

PICS Guidance on UK availability of paediatric critical care medications during COVID-19 pandemic

The COVID-19 pandemic is affecting different services in different ways across the UK. The increased number of adult patients requiring medications for intubation, sedation, inotropes and fluids for haemofiltration has exceeded the normal supply levels held by pharmacy departments. Consequently, some drugs are now being held nationally and supplied on an allocation basis, using figures from pharmacy databases to predict usage needs.

We are fortunate in paediatrics that we have not seen the same escalation for our patient populations. However, the 2nd and 3rd line options being used in adult services means that medications we routinely use are being affected. This will impact stand-alone children's hospitals, large teaching hospitals with paediatric services, district general hospitals and transport services in different ways.

As there are fewer alternative drug choices for use in PCC and the volumes required are vastly less than that utilised in adult practice, PICS strongly advocates that supply issues for the indicated first line drugs be maintained. Ketamine is an essential induction agent in critically ill children.

PICS have been working with paediatric intensive care pharmacists to produce some recommendations as follows:

- Ensure that your pharmacy department is taking into account your current and continued usage of the drugs in the table below. Usage comparative to adults is small, therefore practice may be able to continue as long as stocks are allocated accordingly
- Consider the options below as alternatives if 1st line stocks are unavailable. Co-ordinate decisions with local adult critical care networks as their practice will impact on the drugs available to you to purchase.
- Consider extending changing syringes to every 48 hours for certain drugs. There are discussions ongoing surrounding national recommendations on this topic. No blanket recommendation can be made at this moment in time, but communication will come out shortly.
- Discuss with your pharmacy departments other means of reducing waste such as vial sharing or production of small batches of pre-filled syringes and extending infusion times.

Implementation of these recommendations can help paediatric services to continue using 1st line medications for longer and will reserve stock for our adult colleagues where possible.

Note that supplies in the devolved nations may be being handled differently than in England.

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References/useful links:

<https://icmanaesthesiacovid-19.org/drug-demand-supply-anaesthetic-drug-usage-and-administration>

<https://www.sps.nhs.uk/wp-content/uploads/2020/04/COVID-19-Guidance-Minimising-Wastage-of-Critical-Injectable-Medicines-clinical-areas-V2b.pdf>

<https://www.cas.mhra.gov.uk/ViewandAcknowledgment/ViewAlert.aspx?AlertID=103029>

First line drugs/priority clinical indications	2 nd line alternatives	3 rd line alternatives
Induction		
Ketamine	Fentanyl (in combination with ketamine)	
Neuromuscular blockade - RSI		
Rocuronium	Vecuronium	Pancuronium/ atracurium (Suxemethonium in combination with atropine*)
Neuromuscular blockade infusion		
Rocuronium	Vecuronium	Atracurium/ pancuronium
Maintenance of sedation		
Midazolam	Clonidine	Dexmedetomidine/ propofol (clonidine/diazepam/ lorazepam/chloral hydrate/ antihistamine oral equivalents)
Maintenance of analgesia		
Morphine	Fentanyl	Clonidine (paracetamol iv/po, oral morphine, NSAIDs equivalents **)
Vasopressor infusions		
Adrenaline/ Noradrenaline/ (milrinone)	Dopamine	Vasopressin

* suxemethonium is not the muscle relaxant agent of choice in critically ill children. Many paediatric intensivists are unfamiliar with its use. More importantly its side effect profile (bradycardia) is more pronounced in paediatrics and this, in the context of hypoxia, can cause cardiovascular collapse.

** NSAIDs used less frequently in small children