



Value Life

INFUSION SYSTEMS



**bionector**<sup>®</sup>  
**Care & maintenance**  
of IV therapy at home  
PARENT GUIDE

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The general guidelines comprise of a number of important sections on the care and maintenance of your child's Bionector®. This includes the following:

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# Introduction

Depending upon the circumstances, some children may not require admission to hospital for continued IV therapy as certain treatments can be provided at home.

It can be daunting, and sometimes overwhelming, to have the responsibility of caring for your child's IV line and administering their drugs. Please remember that you can still access support from your dedicated hospital contact, community nurse, or GP, as well as the parent/patient information resources that you have been provided with.

A community nurse may still visit you at home to administer the treatment your child needs at the required times. Or, you may have been taught and assessed, and achieved the competency level to look after your child's IV line and to administer the medication required yourself.

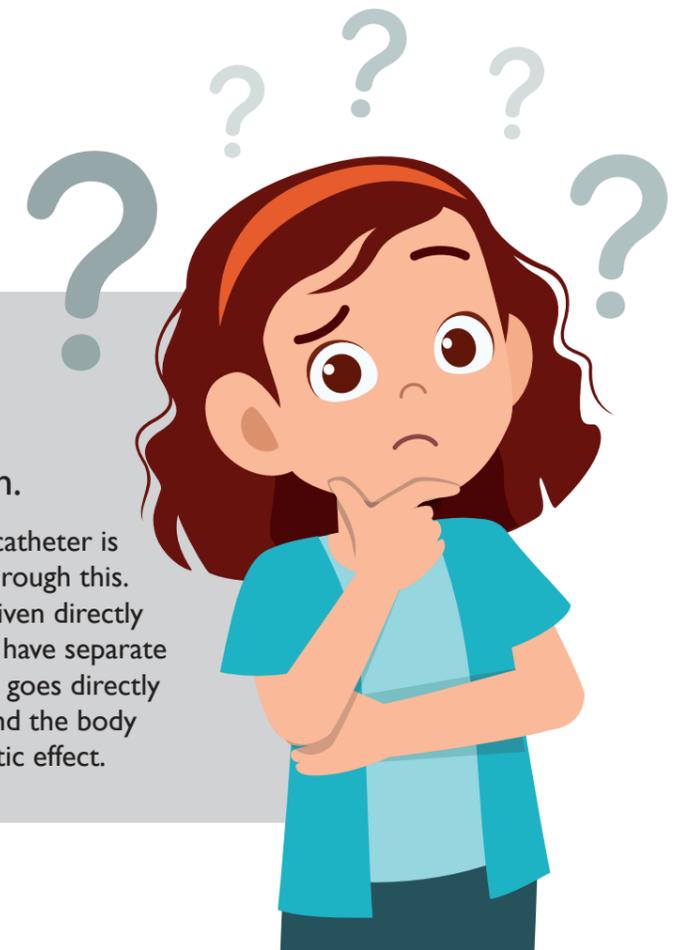
Your child will have either a cannula or catheter in situ.

It is important that the procedures for administering medication, caring for and maintaining the cannula/catheter are undertaken as advised by your child's healthcare provider, along with any other guidelines provided. Good care of the IV line will minimise the risk of infection and other associated potential complications.

## What is IV therapy?

Intravenous (IV) therapy is when medication is given directly into a vein.

