

Statewide Anaesthesia and Perioperative Care Clinical Network

Guidance on potential changes to anaesthetic drug usage and administration during pandemic emergency pressures

The COVID-19 pandemic has affected services in many ways. The number of patients worldwide utilising critical care has increased demand for drugs in both anaesthesia and critical care while the supply chain disruption has significantly decreased supply.

Australia is not immune to this effect on anaesthetic medications – particularly the disruption to supply. In Queensland Health, hospital Directors of Pharmacy have access to the statewide medication dashboard that gives real-time information on essential medications in a pandemic allowing an understanding of availability and use – including hypnotics, sedatives, analgesics and neuromuscular blocking agents.

Anaesthesia and critical care providers must recognize that the medication under greatest pressure is propofol and that potential mitigations to be used in the management of such pressures must be identified. There is no readily available and suitable alternative to propofol in anaesthesia. There are often options in critical care, and for hospitals, clinicians and pharmacists this should facilitate thoughtful consideration of this situation.

Principles for departments of anaesthesia

- **ACT IMMEDIATELY** to appropriately minimise the use in anaesthesia of drugs needed in the care of COVID-19 patients in critical care*.
- Anaesthetists can continue to use first line drugs as supply holds up, but departments should consider plans for the use of alternatives, particularly where the first line choice falls into the category of being subject to potential demand pressures#.
- Decrease waste: only draw up what you will use. This includes emergency drugs.
- Decrease activity in response to medication shortages and only undertake appropriate procedures.
- Departments of anaesthesia and intensive care will need to collaborate with perioperative and critical care pharmacists in their institutions to decide on policies and practices ensuring drugs are prioritised appropriately across the two areas. This includes:
 - Review medication availability and pro-actively monitor usage especially as elective activity increases and / or COVID case-loads increase.
 - Devise safe ways to use all the contents of drug vials and ampoules and/or have different ampoule sizes available. For example: 1) consider using smaller vials more appropriate to a specific case to minimise wastage; and 2) work on mechanisms (in a sterile pharmacy production unit) and discuss opportunities to pre-make syringes (i.e. 2 x 100mg ketamine from 1 x 200mg) to minimize wastage.

Practice points

- Low flow anaesthesia will minimise medical gas use.
- Consider the use of processed EEG monitors for efficient use of both intravenous and inhalational anaesthetic drugs.
- Consider local and regional anaesthesia when practicable and safe.
- Consider inhalational agents for maintenance of anaesthesia over propofol infusions when / if the propofol supply becomes threatened.

Alternative techniques if supply chains threatened

Medications that may have supply issues	Alternative medication options
Induction	
propofol *#	thiopental sodium
ketamine #	thiopental sodium / midazolam #
Neuromuscular blockade - RSI	
suxamethonium #	rocuronium
Neuromuscular blockade - routine	
cisatracurium #	rocuronium / atracurium
vecuronium #	rocuronium / atracurium
Maintenance of anaesthesia	
propofol (TIVA) *#	sevoflurane / desflurane
Analgesia – short acting opioid	
fentanyl *#	alfentanil *# / remifentanil #
Analgesia – longer acting opioid	
morphine #	oxycodone #
Non-opioid analgesia	
paracetamol i.v. #	paracetamol oral or suppository ketorolac, diclofenac, parecoxib, celecoxib
Sedation and transfer	
propofol tci *	midazolam# / lorazepam# / diazepam / dexmedetomidine#
midazolam *#	lorazepam # / diazepam / clonazepam
Vasopressor by bolus	
metaraminol #	phenylephrine # / ephedrine
Vasopressor by infusion	
noradrenaline *#	metaraminol # / dopamine / vasopressin

* retain supplies of these drugs for use in critical care at times of increased demand during the COVID-19 crisis.

drugs which may be subject to demands pressure.

Acknowledgement: Adapted from the Royal College of Anaesthetists | Association of Anaesthetists, *Guidance on potential changes to anaesthetic drug usage and administration during pandemic emergency pressures*. 2 April, 2020. Accessed 24 April 2020 via: <https://icmanaesthesiacovid-19.org/drug-demand-supply-guidance>