Vascular Access in NICU

Whānau/Family Information – Neonatal Services

This information is to help you understand why your pēpi/baby may need to have lines placed and to explain why we use different lines at different times.

The team looking after your pēpi will review every day if a line is still needed and will remove them as soon as they are no longer needed.

Insertion of a line is not always straightforward and if the line is hard to put in another staff member will take over. Sucrose is given prior to the procedure when possible as a pain reliever. A nurse assists to help calm and contain the pēpi.

Peripheral Intravenous Lines (PIV)

Many pēpi in the Neonatal Unit will have to have fine tubes called drips or cannulae put into small veins in their hand, arm, foot, leg or scalp depending on where the best vein is.

What is the PIV used for?

The PIV line is usually used for medications such as antibiotics or fluid or nutrition to keep your pēpi hydrated and to maintain blood sugar levels. The PIV line can be used for several days but some only last for a few hours. The nurse will remove the PIV if it becomes harder to flush fluid through or if it blocks.

What are the risks of the PIV Line

Occasionally the PIV line can break the delicate vein. If this happens the fluid can leak into the area around the IV line causing swelling. If this happens the line is removed. On rare occasions this can damage the skin and we will try to flush the area to reduce the skins reaction. More rarely, dressings are needed and we involve the plastic teams. When this happens healing may result in a scar.

Longline

A longline is a thin, soft catheter that is placed into a small vein in the arm, leg or scalp in a similar way to a peripheral IV line but then the catheter is threaded up the vein to end up in a larger vein deeper in the body.

What is the longline used for?

A longline is usually used for intravenous nutrition, also called TPN, or medications. An X-ray is taken after the line is placed to check that the line is in a safe position. The benefits of a longline are that it can stay in for a long time if your pēpi needs longer to be able to take milk by mouth or nasogastric tube or if they need a long course of intravenous medications.

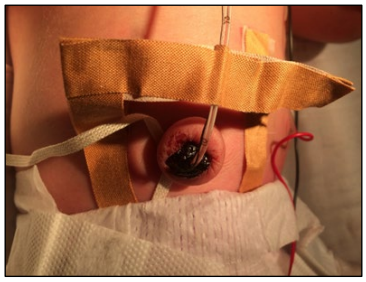
What are the risks of a longline?

The longline may get infected or blocked or they can break the vein leading to fluid leaking outside the vein. The neonatal team check the line regularly and if this occurs the line will be removed.

Umbilical Venous and Arterial Catheters (UAC and UVC)

The umbilical cord that connected your pēpi to the placenta before birth has a vein and arteries through which blood flowed before your pēpi was born. After your pēpi was born the cord is cut but the vein and

arteries can be used to insert a line or catheter if your pēpi is very preterm or sick or has no other veins to use for a peripheral IV line. When the umbilical lines are inserted it does not hurt your pēpi as there are no nerves in the umbilical cord.



The catheter is a long, soft tube that can be placed in the belly button into the vein and threaded up the vein to end up close to the heart or up the artery to lie in the aorta. An X-ray is taken after the line is placed to check where the lines are and the X-ray is repeated if the line position needs to be changed. Umbilical catheters are usually removed at one week of age or earlier if no longer needed. However sometimes if your pēpi is still unwell the lines stay in for longer.

What is the UVC used for?

Medications, fluids and nutrition can be run through the line without having to be replaced frequently with extra needle pricks.

What is the UAC used for?

The blood pressure can be monitored constantly and blood samples can be taken without having to make more needle pricks.

What are the risks of a UVC?

These include infection, clots and the line not being in the correct place. Infection is minimised by the cleaning and sterile handling by the nurses. The chance of an infection increases the longer the line is in place. Clots can make the line stop working but they don't usually lead to a concerning clot to form in the deep veins.

The ideal position of a UVC is in a large vein close to the heart after it winds through the liver and it is not always possible to thread the catheter into this position. If the UVC is not in the ideal position the neonatal team will need to decide if it is best to use the line in the short-term as your pēpi is unwell and really needs the catheter or if it needs to come out straight away. The line can also move position in or out after it is placed. The risk of a line not being in the correct position is that it can break the vein and the fluid running through the line then goes into the area around the vein. This can occur in the liver or around the heart. Both of these complications are serious but rare and your neonatal team carries out regular checks of the line position to reduce the chances of this happening.

What are the risks of a UAC?

These include infection, clots and spasm of the artery. If there is a clot or artery spasm this can sometimes effect blood flow to the lower limbs and the toes may go white. If this does not improve the UAC will be removed. There are rare cases where due to complications from a UAC that there is long term damage to the leg especially the toes.

Peripheral Arterial Line

If your pēpi is quite unwell they may need a peripheral arterial line placed if the umbilical artery cannot be used. The arteries used are on the inside of the arm near the hand or in the feet and the line looks just like a peripheral IV line.

These lines are quite hard to place as the artery is very small and even when we try it is not always possible to insert the line into the artery.

What is the peripheral arterial line used for?

The blood pressure to be monitored constantly and blood samples can be taken from your pēpi without more needle pricks.

What are the risks of a peripheral arterial line?

This includes clotting or spasm of the artery resulting in the fingers or toes then having lower blood supply than usual and may turn white. If this occurs the line is removed. There are rare cases where due to complications from a peripheral arterial line that there is long term damage to fingers or toes.