
Venous Access and Ports

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Venous access and ports

- Peripheral IV access
 - Arterio-Venous Fistula
 - Central venous access
 - Peripherally Inserted Central Catheter (PICC)
 - Non Tunnelled Central Venous Catheter (CVC)
 - Tunnelled (e.g. Hickman) Central Venous Access Device
 - Implanted Central Venous Access Device e.g. Infusaport
 - Jesse's Story
 - Charles's Story
 - Vein Training
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Why do we need venous access

- Treatment for bleeding disorders involves intravenous therapy
 - Therefore reliable venous access is essential to make effective treatment possible
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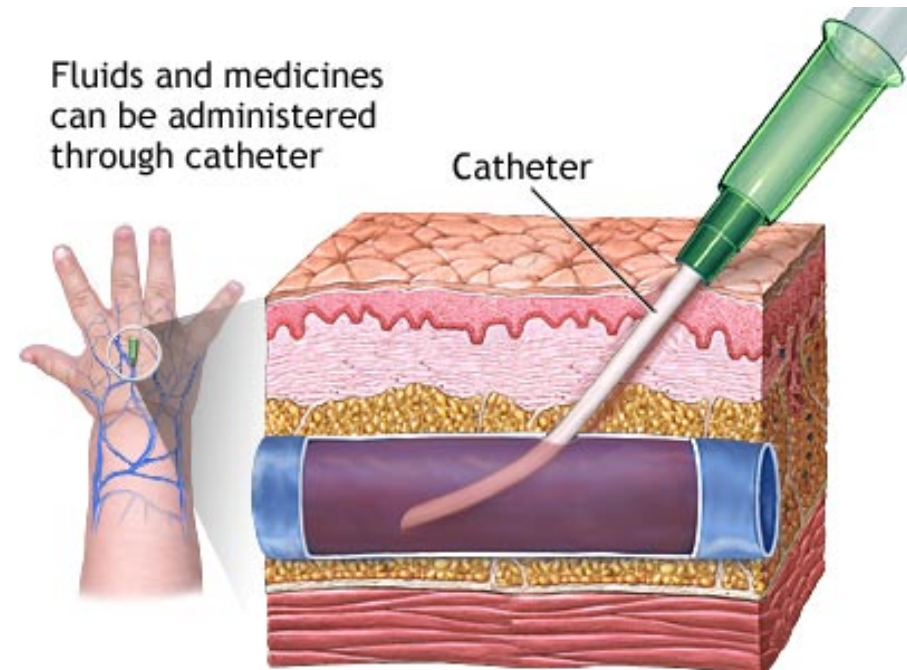
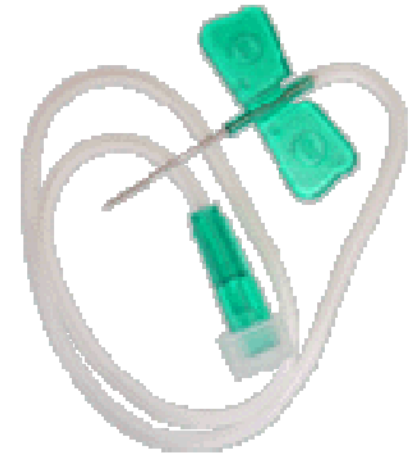
The choices for IV access

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Peripheral Venous Access

- Butterfly & IV
 - Short term (days) or intermittent therapy
 - Short catheters generally placed in forearm, hand or scalp veins



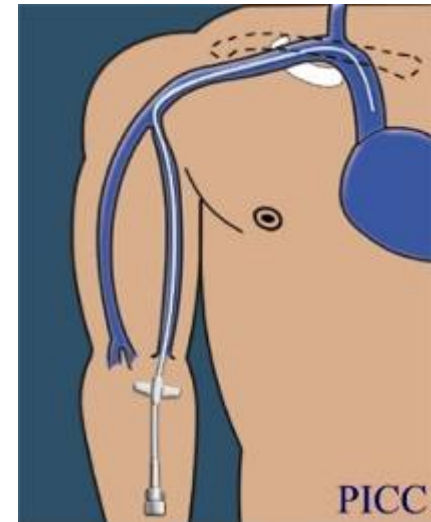
Arterio-Venous Fistula

- Can last many years
- Connects an artery directly to a vein → results in more blood flow to the vein → the vein grows larger and stronger
- Fistula takes a while after surgery to develop (as long as 24 months)
- Properly formed fistula is less likely than other kinds of vascular access to form clots or become infected



