



Value Life

INFUSION SYSTEMS

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

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# Introduction

Depending upon circumstances some patients may not need to be admitted to hospital for IV therapy as certain treatments can be provided at home.

This will involve a nurse visiting your home to give the treatment you need at the required times or you may have been taught, assessed, and achieved the competency level to self-medicate.

You will have either a cannula or catheter in situ.

It is important that the procedures to self-medicate along with the care and maintenance of the cannula/catheter is undertaken in the required way as to minimise/prevent the risks of infection and other associated potential complications.



## What is IV therapy?

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

A flexible hollow plastic tube called a cannula or catheter is inserted into the vein and the medication is given through this.

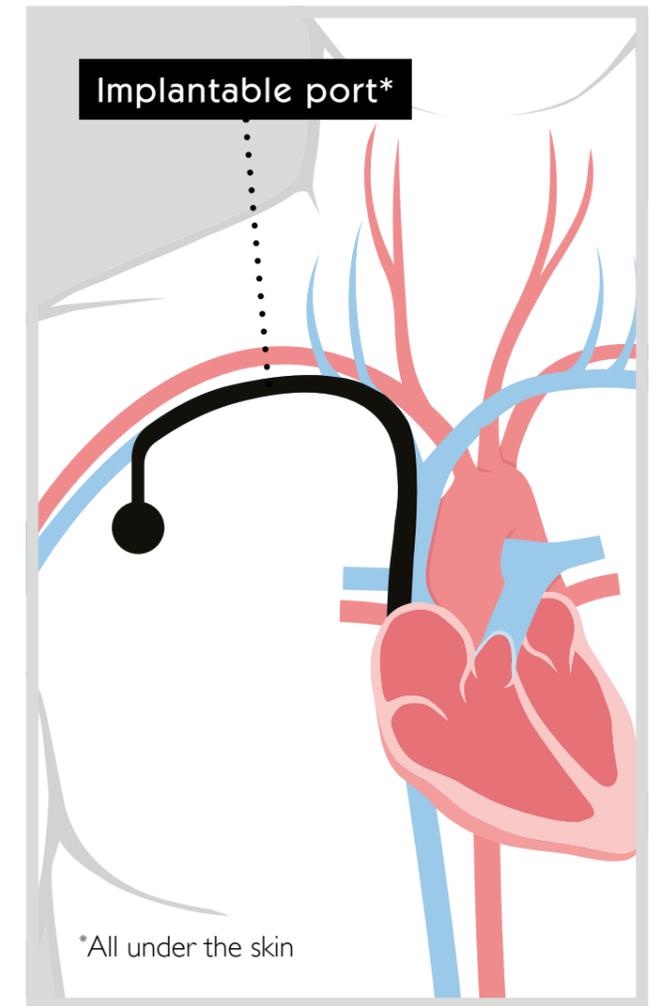
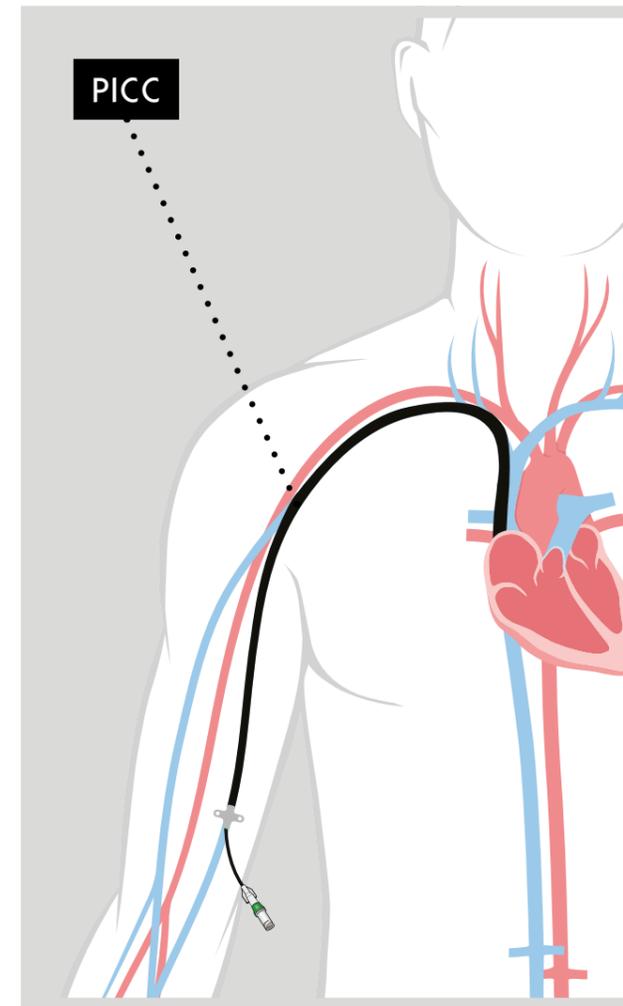
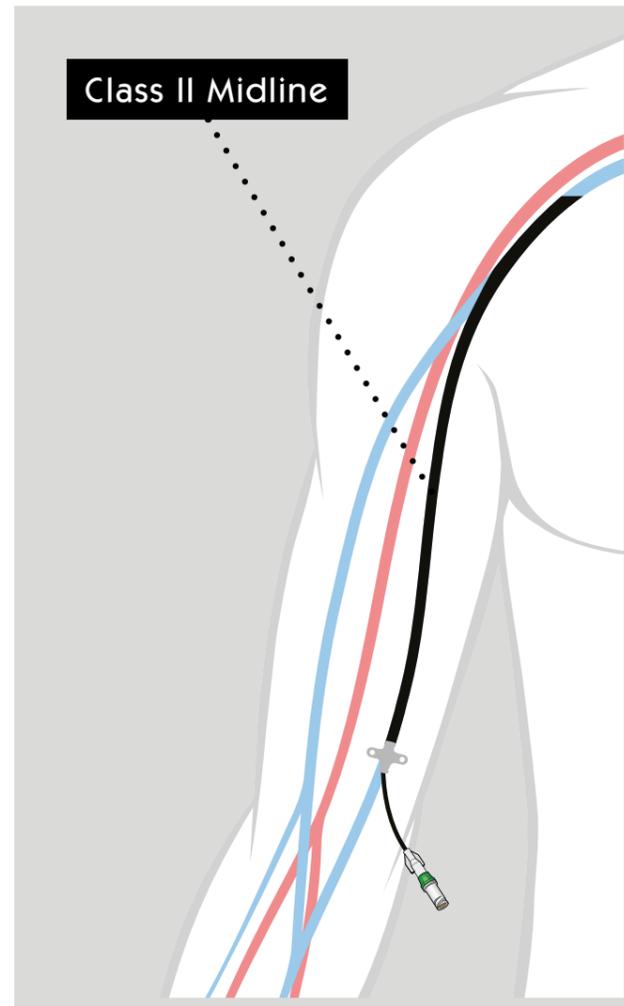
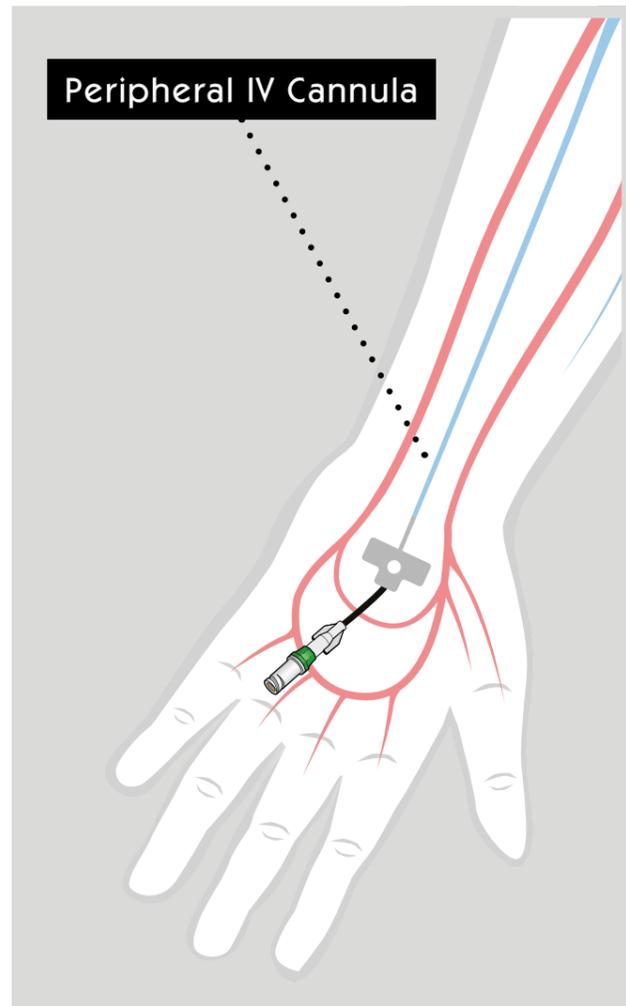
The cannula/catheter allows medication to be given directly into your bloodstream, without needing to have separate injections each time.

