in Mechanically Ventilated Patients:**
  - Consider alternatives to propofol and midazolam, per recommendations on page 2.

Opioids:

- Consider HYDROmorphone or morphine infusion in place of fentaNYL as clinically appropriate.
- Consider early addition of PO/subcutaneous HYDROmorphone or morphine intermittent dosing (scheduled or PRN) to allow weaning of fentaNYL infusion.
- When required, use smaller vial sizes of fentaNYL as appropriate to reduce waste.
- Add scheduled acetaminophen for opioid sparing effect *(NSAIDs not routinely recommended in critically ill patients).*
- Consider and treat neuropathic pain as indicated.

Bronchodilator Multidose Inhalers (MDIs):

- Reserve salbutamol and ipratropium MDIs for patients with bronchospasm or underlying lung disease (i.e. asthma, COPD).

Additional Guidance for Medication Conservation for Sedation Management:

General Considerations to Minimize Overall Sedation Requirements	
Review home medications and identify any medications that patient could have withdrawal from (e.g. antidepressants, antipsychotics, opioid and non-opioid analgesia) • ***Initiate at usual or adjusted dose as clinically appropriate*** ***Review social history*** for potential withdrawal • ***Initiate nicotine patch*** for nicotine withdrawal • Add PRN (+/- scheduled) ***benzodiazepine for EtOH withdrawal*** Assess for ***ICU related hypo- or hyperactive delirium*** (ICDSC score 4 or greater) • Treatment of choice: ***Non-pharmacological measures*** (e.g. eye glasses, hearing aids, window room, establish day-night cycle) • Pharmacological management: Dexmedetomidine IV or cloNIDine PO, antipsychotics (e.g. haloperidol, quetiapine, methotrimeprazine, OLANZapine)	
Suggested Strategies for Propofol Conservation	
Desired Sedation	**Recommended alternative/adjunct therapy**
Light sedation *RASS goal 0 to -1 or likely extubation in 24 to 48hrs*	Dexmedetomidine Bolus benzodiazepine (diazePAM or LORazepam) dosing PRN **If suspect delirium add antipsychotic (scheduled or prn)*
Moderate sedation *RASS goal -2 to -3*	Dexmedetomidine Bolus benzodiazepine dosing PRN +/- scheduled ***OR*** low dose midazolam infusion 0 to 5mg/hr **If suspect delirium add antipsychotic (scheduled or prn)*
Prolonged or Deep sedation *RASS goal -4 to -5 or no plan for exubation in 48 to 72hrs*	Midazolam infusion 0 to 20mg/hr Scheduled bolus dosing of diazePAM or LORazepam +/- PRN dosing
Suggested Strategy for Midazolam Conservation	
• Use diazePAM and LORazepam as benzodiazepines of choice for bolus dosing • Reserve midazolam for use as infusion when moderate to deep sedation is indicated • When required, use smaller vial sizes of midazolam as appropriate to reduce waste	
Suggested Strategy for Ketamine Conservation	
• Reserve use of ketamine infusion for patients that are experiencing bronchospasm affecting ventilation	

Questions or Requests for further guidance can be directed to:

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