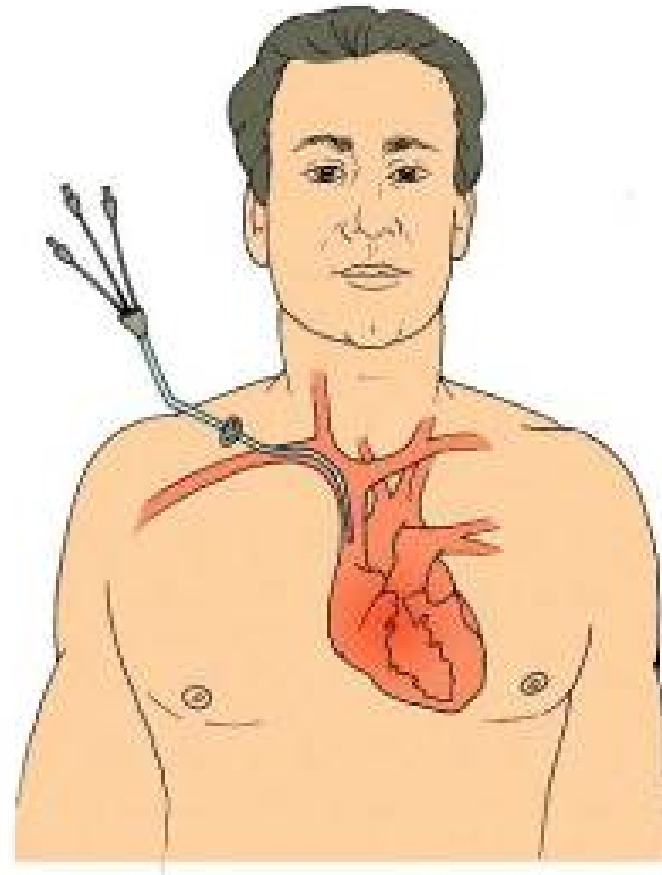
Peripherally Inserted Central Catheters (PICC)

- Short term use (days to several weeks)
- Peripheral central venous catheter inserted at or above the antecubital space and the distal tip of the catheter is positioned at the superior vena cava



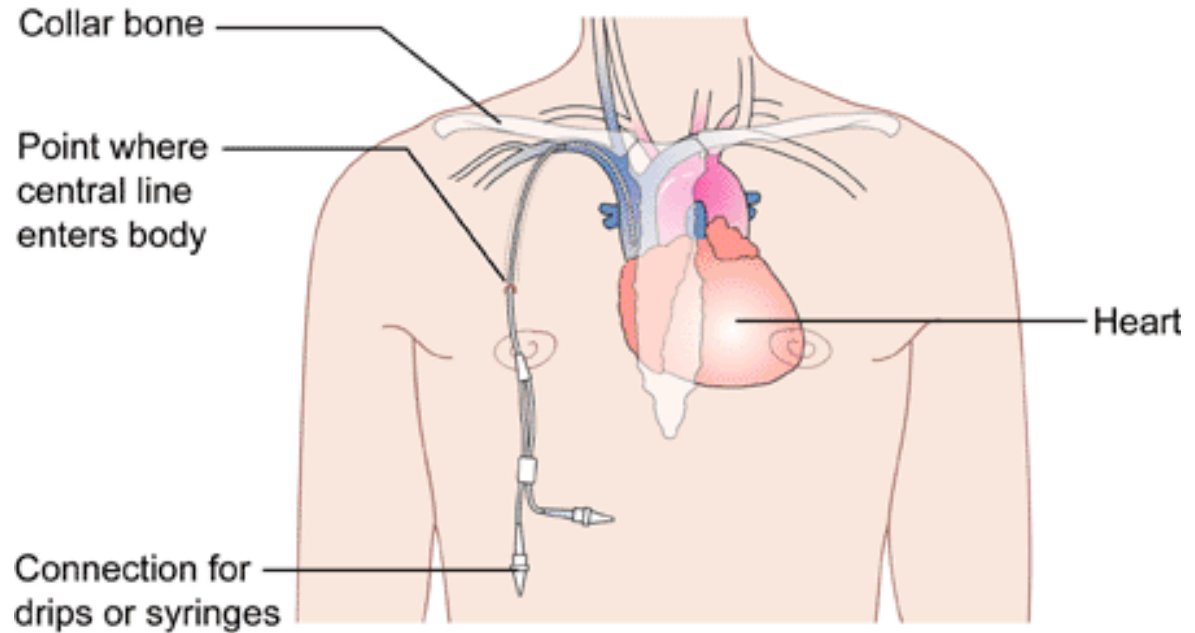
Non-Tunneling Central Venous Catheter (CVC)