Also, because it goes directly into the bloodstream towards the heart, it is circulated around the body allowing the medication to have a quicker therapeutic effect.

# IV vascular access devices

## What are the different types?

You may have one of the following:



### Peripheral IV cannula

- This is a short plastic tube in the vein that will be positioned in your 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 mid-forearm
- It is for intermediate use
- It has an indwell time of approximately up to 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 mid-forearm
- It is for either intermediate or long-term use
- It has an indwell time of approximately up to one year.

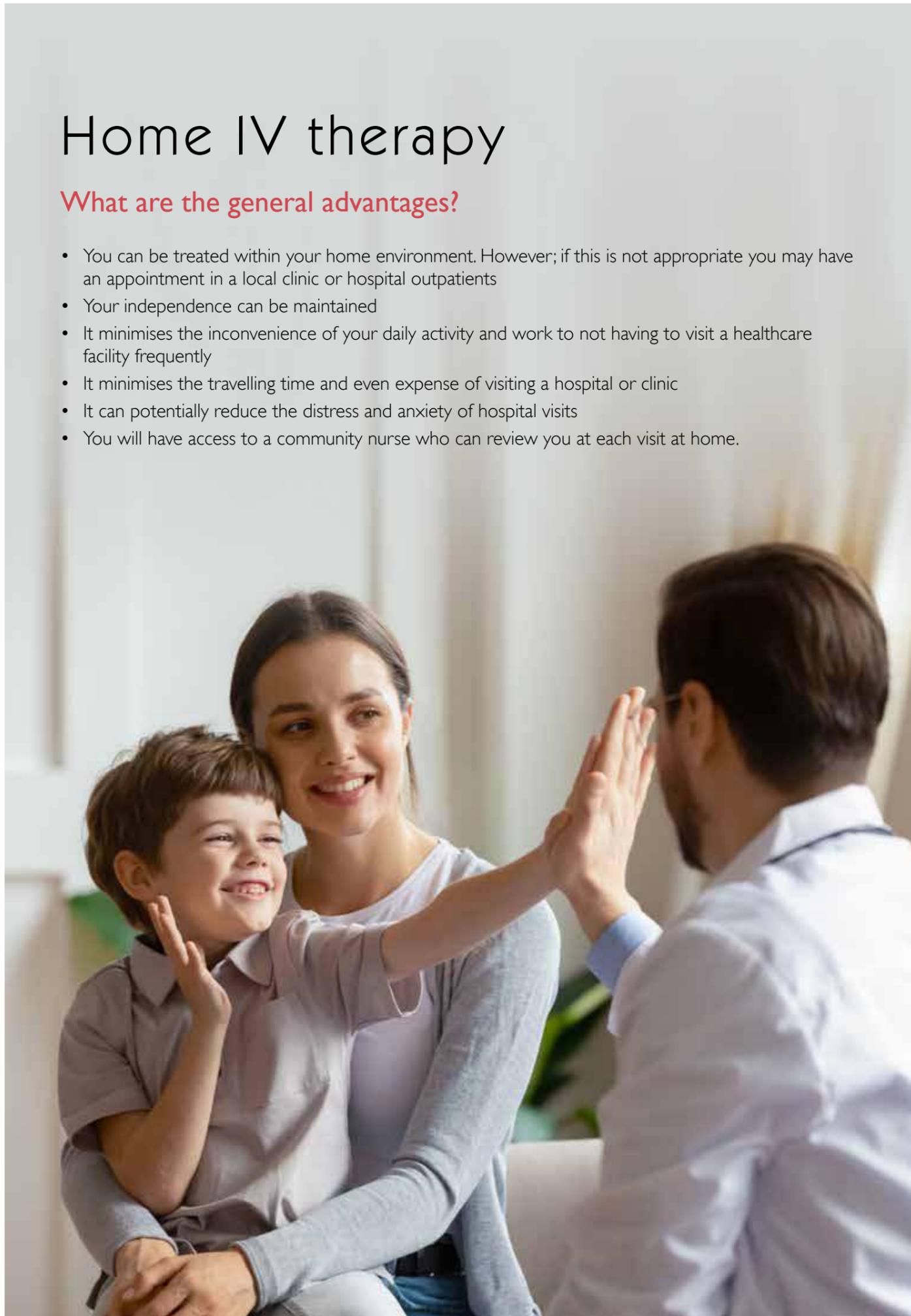
### Implantable port

- The port and line lie subcutaneously
- 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?