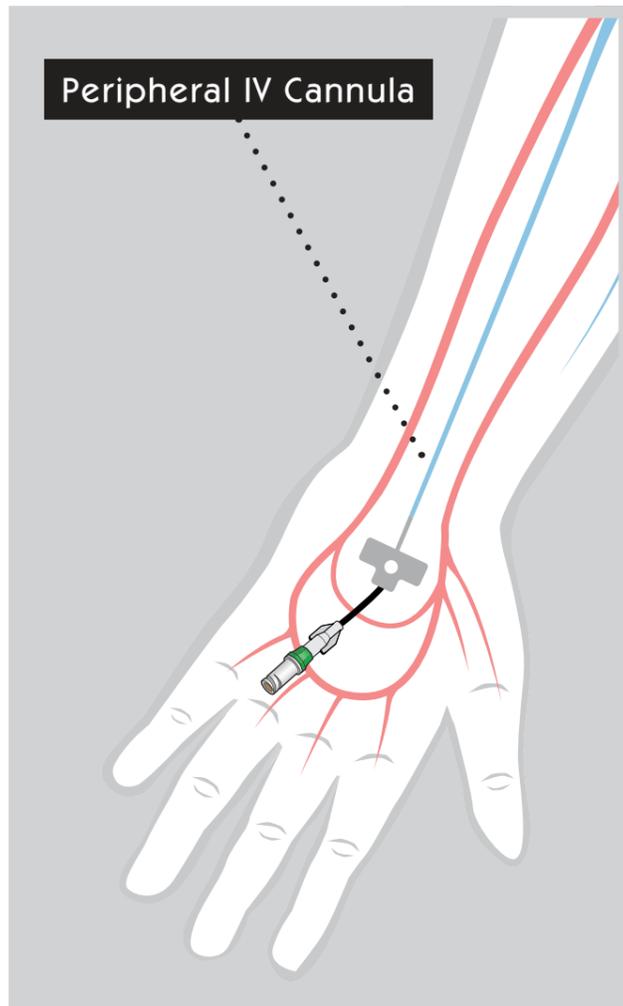
A flexible hollow plastic tube called a cannula or catheter is inserted into a vein and the medication is given through this. The cannula or catheter allow medication to be given directly into your child's bloodstream, without needing to have separate injections each time. Also, because the medication goes directly into the bloodstream, it is quickly circulated around the body allowing the medication to have a faster therapeutic effect.



