

CONTINUOUS INTRAVENOUS ANTIBIOTIC INFUSIONS - HOSPITAL IN THE HOME [HITH] PRACTICE GUIDELINE[®]

DOCUMENT SUMMARY/KEY POINTS

- In Consultation with the medical team, children admitted to the SCH Network who require intravenous (IV) antibiotic therapy and fit the Hospital in the Home (HITH) admission criteria may be effectively treated at home with the use of Continuous Intravenous infusions.
- Infectious Diseases team must be contacted prior to the patient being referred to HITH for Infectious Disease (ID) approval as per antimicrobial stewardship policy.
- The following Practice Guideline identifies:
 - A description of the Continuous Intravenous infusion device (Infusor), the equipment required and information on how to set up a Continuous Intravenous infusion.
 - How to order Infusors
 - How to monitor the Infusor progress
 - Storage and disposal
 - Troubleshooting - Important points to remember
 - Parent Education

CHANGE SUMMARY

- Document due for mandatory review
- *Terminology changed to match [Central Venous Access Devices \(CVAD\) Practice Guideline](#).*

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st May 2024	Review Period: 3 years
Team Leader:	Clinical Nurse Specialist	Area/Dept: Hospital in the Home

READ ACKNOWLEDGEMENT

- All SCHN Nursing and Medical staff are required to read and acknowledge they understand the contents of this document. In the event that an Infusor is connected by ward staff within the hospital setting, staff can contact HITH, Ambulatory Day Units, or after hours education team for education and support.

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1 Preamble

Patients in the community may require intravenous antibiotics greater than twice a day. A safe and effective method is via an Infusor which is used to continuously infuse intravenous antibiotics over 24 hours. An Infusor is a lightweight disposable pump that is specifically designed to deliver intravenous medications over a 24 hour period via a central venous access device (CVAD). This allows treatment prescribed by the medical team to be given over a number of days within the home environment as an alternative to inpatient treatment. Patients can attend school, day-care or other educational facilities whilst receiving continuous intravenous antibiotics. The medication is contained in a balloon reservoir, inside a hard plastic casing and delivers a slow continuous infusion. The Infusor system is single use only.

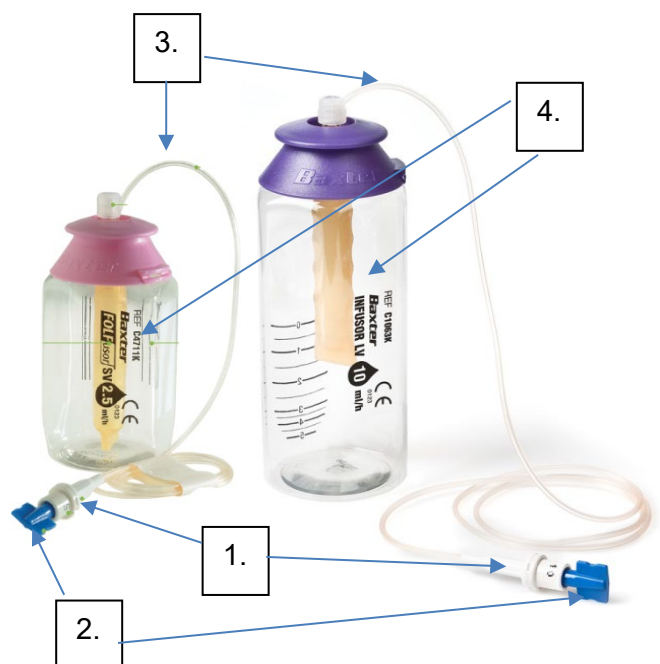
2 Ordering Infusors

Once a decision has been made to make a HITH referral for antibiotic therapy the medical team is responsible for prescribing the antibiotic therapy on MAR and obtaining ID approval in conjunction with SCHN antimicrobial stewardship teams. The first dose of the medication is to be administered in hospital. The hospital Outpatient Pharmacist is responsible for ordering the drugs directly from the compounding companies as well as ordering the continuing supply of antibiotics required in consultation with the HITH team. The HITH team are responsible for informing pharmacy when there is less than 48hrs of medication remaining. In regards to availability of medication, there is usually a 24-48 hour turnaround period depending on the time the order is placed.

Infusor Description and Components

The Infusor consists of a number of components including:

1. Luer Connector: Attaches the Infusor directly to the NAD at the end of the CVAD.
2. Winged Luer Cap: Protects luer connector which attaches to the intravenous line.
3. Administration /Delivery Tubing: Carries the medication.
4. Drug Balloon Reservoir: Holds the medication. When filled, the balloon infuses the medication through the delivery tubing; it passes through a "flow restrictor" regulating the flow of medication.