- Short term use (days to several weeks). ICU or DEM.
- Central Venous Catheters
 - Subclavian or internal jugular
 - Single, double or triple lumen



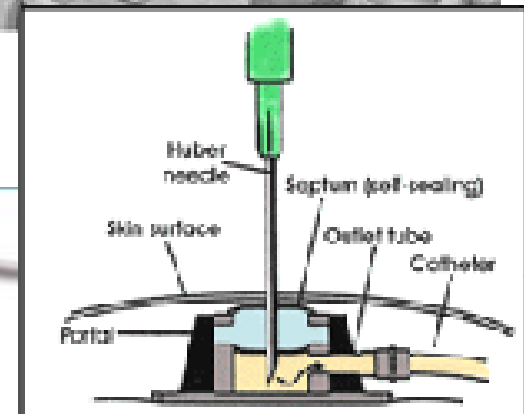
Tunneled Central Venous Access Device (CVAD)

- Used for months to 1 + years
- Some brands:
 - Hickman®
 - Broviac®
 - Groshong®



Implanted CVADs - Ports

- Long term use (years)
- Catheter attached to a self-sealing silicone septum surrounded by a titanium, stainless steel or plastic port
- Port sutured under the skin
- Some brands:
 - Port-a-cath®
 - Infus-a-port®
 - Power Port®



Implanted CVADs - Ports

- Can only be accessed with a special needle with a deflecting, non-coring point
- Some brands:
 - HUBER needle
 - GRIPPER needle



Choosing Venous Access

- Patient and family education regarding venous access is essential.
- Peripheral venous access is first choice if access is suitable. Age of commencement of therapy is a major factor.

Peripheral Venous Access

FOR

- Easy if adequate veins
- Little care required
- Doesn't limit activities
- Lower in cost than CVADs
- Risk of infection is less

AGAINST

- Inadequate veins
 - Cooperative child
 - Education and time to learn
 - Needle pierces skin each time.
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Choosing Venous Access

- If Peripheral venous access is unsuitable.
- Second Choice? Parent/clinician decision; central venous access options.
- Internet: e.g. You Tube
 - Pro's and Con's of ports





Infusaport: for and against



AGAINST

- Surgery
- Scarring
- Mechanical problems (device malfunction, clots)
- Regular maintenance and flushing
- Infection risk (lower than other CVAD's)
- Sterile technique (Non-touch technique debate), equipment, cost
- Pain: EMLA cream, ANGEL cream, sucrose for babies

FOR

- Family can learn to do it
- Easy venous access
- Child doesn't have to cooperate initially
- Coagulation studies can be taken
- Life span of 5 to 7 years, can last longer
- Doesn't limit a child's activities (NB ? contact sports)
- Appears to stretch as a child grows

Jesse's story

- Severe Haemophilia A diagnosed at birth, Mother (Kristy) a Haemophilia carrier
 - Family history; paternal grandfather has Severe Haemophilia A with an Infusaport
 - First bleeding presentation to hospital at 7 months of age → Venous access unobtainable
 - Decision made to insert an Infusaport at 8 months of age with a view to starting primary prophylaxis immediately after insertion and parents to commence training program. Parents agreed to commit to training program (signed document).
 - Kristy 4 months pregnant; significant factor (timing).
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Jesse's Infusaport

- Vortex Low Profile Infusaport
5.1 French inserted February 2009
- Infusaport accessed in theatre and used immediately for Factor VIII administration
- Education of family commenced in hospital. Both parents rooming in.
- Education: written, verbal and practice on Chester Chest™
- Continuous infusion ceased on the 4th post-operative day with a bolus dose prior to discharge and removal of non-coring needle



Kristy and Peter in training

- 2 days after discharge from hospital Father (Peter) accessed Infusaport successfully.
- Within a week Kristy also successfully accessed Infusaport.
- Jesse likes to kick his legs a lot → 3 person procedure