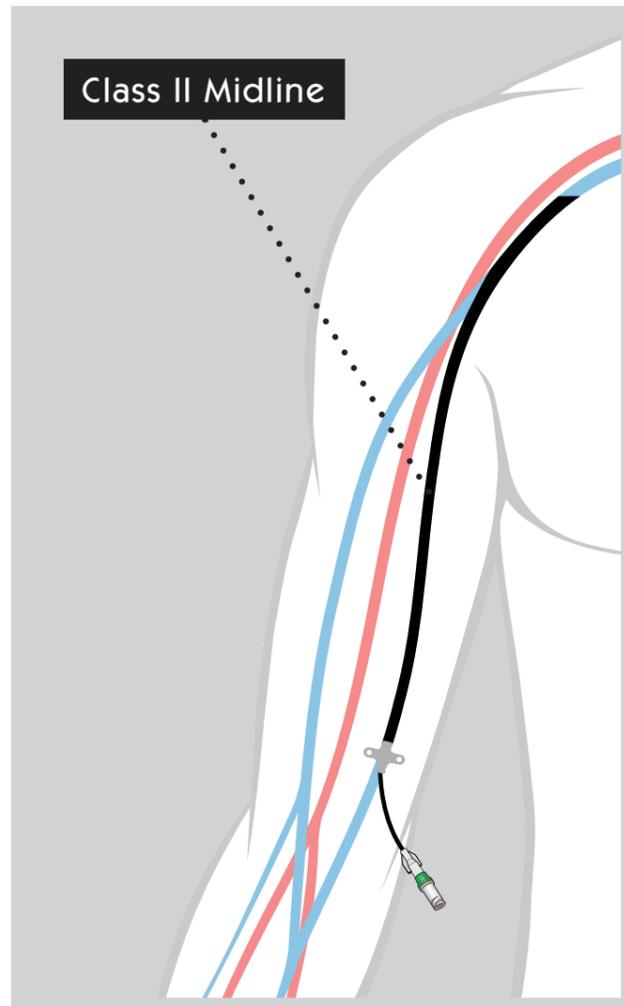
# IV vascular access devices

## What are the different types?

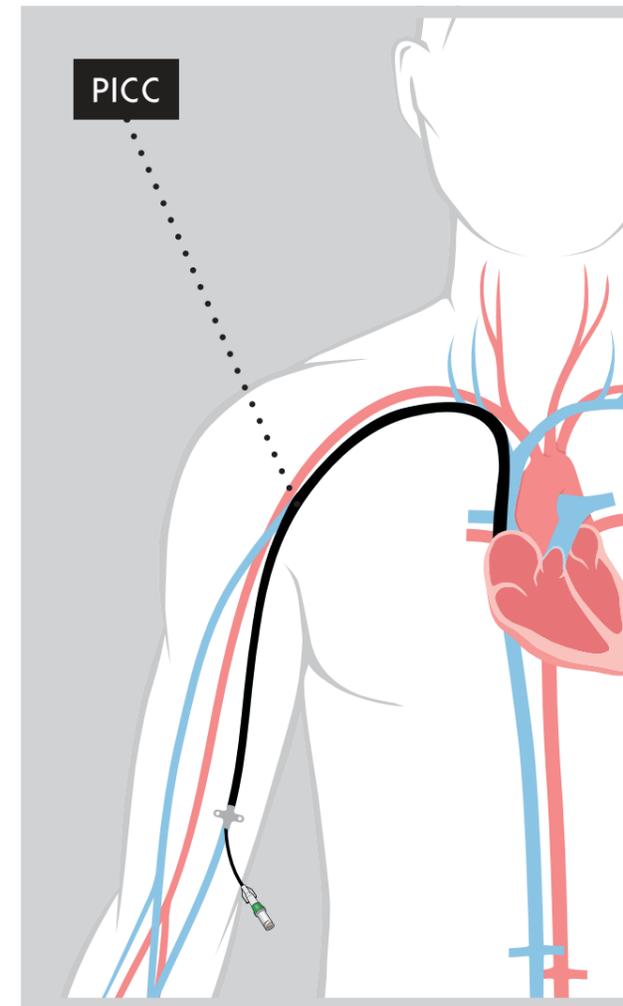
Your child may have one of the following:



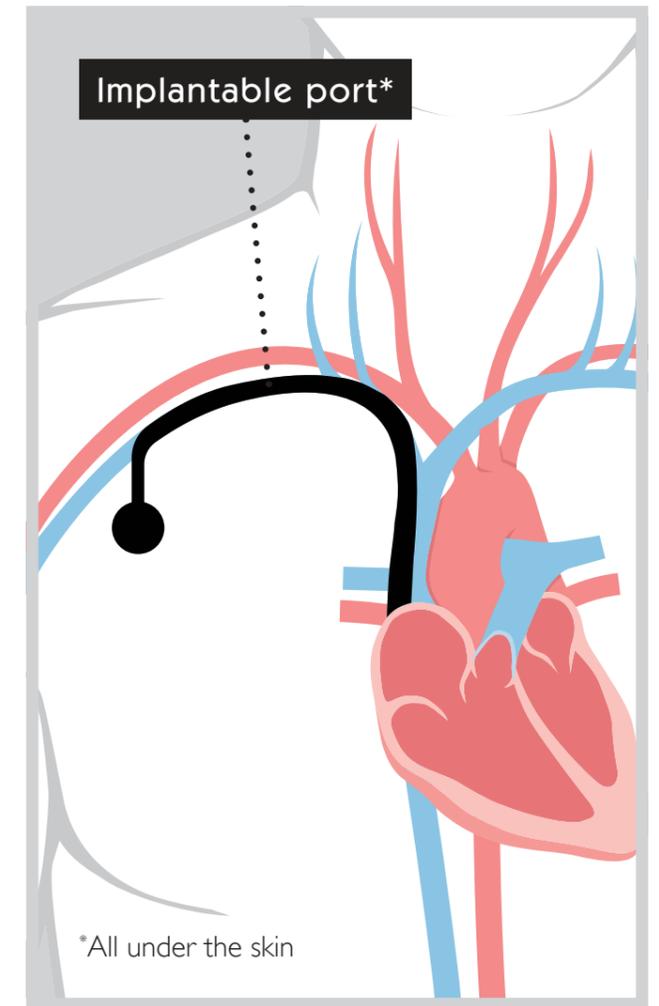
Peripheral IV Cannula



Class II Midline



PICC



Implantable port\*

### Peripheral IV cannula

- This is a short plastic tube in the vein that will be positioned in the hand or lower to mid-forearm
- It is for short-term use only
- In general, it has an indwell time of up to 7-10 days.

### Midlines

- This is a longer thin flexible plastic tube inserted into the vein
- The catheter hub will generally be positioned at the mid-forearm
- It is for intermediate-term use
- It has an indwell time of approximately six weeks.

### PICC

- This is a very long flexible thin plastic tube and the tip is positioned very close to the heart
- The catheter hub will generally be positioned at the mid-forearm
- It is for either intermediate or long-term use
- It has an indwell time of approximately one year.

### Implantable port

- The port and line lie subcutaneously (under the skin)
- The catheter tip is positioned in the heart
- It can be used for intermediate to long-term use, generally for long-term use
- It has an indwell time of many years.