3 Connecting an Infusor

Equipment required

- Prescribed Infusor
- Plastic tray or Sterile Plastic Sheet
- 1 x prefilled sodium chloride 0.9% 10mL syringe. Alternatively use sodium chloride 0.9% ampoule, drawing up needle and 10mL syringe.
- 2 x 2% Chlorhexidine Gluconate in 70% alcohol (large) swabs
- Non-sterile gloves

Procedure

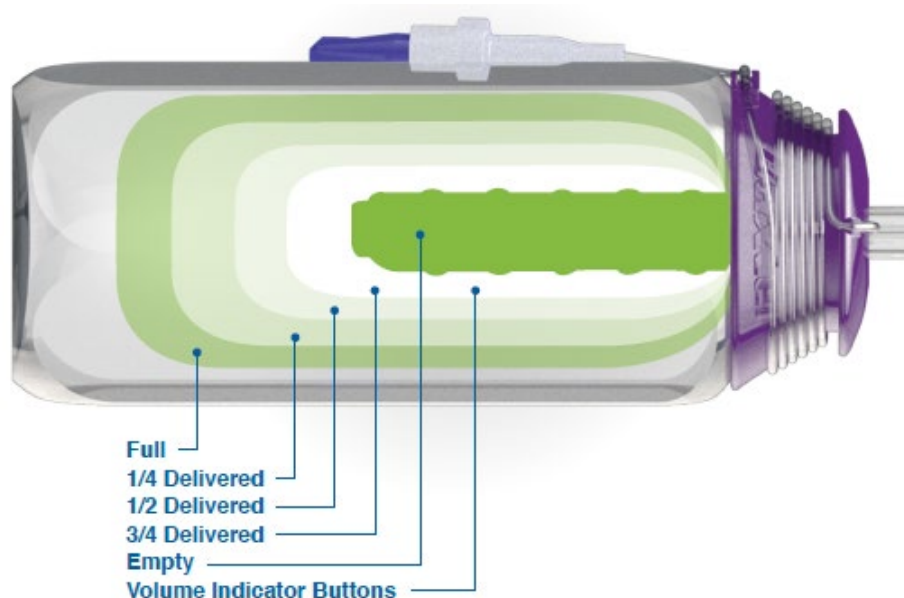
1. Set up as per [standard ANTT \(unless Surgical ANTT is indicated\)](#).
2. Perform hand hygiene and don gloves.
3. Clamp CVAD line or extension tubing. (Exception of a BioFlo PICC line that has an internal clamp therefore no external clamping required).
4. Vigorously clean the entire NAD insitu and hub of CVC with 2% chlorhexidine gluconate in 70% alcohol swab for 20 seconds and allow to completely dry.
5. Using standard ANTT, disconnect completed Infusor, attach 10mL 0.9% sodium chloride syringe and flush line using a pulsating technique.
6. Inspect new Infusor, (Infusor should not be used if damaged, leaking, discoloration or floating matter present). Check Infusor labelled with correct patient name, MRN, drug, dose and expiry date. Remove winged luer cap from the new Infusor and wait for 2-3 bubbles of fluid to appear indicating that the new Infusor is working.
7. Remove syringe, attach new Infusor Check the CVAD line or extension tubing is unclamped on completion.
8. Secure Infusor in waist pouch or cover.

4 Monitoring Progress

Parents and carers should be instructed to monitor the progress of the Infusor. As the Infusor works slowly over a period of time, after a few hours parents and carers should note that the balloon would appear to be shrinking in size. The balloon will deflate completely when the Infusor is empty. Factors that can affect the rate of balloon deflation include temperature and the height of the Infusor in relation to the intravenous connection site.

During the warmer months the medication may occasionally infuse at a faster rate than anticipated and slower if it is cold. A small ice pack can be placed inside the waist pouch or cover to keep the Infusor cool and in the colder months the Infusor should be kept as close to the body as possible.

The Infusor should also be kept as close as possible to the same height as the intravenous connection. It is important to ensure that the Infusor is kept dry at all times, when showering or bathing the Infusor should be placed in a plastic bag and hung from the tap or placed on a dry area.



5 Storage and Disposal

Spare Infusors should be stored in the refrigerator (between 2-8°C) in a separate compartment away from food and sealed in its outer packaging. The Infusor device may be used immediately after removing from the fridge. The connected Infusor should be stored in the waist bag, small backpack or pouch provided, away from direct sunlight or heat.

