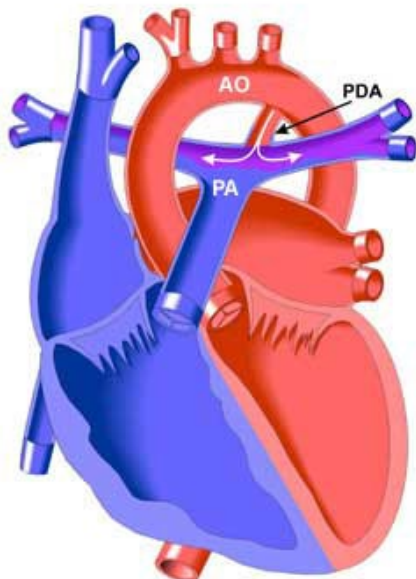




# Patent Ductus Arteriosus (PDA)

Whānau/Family Information – Neonatal Services

Before birth, the unborn pēpi/baby gets its oxygen and nutrients from the placenta. The lungs are fluid filled and not required for oxygen delivery. The ductus arteriosus allows blood to move from the right side of the heart to the left (the pulmonary artery to the aorta) without entering the lungs. This is shown in the diagram below.



Patent Ductus Arteriosus

At birth, the pēpi begins to breathe and the lungs open up, allowing the blood to get to the lungs. The ductus is no longer required and higher levels of oxygen in the bloodstream stimulate its closure.

The ductus arteriosus does not always close. In healthy term newborns 98% will have a closed ductus on day 4. The incidence of a persistent (not closed) ductus arteriosus in healthy term newborns is low around 1:2000.

Preterm pēpi, especially if they are small and are on a ventilator, are far less likely to close their ductus arteriosus spontaneously. If the ductus has not closed by day 3, it may be less likely to close by itself. The more premature and the more severe the lung problems, the more likely that the pēpi will have a PDA. The incidence of PDA in ventilated pēpi on day 3 is 60% (if less than 1.5kg). Antenatal steroids have been shown to decrease the incidence of PDA probably by decreasing the severity of the Respiratory Distress Syndrome (RDS).

We suspect a PDA on clinical signs, eg. a heart murmur, X-ray findings or simply because of the extreme prematurity of your pēpi. The only way of really seeing the size and significance of a PDA is by 'echo' or heart ultrasound.

The blood flow in the PDA is usually from the aorta back into the pulmonary artery, and causes two main effects: (1) there is more blood flowing back to the lungs which may result in a higher amount of respiratory support needed by your pēpi and (2) the blood that should be going to the brain and other organs is being decreased as it runs back into the lungs. Both of these are important reasons for wanting to close a PDA.

There is ongoing debate about whether a PDA needs treatment or ligation. If a pēpi is clinically stable, we may choose to monitor the PDA over time. Many will close in time. If closure is needed it can most often be achieved by giving your pēpi a medicine called Indomethacin or paracetamol. Indomethacin is effective in closing 90% of significant PDA's. There are some side effects on the kidneys, platelets and feed intolerance, which will be closely monitored. Paracetamol is used in pēpi with a PDA who should not have indomethacin due to potential side effects. If this fails to close the PDA, we have the option of either trying a repeat course of the Indomethacin or asking the surgeons to close the PDA surgically. Surgical closure works very well, but it does require a general anaesthetic, has a mortality rate of about 1%, and may cause some complications

Once we have confirmed that a PDA has closed, there is a chance that it may reopen again within the next few days, this is more likely in extremely preterm, very sick, or older pēpi. Occasionally when a PDA does not close and it is not causing trouble we monitor its size as pēpi grows.



*Performing an ultrasound of the heart*

