Sample Discard Guideline

Introduction

This document is a template for Organisations wishing to adopt a policy on managing blood sampling discard volume; who do not currently use a blood conservation device such as a VAMP (Venous Arterial blood Management Protection). A VAMP system eliminates blood waste associated with sampling[1].

Discard volume is the amount of fluid drawn pre-phlebotomy from an indwelling catheter; discarded to ensure accurate test results by avoiding contamination and dilution with the line flush fluid.

The guideline is intended for managing adult patients in an Intensive Care Unit (ICU) or High Dependency setting where blood is drawn from an indwelling catheter. It is **not** for use in -

- Venepuncture phlebotomy
- Paediatric and neonatal phlebotomy
- Patients in Theatre or ED
- Patients with long-term in-dwelling catheters such as VasCath or PICC lines

Aim

To support the reduction and standardisation of discard volumes associated with blood sampling; therefore reducing the risk of iatrogenic anaemia

Background

Iatrogenic anaemia (also known as Hospital Acquired Anaemia or Nosocomial Anaemia) can be caused by large or frequent removal of blood through sampling; therefore ICU patients are at increased risk[2].

When considering iatrogenic anaemia particularly in the critically ill, there are a number of publications recommending a reduction in phlebotomy by[3]:

1. Reducing discard volume pre-phlebotomy
2. Avoiding unnecessary testing
3. Minimising the amount of blood required for each test

Patient Blood Management (PBM) represents an international initiative in best practice for transfusion medicine[4]. It is a multidisciplinary, evidence-based approach to optimise the care of patients who may need a blood transfusion. PBM places the patient at the heart of decisions made about blood transfusion. This ensures they receive the best treatment and reduces inappropriate use of blood components.

Iatrogenic anaemia management is a National PBM 2014 recommendation; however, there is little published evidence recommending standardised discard volumes.

A review of the literature[5] and local audits of clinical practice has shown a considerable variation in discard volumes (between 2 – 20mls per sampling episode). ICU patients can experience a discard volume of up to 70mls per day[6] however it is acknowledged that this is a mixture of blood and flush fluid.

This document does not cover the overall management of arterial or central lines and reference should be made to relevant Trust Policies and manufacturer's instructions.

However there are some assumptions made by the writing team on the management of these lines –

- In ICU blood samples are generally taken from arterial lines
- The arterial line is maintained under a positive pressure with Sodium Chloride 0.9% W/V
- Arterial blood samples are taken from the transducer port (see Figure 1)

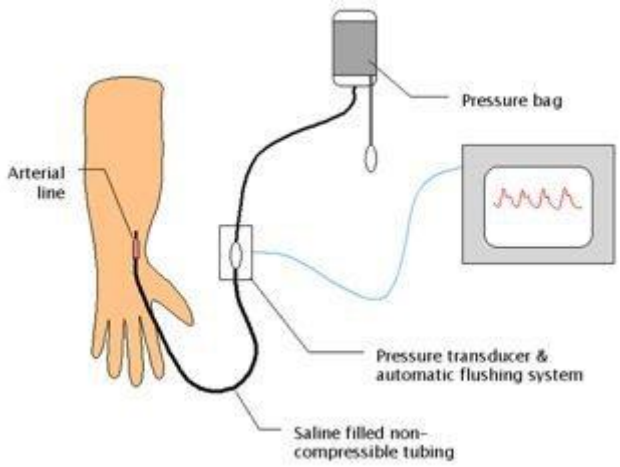

Figure 1- http://lifeinthefastlane.com/ccc/arterial-line/

- Blood samples can be taken from central lines which may be managed under pressure

Recommendations for discard volumes:

- Arterial line: **3mls**[7] (3x the dead space)
- Central line: **5mls**[8] (3x the dead space)
- Increase the discard volume if the port for aspiration is further away from the catheter insertion site (see Figure 1) and document on the patient chart so all staff are aware.
- The total volume of blood samples taken (including discard volume) must be recorded on the fluid balance chart

References

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2. Mukhopadhyay *et al*. The use of a blood conservation device to reduce red blood cell transfusion requirements: a before and after study. *Critical Care* 2010. 14-R7
3. Dech ZF, Szaflarski NL. Nursing strategies to minimize blood loss associated with phlebotomy. *Journal American Association of Critical-Care Nurses* 1996
4. Patient Blood Management: *http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/patient-blood-management* [accessed August 2016]
5. Koch *et al*. Contemporary Bloodletting in Cardiac Surgical Care. *The Society of Thoracic Surgeons* 2015
6. Genito-Tamaray K, McGinnis H. EB96 Preventing Iatrogenic anaemia by minimizing phlebotomy blood loss through use of a 3-way stopcock. *Critical Care Nurse* 2012. Vol 32, No. 2, 55-56
7. Burnett *et al.* Recommendations on whole blood sampling, transport, and storage for simultaneous determination of pH, blood gases, and electrolytes. International Federation of Clinical Chemistry Scientific Division*. Journal of the International Federation of Clinical Chemistry* 1994. 6:115-20
8. Bishop et al. Guidelines on the insertion and management of central venous access devices in adults. Corresponding author belongs to BCSH 2007. *http://www.bcshguidelines.com/documents/central_venous_access_management_guidelines_2006.pdf*

If any other relevant documents are available please contact the authors so the document can be updated as necessary.

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