

GUIDELINES FOR THE WARMING OF IV AND IRRIGATION FLUIDS

Authors (name and designation)	Lee Watkinson – Deputy Quality Assurance Manager
Version	3
Supersedes	Version 2
Approval Committee	Drug and Therapeutics Committee
Date approved	14th August 2018
Date issued	14th August 2018
Review date	August 2020

CONTENTS

<u>SECTION</u>		<u>PAGE</u>
1	Introduction	3
2	Purpose and Scope of Guidelines	3
3	Definitions as per NICE Guidelines	3
4	Warming Cabinets	3
5	Storage of IV fluids	4
6	Storage of Irrigation fluids	4
7	When things go wrong	5
8	References	5
Appendix 1	Maximum storage lengths	5

**** Please attach a copy of Appendix 1 to the front of your warming cabinet as a reference.**

1. Introduction

These guidelines have been written in response to NICE clinical guideline 65 - Inadvertent perioperative hypothermia - The management of inadvertent perioperative hypothermia in adults. Compliance with these guidelines is every member of staff's responsibility.

2. Purpose and Scope of these Guidelines

These Guidelines are intended to provide guidance to all staff on the warming and storage of IV fluids and irrigation solutions.

The purpose of these Guidelines is to:

- Ensure that all fluids are warmed and stored correctly
- Protect patients from inadvertent perioperative hypothermia.

3. Definitions as per NICE Guidelines

- **Hypothermia:** For the purpose of this guideline, hypothermia is defined as a core temperature less than 36.0°C (96.8°F). Severity of hypothermia was defined as follows: mild hypothermia: core temperature 35.0°C to 35.9°C; moderate: 34.0°C to 34.9°C severe: ≤ 33.9°C.
- **Perioperative** – pertaining or relating to the period of time surrounding a surgical procedure, including the preoperative, intraoperative, and postoperative periods.
- **Inadvertent** – unintentional.

4. Warming Cabinets

- Only IV fluids or irrigation fluids should be stored in the warming cabinet.
- Regular Stock checks and stock rotation should be performed.
- The temperature of the warming cabinet should be monitored using a separate maximum/minimum digital thermometer to the in-built cabinet thermometer.
- The current, maximum and minimum temperatures should be recorded at least once daily and any excursions should be investigated.
- The thermometer should be reset/memory cleared after the temperatures have been recorded each day.
- The cabinet must be regularly serviced and maintained in accordance with the manufacturer's instructions and a record kept supporting this.
- All staff using the warming cabinet must be trained in its use.
- The warming cabinet must comply with infection control standards.
- Regular unannounced audits can be carried out by Pharmacy or an appointed member of staff or department.

Advice on temperature monitoring can be sought from Quality Control Pharmacy, ext 4241.

NOTE Microwave ovens must **not** be used for warming IV fluids or irrigation fluids.

5. Storage of IV Fluids in a Warming Cabinet

- All intravenous fluids (500ml or more) used intraoperatively should be warmed to a temperature of 37°C (temperature must not exceed 40°C)
- IV Fluids should be kept in their over pouches until the point of use.
- Minimal stocks of each type of IV fluid should be kept in the cabinet at any one time. A stock list should be produced to ensure sufficient stock available at all times.
- Stock checks should be performed and stock should be rotated regularly, and expiry checks completed.
- IV fluid over pouches should be marked with permanent marker to identify the date they were put in the warming cabinet, and the date they need to be removed. Best practice is to use a permanent marker as labels can be removed or fall off.
- IV fluids should not be subsequently returned to the warming cabinet once removed, using a permanent marker on the IV fluid over pouches ensures products will not be returned to the cabinet.
- Length of storage is dependent on container type; please see Appendix 1 for specific container storage length information.

6. Storage of Irrigation Fluids in a Warming Cabinet

- All irrigation fluids used intraoperatively should be warmed to a temperature of 38 to 40°C.
- Only unopened Irrigation fluid containers should to be warmed. Once opened they should be discarded as they are no longer sterile.
- A small stock of irrigation fluids should be kept in the warming cabinet in case of emergency surgery, a stock list should be produced to ensure sufficient stock is available at all times.
- Extra stock can be added to the cabinet and date marked, when procedures identified as requiring warmed irrigation fluids are to be performed.
- Irrigation fluids should be marked with permanent marker to identify the date (and time for Baxter Plastic Pour Bottles) they were put into the cabinet, and when they need to be removed.
- Irrigation fluids should not be subsequently returned to the warming cabinet. Using permanent marker will help to identify they have been previously warmed.
- Stock checks should be performed and stock should be rotated regularly, and expiry checks completed.
- Length of storage is dependent on the type of Irrigation fluid and container type; please see Appendix 1 for specific storage length information of different containers and fluids.

7. When things go wrong

- Where an incident or near miss occurs this should be reported, managed and investigated in accordance with the Foundation Trust's Risk Incident and Reporting Policy. Regular audits will also take place.

8. References

1. NICE clinical guideline 65; Inadvertent perioperative hypothermia; The management of inadvertent perioperative hypothermia in adults, NICE, April 2008. Updated 2011 and 2015.

Appendix 1- These storage conditions apply to all baxter fluids kept in the following containers. E.g. 500ml Sodium Chloride 0.9% in a Baxter Viaflo container can be stored for 7 weeks at 40°C before being removed and put back into stock.

Type of container- individual fluids should be checked to determine the container they are in.	Maximum storage length when warmed	Maximum storage temperature when warmed	Can be used up to expiry date on container if previously warmed?
Baxter Viaflo 500mL	7 weeks	40°C	Yes. Do not return to the warmer.
Baxter Viaflo 1000mL	14 weeks	40°C	Yes. Do not return to the warmer.
Baxter Viaflex 500mL	2 weeks	40°C	Yes. Do not return to the warmer.
Baxter Viaflex 1000mL	2 weeks	40°C	Yes. Do not return to the warmer.
Baxter Uromatic Irrigation Solutions	2 weeks	45°C	Yes. Do not return to the warmer.
Baxter Easyflow Irrigation Solutions	2 weeks	45°C	Yes. Do not return to the warmer.
Baxter Plastic Pour Bottles	72 hours	65°C	Yes, if unopened. Do not return to the warmer.
B Braun Gelofusine 500mL Ecobag	3 months	40°C	No. Discard.
Fresenius Kabi Flowfusor bottles 1000ml & 2000ml	1 month	40°C	No. Discard
Fresenius Kabi Bags various sizes. Solutions containing glucose/dextrose	3 Months	40°C	No. Discard
Fresenius Kabi Bags various sizes. Solutions Free from glucose/dextrose	6 Months	40°C	No. Discard

