

## Aseptic Non-Touch Technique – Neonatal

This is the most current document and should be used until a revised version is in place

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### Key Amendments

Date	Amendments	Approved by

### Introduction

The Aseptic Non Touch Technique (ANTT) is the standard intravenous technique used for the accessing of all vascular access devices (VADs) regardless of whether they are peripherally or centrally inserted (Rowley et al 2010, Loveday et al 2014) and is the de facto standard aseptic technique in the UK (Rowley and Clare 2011).

Poor standards of aseptic technique are a fundamental cause of healthcare acquired infections (Department of Health 2003). The main focus of ANTT® is to minimise the introduction of micro-organisms, which may occur during preparation, administration and delivery of IV therapy. In order to further reduce the potential for contamination, the technique follows some fundamental rules pertaining to infection control and staff/patient protection such as effective handwashing, the wearing of non-sterile gloves, the principles of key parts/sites and the use of alcohol-based solutions for decontamination with adequate cleaning and natural evaporation of the alcohol.

Furthermore, standard ANTT is basic in nature and clearly defined, focusing on the essentials of all IV therapy regardless of intravenous device, administration route or clinical condition (Rowley et al 2010).

### Key parts and key sites

The underlying principles of ANTT are the protection of key parts and key sites, hence the concept of 'key parts and key sites' was applied to all types of IV therapy with the focus being on the equipment used and the protection of key equipment parts.

These key parts are the pieces of equipment that come into direct contact with the patient and therefore have the potential to transmit bacteria and/or micro-organisms and are usually parts of equipment that come into direct contact with the infusate (IV fluid/medication).

**Remember:** identifying and protecting key parts and key sites is paramount. Refer to table 1.1 for a list of key parts/sites.

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**Neonatal Key Documents****Table 1.1 list of key parts and key sites**

- Syringe tip.
- Needle – both the needle tip and the needle hub.
- Needleless access device attached on catheter lumen.
- IV infusion lines – includes several key parts such as fluid bag spikes, all bungs/caps/three-way taps, all infusion ports, the end of the infusion line which connects to the patient.
- Extension lines, (both the end that attaches to the IV administration set/syringe/bag and the point where tubing connects to the patient).
- VAD – vascular access devices refers to the hub of any central arterial / venous access device (CVL/UVC/UAC/PAL) or venous access device (PVL).
- Dressings – the parts of dressings that come into direct contact with skin.
- Sponge sections of the 2% chlorhexidine/70% alcohol applicators (e.g. ChloroPrep).
- Sterile gauze – the centre of the sterile gauze squares (used for dressing changes).
- Rubber tops of vials containing medications, etc.
- Ends of bungs used to protect syringe tips.

This is not an exhaustive list.

**Gloves**

Well-fitting gloves are another essential part of ANTT. They should be neither too small, with the potential to be punctured by wearer's fingernails, nor too large, as they may impede manual dexterity (Royal College of Nursing (RCN) 2010).

**Cleaning IV trays**

Correct decontamination of the IV trays is an essential part of the process. After the IVs have been administered, the IV trays are decontaminated as follows:

- Prior to use, the tray needs to be disinfected with a Clinell universal wipe and allowed to dry naturally.
- After use and prior to leaving the patient's cotspace or room, the outside of the tray must be decontaminated with a sanitising wipe (e.g. Clinell universal wipe)
- The tray can be cleaned using a sanitising wipe (e.g. Clinell universal wipe). The tray should be allowed to dry naturally (do not use a paper towel to dry the tray).
- Store all trays away from sink area to prevent re-contamination with water splashes.

**Disinfection of needleless access devices and catheter hubs**

A 30 second scrub is currently advocated using a clock for timings. Counting is very rarely accurate.

The effect of disinfection duration has a correlation with bacterial load on catheter hubs (Simmons et al 2011). Current recommendations from EPIC 3 (Loveday et al 2014, NICE (2012)) and the Centre for Disease Control (CDC) Guidelines (O'Grady et al 2011) are to use wipes containing 2% chlorhexidine in 70% isopropyl alcohol to clean the hubs of VAD and the needleless devices for between 30 seconds with friction and allowed to dry prior to use (Simmons et al 2011, Soothill et al 2009). Manufacturers' guidelines advocate a 30-second scrub. ANTT advocates the use of a scrub by placing the hub/needleless device tip in the centre of the wipe and scrubbing firmly before cleaning areas away from

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the tip. A study in a paediatric population recommended using 2% CHG/70% isopropanol and a 30-second scrub (Soothill et al 2009). Proper disinfection of the IV connector is crucial in preventing bacterial contamination of the intraluminal fluid pathway (Macklin 2010).

A study by Kaler & Chinn (2007) and Smith et al (2012) showed that prolonged contact with the wipe and the use of friction was effective in disinfecting needleless devices. Individually packaged containing 2% chlorhexidine in 70% isopropyl alcohol (Clinell, Sani-Cloth CHG 2%) are easily available and should be used as per recommendations.

If alcohol-based products are not allowed to dry naturally, then the antibacterial properties of the agent will be ineffective, placing the patient at risk of developing an infection (O'Grady et al 2002, Rowley et al 2010, RCN 2010).