- You can be treated within your home environment. However; if this is not appropriate you may have an appointment in a local clinic or hospital outpatients
- Your independence can be maintained
- It minimises the inconvenience of your daily activity and work to not having to visit a healthcare facility frequently
- It minimises the travelling time and even expense of visiting a hospital or clinic
- It can potentially reduce the distress and anxiety of hospital visits
- You will have access to a community nurse who can review you at each visit at home.



# Patient self-administration

## Competency

For patients to self-medicate specific IV medication, this would have been reviewed and assessed by your dedicated healthcare provider to determine your level of competency ensuring you are able to do this at home.

Generally, you may have been assessed on the following five key competencies:



Based on these competencies, it is essential that these are adhered to for the safe practices of self-management of your IV cannula/catheter and self-administration of medication.

# General guidelines

## Preparation

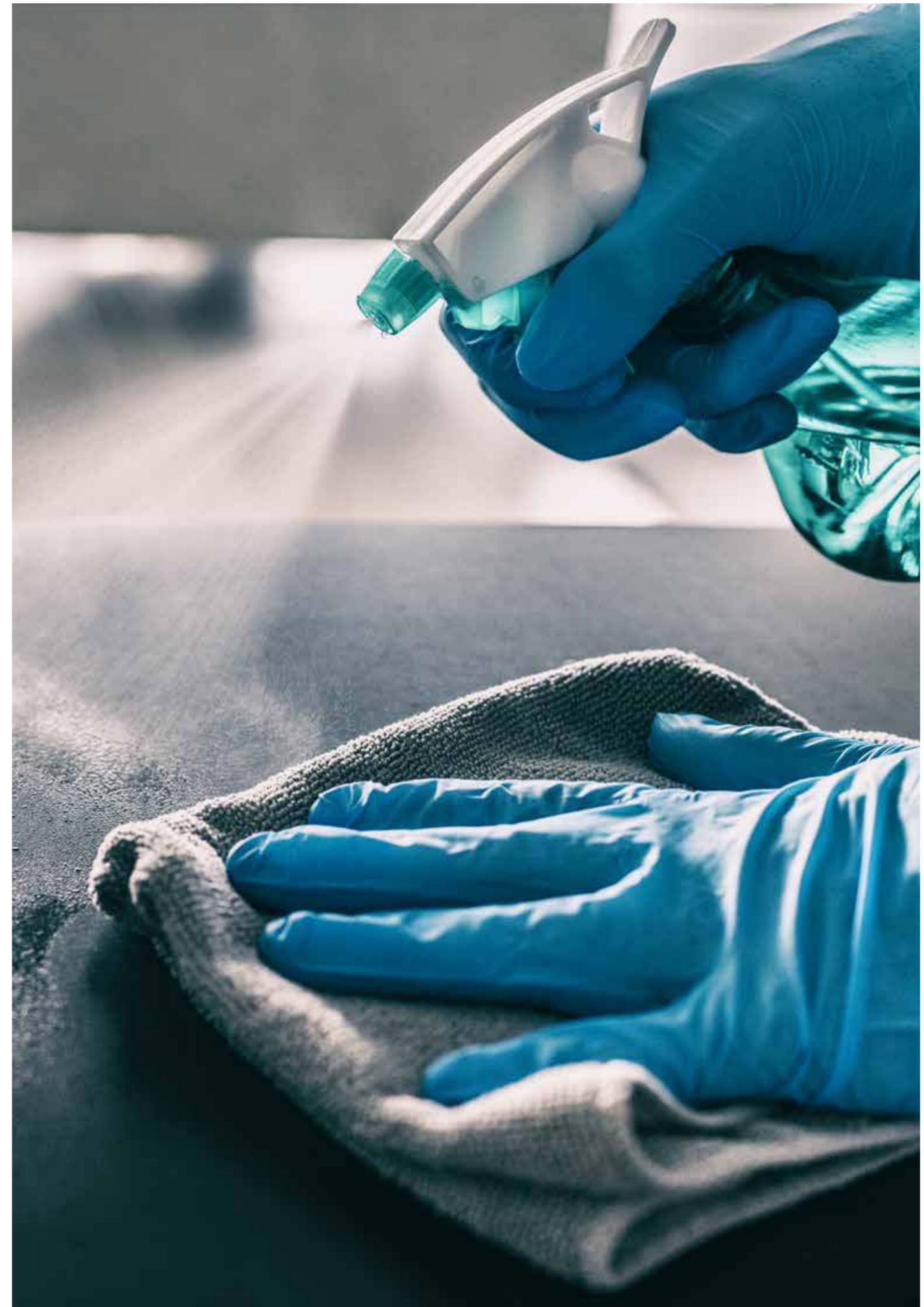
- Please ensure the environment in which you are preparing for the IV medication and equipment is within a clean and preferably dedicated clean area
- You may have been provided with sterile procedure packs, disposable paper drapes/towels and a tray. The tray requires disinfecting on each use. The opened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



