CHANGING VASOACTIVE MEDICATION SYRINGE INFUSIONS

Version:	2
Author:	Critical Care Medication Workstream
Organisation:	Lancashire and South Cumbria Critical Care Network

RATIFICATION		
Group	**Date**	**Review Date**
Critical Care Clinical Effectiveness Group (CEG)	April 2026	April 2031
Initiating Forum		
Workforce Education and Training (WEaT)	April 2026	April 2031
Target Audience		
Adult Critical Care Workforce	April 2026	April 2031

The governing principles outlined within this document are fully supported in every respect by the Clinical Effectiveness Group.

Adaptation

Guideline Title	Version	Date Authorised	Review Date
Changing Vasoactive Medication Syringe Infusions	2	April 2026	April 2031

CHANGING VASOACTIVE MEDICATION SYRINGE INFUSIONS

Adapted from Guidelines for noradrenaline and adrenaline syringe changes (Critical Care Unit, St. George's Healthcare NHS Trust) cited in Morrice et.al. (2004)

Guideline Aim
This guideline aims to promote a safe, standardised process for critical care practitioners to follow when changing inotrope syringe infusions.

Target population
Adult Critical Care Practitioners responsible for the administration of inotrope infusion delivery

Guideline
Vasoactive drugs (e.g. inotropes), namely adrenaline and noradrenaline, are frequently used in critical care to maintain cardiovascular function. This is achieved by ensuring that a continuous infusion of the vasoactive drug is administered so that when one infusion is about to finish, another infusion is commenced. This is commonly known as "double pumping" or "piggy backing". Failure to administer these drugs appropriately may result in haemodynamic instability (hypotension and hypertension) and in extreme cases death.

The aim of this guideline is to promote evidence-based practice across the Adult Critical Care Units of Lancashire and South Cumbria with regard to the practice of changing inotropic syringe infusions. In doing so, instances of adverse events will be minimised and safer; standardised practice will be adopted. Vasoactive drugs, such as adrenaline and noradrenaline have a very short half-life and need to be infused continuously to maintain their therapeutic effect. The following guide is to help practitioners manage the changing of a syringe to ensure continuous therapy whilst maintaining haemodynamic stability.

- Inotrope infusions should be placed on a dedicated access line on the central venous catheter and should be delivered via a syringe pump, as these are thought to be associated with fewer adverse effects to patient blood pressure because they are designed to limit the time delay before the drug is delivered (Fox, 2000).

- When there is **1 hour or 5 mLs left** in the current syringe (whichever comes first), or the syringe will soon be out of date, the practitioner should be prepared for changing to a new syringe. The new infusion should have been prepared according to local policy and should have been placed in an empty syringe pump directly above or below the existing infusion at bed height prior to change. The infusion line should be already attached to the central line (or if a new line is being attached, it should be primed first, before attaching to the central line). **The new line/infusion should be clamped. Clamp until the syringe is loaded into syringe pump then release.**

- If the concentration of the vasoactive syringe has changed, a new line should be used and primed as above.
- Ensure all clamps are released then begin the new infusion **at the same rate** as the current infusion
- The new infusion will take several minutes before it reaches the patient and has clinical effect – the lower the infusion rate, the longer this will take.
- **Do not leave the patient** or perform other activities during inotropic syringe changes.

- Closely monitor the patient's blood pressure and when **a rise of >5-10 mmHg** is observed in the **systolic blood pressure (SBP)**, **PAUSE/REDUCE** the old infusion and continue to monitor the patient's haemodynamic status.

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- Once haemodynamic stability is achieved, turn off the old syringe pump and clamp this infusion line.
- A transient rise (or conversely drop) in blood pressure is to be expected. This will settle due to the short half-life of vasoactive drugs.
- Prepare a new infusion as per local policy, place into the syringe pump ready for your next syringe change.
- **Do not bolus inotropes**. If the patient becomes hypotensive during a syringe change, the recommended practice is to increase the infusion rate until the patient's blood pressure stabilises. The practice of administering a bolus during a syringe change is not recommended as this may further compromise blood pressure. If the blood pressure does not respond contact a senior decision maker for assistance.

LANCASHIRE & SOUTH CUMBRIA
Critical Care and Major Trauma Specialised Services Clinical Network

CHANGING VASOACTIVE MEDICATION SYRINGE INFUSIONS

Choose dedicated Central Venous Catheter line access to reduce risk of accidental vaso active drug administration and incompatibility

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Obtain syringe pump for vasoactive drug administration. Ensure syringe pumps are located together at bed height Encourage safe practice during syringe changes. Using high risk syringe drivers give accurate & constant flow pressure

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A syringe change is recommended when there is 1 hour or 5 mLs of the infusion remaining to ensure the syringe change occurs before the infusion runs out

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If the concentration of the vasoactive drug has changed the infusion line must be changed

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Place a new syringe into the pump, release clamp and **start infusion at the same rate** as the existing one.

Do not leave your patient during a syringe change

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Run both syringe pumps together until there is a rise **in SBP is seen of >5-10mmHg. PAUSE OR REDUCE** the empty infusion until assurance haemodynamic stability is achieved to minimise blood pressure variation & minimise start up delay of syringe driver

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Once haemodynamic stability is achieved, turn off the empty infusion pump, clamp the line and disconnect the previous infusion and discard as per local policy

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Prepare a new infusion, place in syringe pump ready for your next syringe change

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Document HR and BP on the observation chart. Complete medication chart documentation

DO NOT bolus inotropes

If the patent becomes hypotensive during a syringe change the recommended practice is to increase the infusion rate until the blood pressure stabilises. If blood pressure does not respond please seek medical advice

DO NOT leave the patient or perform other activities during this procedure

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