# Home IV therapy

## What are the general advantages?

- Your child can be treated within your home environment. However, if this is not appropriate your child will have an appointment in a local clinic or hospital outpatient department
- Depending on the age of your child, independence may still be maintained
- It minimises the inconvenience and disruption to your child's daily activities, such as going to school
- It minimises the inconvenience of travelling time and the expense of hospital or clinic visits
- It can potentially reduce the distress and anxiety of hospital visits
- Your child will have access to a community nurse who will review your child at each home visit.



# Parent IV administration

## Competency

If you are a parent who will be administering IV medications and looking after an IV line at home, the procedures will have been reviewed with you and you will have been assessed by your child's dedicated healthcare provider to ensure your competency and that you are able and confident to do this at home.

You will probably have been assessed on the following five key competencies:



It is essential that these competencies are adhered to, to ensure safe practices in the management of your child's IV cannula/catheter and the administration of medication.

# General guidelines

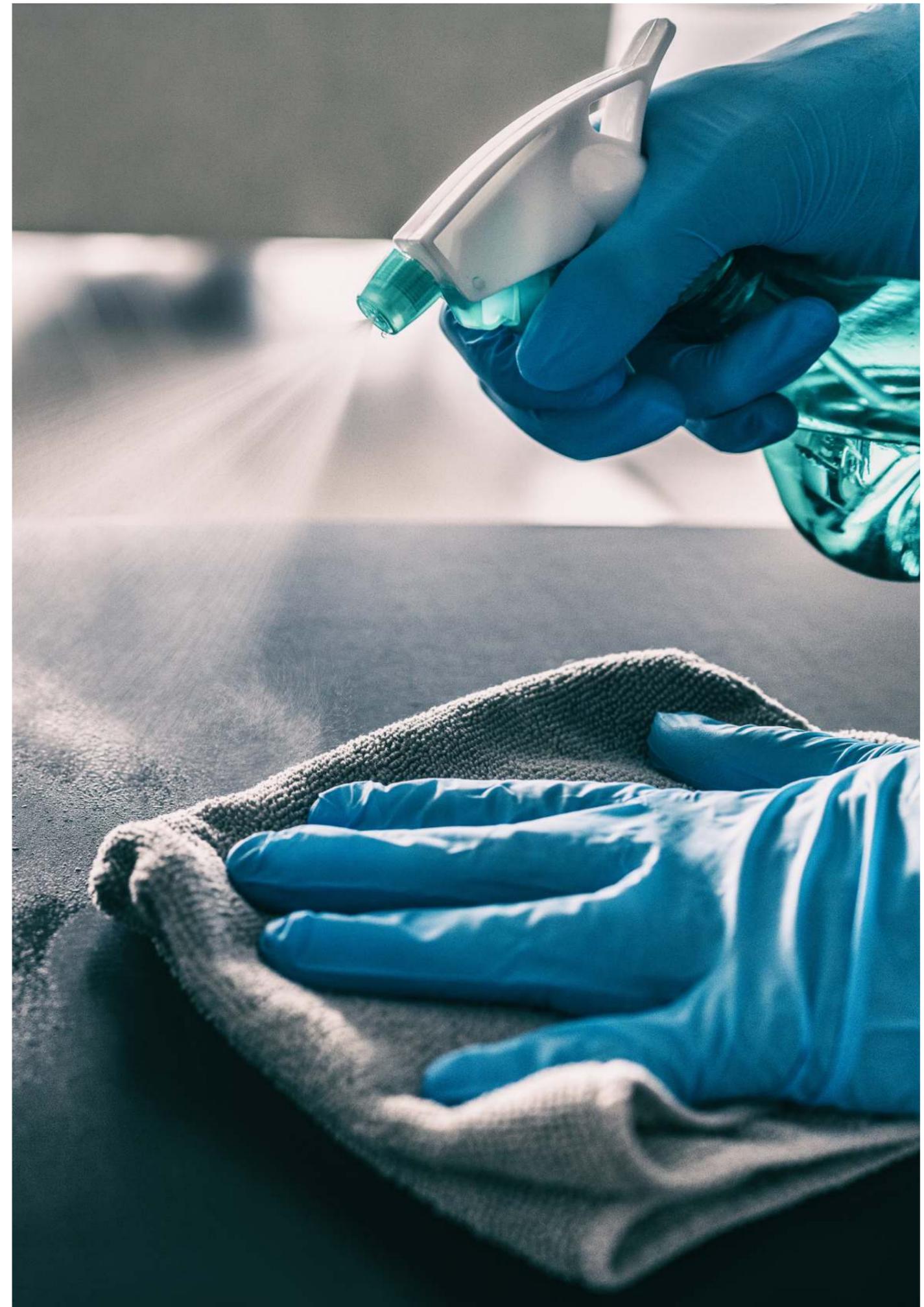
## Preparation

- Please ensure that the environment in which you are preparing the IV medication and equipment is a clean, preferably dedicated area
- Always ensure that your hands are washed, clean and dry. Have all the required equipment ready to hand, and carefully open them within your clean area
- You may have been provided with sterile procedure packs, disposable paper drapes/towels and a tray. The tray requires disinfecting on each use. The opened procedure pack and other equipment can be placed onto the tray after disinfecting.



## Please remember

It is essential that pets and other children are removed from the clean area that you have created to reduce the risk of cross contamination.



# Handwashing

## What is the recommended technique?

A nine step handwashing technique was devised by Ayliffe *et al.* in 1978. It is used regularly by healthcare professionals. Following the recommended handwashing technique may help to improve the care of your child's cannula/catheter. The technique uses a handwash solution (i.e liquid soap or antimicrobial preparation) and tepid running water, and each step consists of five strokes forwards and five strokes backwards. After handwashing, thoroughly dry your hands with a clean disposable paper/kitchen towel, before you put on disposable sterile or clean gloves.



**Step one**

Wet hands thoroughly before applying washing agent



**Step two**

Rub hands together, palm to palm



**Step three**

Place the right palm over the back of the left hand and rub in an upwards and downwards motion. Repeat with the left palm over the back of the right hand



**Step four**

Rub hands together palm to palm with fingers interlaced



**Step five**

With the backs of the fingers to the opposing palm, rub hands together with fingers interlocked