### Please remember

To prevent or reduce the risk of cross contamination

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



# Handwashing

## What is the recommended technique?

A nine step handwashing technique was devised by Ayliffe et al (1978), and it is used regularly by healthcare professionals. Using it yourself may improve the care of your catheter. The technique uses a dedicated hand foam/gel and running water, and each step consists of five strokes forward and five backward.

Ensure hands are thoroughly dry with clean disposable paper/kitchen towel before placing on disposable sterile or clean gloves on.



**Step one**

Wet hands thoroughly before applying washing agent



**Step two**

Rub palm to palm



**Step three**

Right palm over back of left hand and left palm over back of right hand



**Step four**

Palm to palm with fingers interlaced



**Step five**

Backs of fingers to opposing palms with fingers interlocked



**Step six**

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



**Step seven**

Rotational rubbing back and forwards with clasped fingers of right hand in left palm and vice versa



**Step eight**

Rinse hands under running water



**Step nine**

Dry hands thoroughly with clean disposable paper/kitchen towel



**Final step**

Place disposable sterile or clean gloves on

# Aseptic Non-Touch Technique

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

This includes when opening capped vials, needles and syringes for drawing up and any other device/equipment to be used for the IV Therapy procedure.

ANTT is aimed at reducing/preventing microorganisms on hands, surfaces, equipment that could otherwise potentially be transferred into a susceptible body site during procedures such as IV therapy. This technique can prevent/reduce the risk of infection if undertaken correctly.

It is important to identify the 'key parts' and 'key sites' of a procedure and not touching them either directly or indirectly. The key site will be your cannula/catheter and the insertion area. Key parts are the critical parts of the procedure equipment that if contaminated are most likely to cause infection so could be:

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



## Infection prevention and control principles of ANTT

- Good cleanliness of the procedure tray or dedicated surface
- 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, minimise the amount of times the catheter/cannula is touched or manipulated
- Wear disposable gloves.



# Drug reconstitution and administration

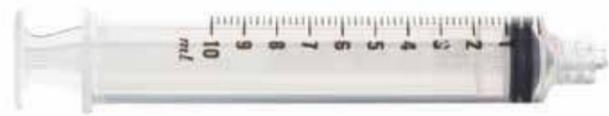
- Always adhere to ANTT
- 0.9% Saline is used for flushing the lines in a 10mL syringe before and after each drug administered
- Sterile water is mixed in with the powdered form of the medication in vials
- Always read accurately the information provided on the medication you are required to administer. You may also be provided with guidance sheets
- Always purge the filled syringes and extension sets prior to connection to remove any air
- When flushing and administering your medication, adopt the push/pause technique (Stop/start motion). Your healthcare provider would have showed you how to do this during your competency assessment
  - This method creates a turbulent flow of the infusions inside the cannula and vein to minimise or prevent the mixing of incompatible medications or solutions, preventing the accumulation of medication precipitate inside the catheter/cannula lumen, reduces a potential blood clot build up 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 to allow to dry for at least 30 seconds
- Effective cleaning and drying time will allow the wipe to decontaminate the needle-free connector and eliminate microbes that maybe on there
- This can potentially reduce 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 on clockwise to the end of the needle-free device but to ensure it is secure but not overtightened
- Syringes may be either Luer lock or Luer slip tip