**A 30-second scrub is currently advocated using a clock for timings. Counting is very rarely accurate.**

**Micro critical aseptic fields**

Maintaining the asepsis of all key parts is essential. This can be achieved with caps and covers. Individually packaged sterile caps are used to maintain a micro critical asepsis on syringe tips and any key parts.

**Accessing venous access devices and central lines**

When applying ANTT to intravenous therapy procedures, the actions required are the same when accessing all VAD whether they are peripheral, midlines or central.

It is essential that all staff involved in accessing VADs are fully trained to undertake the procedure and have been deemed IV competent.

**Step-by-step guide for ANTT**

1. Put on a red 'do not disturb' plastic apron (Rationale 1).
2. Wash hands for 30 seconds as per the Hand Hygiene Guideline using an appropriate hand-washing agent and dry thoroughly using hand towels.
3. Collect plastic tray. Immediately prior to use, the dry tray should be inspected for cleanliness and wiped with a 70% isopropyl alcohol wipe (eg Sani-Cloth 70). Disinfect all surfaces of the tray internally and then externally. Once cleaned, allow time to dry naturally.
4. Collect all necessary equipment, diluents, heparin, medications, etc. Calculate all medication dosages and any dilutions required. Write all required labels (Rationale 2).
5. Wash hands for 30 seconds as per Hand Hygiene Guideline, or use an alcohol hand rub (WHO 2009), (Rationale 3).
6. Put on pair of well-fitting non-sterile gloves straight from the box.
7. Open equipment by carefully peeling back packaging. Place syringe in the tray. Ensure key parts are uppermost/not in contact with tray (Rationale 4).

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8. Connect all needles to syringes and draw up and prepare all medications. Ensure all key parts remain uncontaminated. **If at any time you think you may have contaminated a piece of equipment, dispose of it immediately and use a new piece** (Rationale 5).
9. When all equipment/medication has been prepared, remove all needles from syringes and cover syringe tips with sterile cap (Rationale 6).
10. Take tray to the baby.
11. Locate the intravenous device to be used. Check the device and site.
12. If your gloves have become contaminated between preparation of IVs and going to the patient or from exposing the Vascular Access Device (VAD) remove gloves, perform hand hygiene and don a fresh pair of gloves (Rationale 7).
13. Firmly clean the needleless access device attached to the end of the device with a 2% chlorhexidine/70% alcohol wipe for 30 seconds using friction and different parts of the wipe. Allow to dry naturally, visibly checking that it is dry (Rationale 8).
14. Carefully remove syringe or line from tray taking care not to contaminate the syringe or line tip. Insert syringe(s) into the needleless access device and administer medications as prescribed. Remember to keep all tips uppermost and not in contact with the plastic tray.
15. When all medications have been administered, replace device to ensure safety (Rationale 9).
16. Dispose of all used equipment as per the 'Sharps: disposal of used sharps' guideline and Waste disposal policy.
17. Decontaminate the outside of the plastic tray prior to leaving the patient's bed space or room, with Clinell universal wipe and then clean the tray using a Clinell universal wipe away from patients cot space. Store in appropriate area away from the sink to avoid re-contamination.
18. If not already done so, remove gloves and wash hands thoroughly using an appropriate cleansing solution and dry thoroughly (Rationale 10).

**Table 1.2: Tips for maintaining ANTT**

- Do not drop your equipment into your tray.
- Ensure other equipment in the tray does not come into contact with the key parts (eg white bungs, blood bottles rolling around tray, extension tubing being placed on top of equipment/key parts).
- Remember to use the plastic trays/trolley. Always clean correctly before and after use.
- Do not use paper trays for IV preparations.
- Change gloves if they may have been contaminated.
- Gloves are not a replacement for good hand hygiene; therefore, staff must decontaminate their hands before donning and after removing gloves (Rationale 11).
- Due to hand contamination that occurs when collecting equipment and touching cupboard handles, etc. the aseptic hand clean must occur after this part of the process has been completed.
- Take care when inserting the needle into vials/ampoules not to touch the outer sides.
- Take care not to contaminate syringe tips when placing and removing covering bungs.

**Rationale**

Rationale 1: Dedicated coloured aprons specifically for IVs send a clear message to other people that IV administration is being undertaken and to help prevent interruptions that may lead to distractions and errors.

Rationale 2: To ensure the procedure is taken efficiently and prevent later contamination of gloves.

Rationale 3: To prevent any cross contamination from collecting equipment.

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Rationale 4: To prevent contamination of key parts.

Rationale 5: Using potentially contamination equipment can lead to an increased risk of infection.

Rationale 6: To prevent any risk of airborne contamination or key part contamination.

Rationale 7: To minimise cross contamination.

Rationale 8: To ensure adequate cleaning of the device/bung and enable the product to work effectively.

Rationale 9: Helps to prevent accidental dislodgement or damage to the VAD.

Rationale 10: To prevent cross contamination.

Rationale 11: To prevent cross contamination as the warm damp environment under gloves means that bacteria reproduce easily.

**REFERENCES**

Wren, C., Richmond, S. and Donaldson, L. (1999). 'Presentation of congenital heart disease in infancy: implications for routine examination'. Arch Dis Child, 80: F49-53.

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