**Step six**

Wash each thumb by clasp and rotating it in the palm of the opposite hand



**Step seven**

Rub the fingertips of the right hand in a rotational motion on the left palm, and vice versa



**Step eight**

Rinse hands under running water. Note: Turn tap off using elbow or a clean disposable paper/kitchen towel



**Step nine**

Dry hands thoroughly with clean disposable paper/kitchen towel



**Final step**

Put on disposable sterile or clean gloves

# Aseptic Non-Touch Technique

It is important that an 'Aseptic Non-Touch Technique' (ANTT) is used for the care and maintenance of your child's cannula/catheter, and the preparation and delivery of medication.

The ANTT should be used throughout the IV therapy procedure, including when opening capped vials, needles and syringes, or any other device or equipment.

The ANTT aims to reduce/prevent microorganisms on hands, surfaces and equipment that could otherwise potentially be transferred into the body during IV therapy. This technique can prevent/reduce the risk of infection if undertaken correctly.

It is important to identify the 'key sites' and 'key parts' of a procedure, and to not touch them directly or indirectly. The key site is your child's cannula/catheter and the area of insertion. Key parts are the critical pieces of equipment, that if contaminated are most likely to cause infection. These include:

- Needles
- Syringe tips
- IV line connections
- Needle-free devices
- Exposed lumens of catheters
- Tops of ampoules.

## Infection prevention and control principles of ANTT

- Always decontaminate hands effectively
- Never contaminate 'key parts' of the equipment or the susceptible site
- Take appropriate infection prevention and control precautions, such as disinfecting ampoule/vial tops and IV cannula/catheter needle-free devices before and after use, and minimising the amount of times the catheter/cannula is touched or manipulated
- Wear disposable gloves
- Maintain high levels of cleanliness of the procedure tray or dedicated surface.



# Drug reconstitution and administration

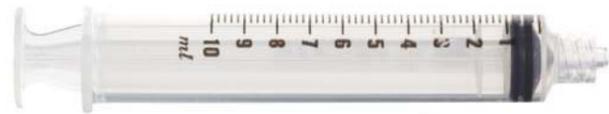
- Always adhere to ANTT
- Use a 10 mL syringe of 0.9% Saline to flush the lines before and after each drug is administered
- Powdered forms of medication should be mixed with sterile water in vials, as per the instructions provided
- Always accurately read the information provided with the medication you are required to administer. You may also be provided with guidance sheets
- Always purge the filled syringes and extension sets to remove any air, prior to connection
- When flushing and administering your child's medication, use the push/pause technique (stop/start motion). Your child's healthcare provider will have shown you how to do this during your competency assessment.
  - This method creates a turbulent flow of the infusions inside the cannula/catheter and vein, which minimises the mixing of incompatible medications or solutions, prevents the accumulation of medication precipitate inside of the catheter/cannula lumen, reduces the risk of blood clots, and reduces the risk of back flow (reflux).