The empty Infusor can be disposed of in the usual manner with other regular household waste.

6 Troubleshooting: Staff

If the Infusor is leaking, clamp the line immediately and disconnect the Infusor and connect new Infusor if available using standard ANTT as per above instructions. If a new Infusor is unavailable, the line should be flushed with 10mL 0.9% sodium chloride and locked with the appropriate lock solution as per [SCHN Central Venous Access Devices \(CVAD\) Practice Guideline](#) and contact the hospital pharmacy immediately. The faulty Infusor should be bought back to the hospital for return to the drug company.

If the medication does not infuse or the bubble of fluid does not appear when connecting the Infusor, check that the IV line is unclamped and ensure that there are no kinks in the line obstructing the flow. Ensure that you have waited long enough; it usually takes a few minutes for the bubble to appear as the Infusor flows very slowly.

If for any reason the Infusor needs to be disconnected before it is completely empty the winged luer cap should be replaced to prevent leakage of medication.

In the event that the Infusor becomes disconnected at home, parents should be advised to clamp the line and contact HITH immediately for further instructions. Parents should not attempt to reconnect the Infusor. Within HITH hours another home visit or alternative arrangements should be made for nursing staff to reconnect a new Infusor. If the Infusor becomes disconnected afterhours, parents are advised to return to the Emergency Department for treatment. The parent should bring a spare Infusor with them when presenting to the hospital.

7 Parent Education

7.1 Parents/Carer Education Care of the CVAD at Home

- Observe the CVAD site for any signs of swelling or redness at exit site, pain or discomfort, bleeding or leaking.
- Keep the line secure.
- Ensuring that site is kept clean and dry at all times and occlusive dressing remains intact.
- Patients are advised to refrain from contact sports whilst undergoing treatment to avoid potential damage to the infusor or access line.
- [CVAD First Aid Kit](#) and Infusor Factsheet to be given to parents prior to transfer to HITH.
- [CVAD First Aid Kit](#) booklet and CVAD education to be provided to the parents prior to transfer to HITH.
- If the infusor is empty parents and carers are advised to clamp the line and leave the Infusor connected. Contact HITH staff and follow their instruction.
- Your child develops fever, swelling, redness or pain at the entry site of his/her intravenous line or arm, clamp the line immediately and contact HITH and follow their instruction. If outside HITH operational hours present to ED.
- If any of the above are observed or if parents have any concerns or problems they are advised to **call HITH immediately (in hours) or in an emergency dial 000.**

7.2 Parent/Carer Infusor Education

- At times the home visit may not coincide with the infusor completion time, if the infusor is empty a few hours before the next home visit, parents and carers are advised to clamp the line and leave in place.
- Store infusors in the fridge until needed (unless otherwise indicated).
- Parents and carers are advised to check the balloon regularly 2-3 times a day to ensure that it is infusing. Over time the balloon should be getting smaller, however if there is no decrease in the size of the balloon parents should be instructed to contact HITH.
- The Infusor should be kept in the cover or pouch provided. It is important that the device is kept at the appropriate height or as close as possible to the same height as the IV connection.
- Whilst sleeping, ensure that the infusor is placed beside the bed at relatively the same height as the IV connection.
- The infusor should not be placed underneath the covers where the device may become too warm.
- During the warmer months the medication may occasionally infuse at a faster rate than anticipated and slower if it is cold. A small ice pack can be placed inside the waist pouch or cover to keep the infusor cool and in the colder months the infusor should be kept as close to the body as possible.

8 Useful Resources

- **SCHN Central Venous Access Device (CVAD) Practice Guidelines:**
<https://webapps.schn.health.nsw.gov.au/epolicy/policy/6224>
- **Hand Hygiene Policy:** <https://webapps.schn.health.nsw.gov.au/epolicy/policy/4806>
- **Home Intravenous Antibiotic Administration for HITH Practice Guideline:**
<https://webapps.schn.health.nsw.gov.au/epolicy/policy/4889>
- **Home Intravenous Medication: Parent/Carer Administration Policy:**
<https://webapps.schn.health.nsw.gov.au/epolicy/policy/4261>
- **Aseptic Non Touch Technique:**
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/5974>
- **Central Venous Access Devices (CVAD) First Aid Kit:**
<https://intranet.schn.health.nsw.gov.au/clinical/central-venous-access-devices-cvad>

9 References

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