Procedural pain management

- Paracetamol was administered 1 hour pre Infusaport access for several weeks
 - EMLA/ANGEL cream tried without success
 - Oral sucrose successful
 - Comfort and support
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Kristy and Peter in training

- Aseptic technique and learning to put sterile gloves on an initial challenge.
 - Mum and Dad working well together as a team
 - Parents both accessed Infusaport over the next month improving on aseptic technique.
 - Occasionally missed the Infusaport however it is a positive learning experience to encounter problems.
 - Transitioned to the Aboriginal Health Centre as still needing a third person to hold Jesse to administer factor safely. Home visit had been done pre surgery and current house was not suitable for home care due to a number of factors.
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Jesse's story

- Jesse now 14 months old
- Jesse's brother, Jacob, now 2 months old
- Family have a new house
- Kristy and Peter successfully administering Factor VIII at home
- Jesse's parents say:
 - Once I stuck the needle in right the very first time I became less worried.
 - The first month was hard but it became easier as Jesse settled.
 - It was a relief to have the port to give his factor.



Charles's Story

- Charles has severe Haemophilia B. No known family history.
 - Age 3 years starts to have joint bleeds and was developing a target joint.
 - On demand therapy. Intravenous access became extremely difficult to obtain. Resulting in anxiety and stress for Charles and parents; and needle phobia for Charles.
 - Secondary prophylaxis was recommended
 - HMP Vascular Microport was inserted September 1996
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Charles's Story

- Jenny (a Registered Nurse) became the primary caregiver in caring for the Infusaport and administering the Factor IX.
 - From 1996 until 2005 the Infusaport functioned well. The only problem reported related to bruising due to injuries at soccer.
 - In 2005 Charles complained of intermittent episodes of pain during factor administration. Portograms did not highlight any problems.
 - Discussions commenced about removing the Infusaport and commencing peripheral venous access. Charles reluctant to commence peripheral venous access as happy with Infusaport.
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Removal of Charles's Port

- Port removed June 2006 as there was obvious extravasation and pain when accessed during a visit to hospital for routine levels.
- The Infusaport had been insitu for 9 ½ years and functioned well for 9 of those years. Estimated to have been accessed no more than 1000 times.
- Infusaports should have a lifespan of 2000 to 3000 accesses depending on the gauge of needle used.
- Removal difficult due to calcification.



What Portograms don't show

The damage on these ports was not able to be visualised on a portogram.



Charles's transition to peripheral venous access

June 2006

- Charles 13 years old and in high school
- Jenny able to perform peripheral venous access but goal was for Charles to become independent
- Education process lengthy but successful

September 2009

- Charles 17 ½ years old
- Independent with self cannulation
- Needle phobia remains an issue
- ANGEL cream still used
- Weight training → improved veins



Jenny's view

Advantages

- The big positive of not having all the trauma of needling veins in infants and young children
- Makes home treatment easier in younger children

Disadvantages

- Surgery
 - More equipment needed for treatment
 - Not as easy to do treatment away from home e.g. camping
 - Not as easy to be separated from the main caregiver who accesses the Infusaport
 - Port can be bruised and become unusable for a short time (this happened as a result of being hit in the chest whilst playing soccer)
 - Portograms
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Jenny's view



“Even though the list of disadvantages appears to outweigh the advantages I think the big positive of not having to needle veins in young children far outweighs the disadvantages. Any parent who has seen their young child going through the trauma of having several doctors trying to needle several veins, when they are already in pain would understand this.”

Charles & Jenny's view on PORTS

Charles

- It became a nuisance having to do treatment in the end because it was painful. “It was just gay”

Jenny

- “I think Infusaports are a really good idea as early as possible to avoid all that trauma of trying to needle almost invisible veins. Just don't leave them in too long though!”
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Vein Training

The aim is to make the veins bigger and easier to find. This idea was the inspiration of a family with a child with Haemophilia under the care of Dr Christoph Male, University Children's Clinic, Vienna, Austria.

How to:

- Put on a tourniquet several times per day for up to 5 minutes (or as long as you can tolerate it). This applies just enough low pressure (i.e. not too tight) to achieve minimal venous congestion. Do both arms.
- Perform some exercise, e.g. squeeze a squishy ball with your hands.

This technique has been used with some success but could do with proper research.

Thanks for listening