# IV access

## Care and maintenance

- It is important that the needle-free device is cleaned thoroughly prior to access and after use
- This is the 'bung' that attaches to the Luer end of the cannula or catheter extensions
- It requires cleaning with a sterile wipe for at least 15 seconds and allowing to dry for at least 30 seconds before use
- Effective cleaning and drying time allows the wipe to decontaminate the needle-free device and eliminate any microbes that may be present, reducing the risk of contamination and infection
- It is essential that you correctly connect the IV administration sets and syringes onto the end of the needle-free device
- Administration sets will have a Luer lock fitting. Screw the administration set onto the needle-free device in a clockwise direction. Ensure that it is secure, but not overtightened
- There are two types of compatible syringes: Luer lock or Luer slip tip



Luer lock syringe



Luer slip syringe

- The Luer lock type should be screwed onto the needle-free device in a clockwise motion, securely, but not overtightened
- For the Luer slip type, the tip of the syringe should be firmly inserted into the needle-free device, and turned clockwise a ¼ turn (90 degrees)

## Catheter/cannula dressing

- It is important that the catheter/cannula dressing remains clean, dry and intact at all times
- It is important that your child avoids getting the dressing wet and does not immerse it in water
- It is essential that the cannula/catheter site and dressing are kept dry during bathing and showering. You may wish to place a waterproof covering over your child's cannula/catheter insertion site. You may have been provided with waterproof covers or, alternatively, you could use an unused clean disposable plastic bag (e.g. a plastic sandwich bag), or use cling film to gently wrap the catheter/cannula dressing
- Remove the plastic covering after bathing and showering, as soon as your child has been dried
- Remember if the dressing becomes soiled, wet or loose, it will need to be replaced
- Gently remove the cannula/catheter dressing by slowly peeling it off. Ensure that the cannula/catheter is secure, so that you don't accidentally displace it
- NEVER use sharp instruments or scissors to remove the dressing
- Make sure that the skin surrounding the catheter/cannula is dry before replacing the dressing. The appropriate IV dressing will be provided.

## Please remember

To potentially reduce the risk of contamination and infection, it is important that the needle-free device is cleaned thoroughly prior to and after use.

# Medication and equipment

## How to safely store medication and equipment

- You should store your child's medications and equipment in a safe place and out of reach of children
- Ensure that medications that require refrigeration are stored appropriately in the fridge.



## Safe disposal of sharps

You will have been advised on the importance of safe sharps disposal and how to use the sharps container safely

- Never overfill the container
- Always ensure that the container lid is locked when filled to its limit and ready for disposal
- Dispose of the container appropriately and as advised by your child's healthcare provider.



# Bionector®

## All you need to know about your needle-free device

- The Bionector is the 'bung' (a needle-free device) that either attaches to the end of the cannula or catheter
- No needles are required. Syringes/administration sets are attached directly onto the Bionector
- It opens and closes during and after access
- It creates a seal and if looked after carefully, it can prevent blood/fluid leaking out, reduce or prevent blockages, and reduce or prevent infection entering into the line

## Please note

If your child has a peripheral IV cannula; a Bionector Octopus Extension Set will be connected to the end of the cannula.



- If your child has a Midline, PICC or implantable port, then a Bionector will most likely be attached to the end of the catheter or port extension tubes
- The Bionector requires cleaning with a dedicated sterile swab or wipe before and after use
- Never attempt to insert a hypodermic needle into it as it will cause damage
- It does not have to be removed for seven days
- Never overtighten the Bionector or Bionector Octopus Extension Sets onto the end of the cannula or catheter.