Luer lock syringe



Luer slip syringe

- It is important that the catheter/cannula dressing remains clean, dry and intact
- Avoid getting the dressing wet and do not immerse in water
- For bathing and showering ensure it is kept dry. You may wish to place a waterproof covering over the cannula/catheter insertion site and dressing by using an unused clean disposable plastic bag (i.e. plastic sandwich bag or wrap gently with cling film)
- Always remove the plastic covering immediately after bathing or showering
- If the dressing becomes soiled, wet or loose, it will require replacing
- Gently remove the cannula/catheter dressing by peeling off slowly, ensuring the surrounding skin is dry before replacing with the appropriate IV dressing provided. NEVER use sharp instruments or scissors to remove the dressing
- On removing the dressing, ensure that the cannula or catheter is secure as to avoid accidental displacement of it.

## Please remember

To potentially reduce the risk of contamination and infection

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 to allow to dry for at least 30 seconds.

# Medication and equipment

## How to safely store medication and equipment

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



## Safe disposal of sharps

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

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

# Bionector

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

- Bionector is the 'bung' (needle-free device) that either attaches to the end of the cannula or catheter
- No needles are required to insert into it for your IV therapy syringes/administration sets
- 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 you have a peripheral IV cannula; a Bionector Octopus Extension Set will be connected to the end of the cannula.



- If you have a Midline, PICC or implantable port then a Bionector will most likely be attached to the end of the catheter or port extension tubes
- 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.



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# Patient IV management guide

## Your checklist

- Always create a clean and sterile area for the preparation of your equipment and medication required to perform IV therapy
- Check all packaging is sealed and undamaged prior to use. Replace if there are any signs of damage. Check expiry dates
- Always wash and dry your hands appropriately adhering the hand hygiene technique before you undertake giving the IV therapy
- Wear gloves
- Ensure all the equipment you require is prepared and placed into your clean area
- Make sure your dedicated area is free of pets and children.
- When ready to administer the IV medication, ALWAYS swab the Bionector for at least 15 seconds with a sterile swab or wipe
- Allow to dry for at least 30 seconds
- Unclamp your line
- Insert the syringe filled with the 'Flush' - 0.9% Saline
- Luer slip syringe: insert into Bionector firmly but gently and turn a ¼ clockwise  
Luer lock syringe: twist on clockwise securely but do not overtighten
- Slowly inject the saline into your line. Use a stop/start motion
- You may experience a cold sensation running through
- Luer lock syringe: twist off anti-clockwise  
Luer slip syringe: turn a ¼ anti-clockwise to remove
- Insert the syringe into the Bionector with the filled medication and slowly inject stop/start motion
- Remove the empty syringe
- Insert the syringe with another saline flush and again slowly inject using stop/start. 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
- Never force the injection through if there is a strong resistance against the plunger and suspected blockage. (Seek advice from your healthcare provider)
- Never use needles to inject into the Bionector
- After completion, re-swab the Bionector
- Dispose of sharps into the dedicated sharps disposal container. If you are connecting an administration set (giving set) with the medication required, follow the steps of flush, medication and flush
- Always use a 10 mL syringe for flushing
- If you are replacing the Bionector, when you are using a Bionector Octopus Extension Set, flush the set with sterile saline first before attaching to the end of your cannula.



# Considerations

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

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

### Infection

This can be reduced or prevented by:

- Avoid touching the cannula/catheter and dressing
- Keeping clothing next to the cannula/catheter clean
- Have a daily bath or shower to keep your skin clean
- Try to keep the cannula/catheter and dressing dry, not immersing it in water
- Replace soiled and wet dressings
- Always use 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 but could spread to the limb
- Pain
- Swelling of the hand/arm
- Fever/high temperature
- Fatigue.

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

### Blood clot

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

Signs and symptoms:

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

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

### Tissuing

This can occur when the cannula/catheter dislodges itself and the tip comes out of the vein and any fluid that enters into the cannula 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 puncture site
- Skin feels tight
- Pain.

Consult your healthcare provider.

### Cannula comes out

This can occur when the cannula/catheter dislodges itself and the tip comes out of the vein and any fluid that enters into the cannula during IV therapy can then seep out into the surrounding tissue causing swelling around the area. This can happen if it has not been fixated properly with an IV dressing to secure it or accidentally gets pulled/knocked out.

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

## Please remember

### Any concerns?

If you have any concerns of the treatment you are having or suspect a complication; then always consult your healthcare provider.







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

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

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