# Parent IV management guide

## Your checklist

- Always create a clean and sterile area for the preparation of the equipment and medication required to perform your child's IV therapy
- Check all packaging is sealed and undamaged prior to use. Do not use if there are any signs of damage. Check expiry dates
- Always wash and dry your hands thoroughly, using the suggested hand hygiene technique, before you start preparing the IV therapy
- Wear gloves
- Ensure that all the equipment you require is prepared and placed into your clean area
- Make sure that your dedicated area is free of pets and other children
- When ready to administer the IV medication, clean the Bionector® for at least 15 seconds with a sterile swap or wipe
- Allow the Bionector to dry for at least 30 seconds
- Unclamp your child's line
- Insert a syringe filled with 0.9% Saline into the Bionector to flush the line
- Luer slip syringe: insert into the Bionector firmly, but gently, and turn a ¼ turn (90 degrees) clockwise.  
Luer lock syringe: twist onto the Bionector in a clockwise motion, so that it is secure, but not overtightened
- Slowly inject the saline into your child's line using a stop/start motion
- Your child may experience a cold sensation running through their veins
- Luer lock syringe: twist off anti-clockwise  
Luer slip syringe: turn a ¼ turn (90 degrees) anti-clockwise to remove
- Insert the syringe filled with the medication into the Bionector®, and slowly inject using a stop/start motion
- Remove the empty syringe
- Insert the syringe with another saline flush and again slowly inject using a stop/start motion.  
Remove the syringe
- Clamp the line when not in use
- If further medication requires injecting repeat the flush/medication/flush steps
- Always flush before and after each medication is given
- Always use a 10 mL syringe for flushing
- If there is strong resistance against the plunger or a suspected blockage, don't force it. Seek advice from your child's healthcare provider
- Never use needles to inject into the Bionector
- After completion, re-clean the Bionector
- Dispose of sharps into the dedicated sharps disposal container. If you are using an administration set (giving set) to administer medication, follow the same steps of flush, medication, flush
- If you need to replace a Bionector Octopus Extension Set, ensure that you flush the new set with sterile saline first, before you attach it to the end of your child's cannula/catheter. Always use a 10mL syringe for flushing.



# Considerations

## What are the potential complications associated with your child having an IV cannula/catheter and IV therapy?

It is important that you have an understanding of the potential complications associated with your child having an IV cannula/catheter and IV therapy. This is so that you can observe for any signs or symptoms that may occur, and enable you to seek advice from your child's healthcare provider promptly.

### Infection

This can be reduced or prevented by:

- Avoiding touching the cannula/catheter and dressing
- Keeping clothing next to the cannula/catheter clean
- Your child having a daily bath or shower to keep their skin clean
- Trying to keep the cannula/catheter and dressing dry, and not immersing it in water
- Replacing soiled and wet dressings
- Always using a sterile technique (already explained) when undertaking the IV therapy, care and maintenance.

Signs and symptoms of a cannula/catheter site infection:

- Localised redness around the insertion site, which may also spread to the limb
- Pain
- Swelling of the hand/arm
- Fever/high temperature (38°C or more)
- Fatigue.

If you suspect an infection, always consult your child's healthcare provider.

### Blood clot

Sometimes a clot may collect around the tip of your child's cannula/catheter in the vein, causing it to block.

Signs and symptoms:

- Pain
- Redness
- Swelling
- Difficulty injecting your medication/flush due to strong resistance.

Never attempt to force the plunger of the syringe down if there is strong resistance or a blockage is suspected. This could create pressure inside the blocked cannula/catheter and cause it to fracture. Consult your child's healthcare provider.

### Tissuing

This can occur when the cannula/catheter is dislodged and the tip of the cannula/catheter comes out of the vein. Any fluid that enters the cannula/catheter during IV therapy can then seep out into the surrounding tissue.

Signs and symptoms:

- Localised swelling
- Blanching of the skin
- Skin coolness
- Leakage from the insertion site
- Skin feels tight
- Pain.

Consult your child's healthcare provider.

### Cannula comes out

The cannula/catheter may come out if it has not been fixated properly with an IV dressing to secure it, or if it is accidentally pulled or knocked out.

- Blood may leak from the insertion site if the cannula/catheter comes out/is removed
- Do not panic
- Apply pressure with a clean gauze or tissue for about 10 minutes, whilst raising/elevating your child's limb
- If your child is on anticoagulants, the bleeding may take a little more time to stop and your child may bruise more easily. Contact your child's healthcare provider if you have any concerns
- Once the bleeding has stopped, place a plaster on the area and contact your child's healthcare provider as your child will need to be re-cannulated for the continuation of therapy.

## Please remember

If you have any concerns about the treatment your child is having, or suspect a complication, then always consult your child's healthcare provider.







**Scan to give us feedback,  
we would love to hear from you.**

Thank you for reading the parent guide. We would love to hear your feedback to help us develop more education tailored to your needs.

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