Retinopathy of Prematurity (ROP)

What is ROP?
ROP is a disease of retinal blood vessel development that affects some babies who are born very prematurely.

What is the retina?
The retina is the thin layer inside the back wall of the eye that works like a film in a camera to allow us to see.

Why does ROP develop?
The blood vessels supplying the retina start developing about four months into pregnancy. Babies born very early (especially before 32 weeks of development, or two or more months premature) have under-developed lungs, and need to be given extra oxygen to survive. The high oxygen levels in the baby’s blood can slow down the blood vessel growth, leaving areas of the retina with no blood supply for some time. After a while the body may try to ‘catch up’ this vessel development because of the area of retina that is not getting a blood supply. This can result in abnormal blood vessels forming. In rare cases, the abnormal blood vessels cause scarring that can pull the retina out of its normal position, and even off the back wall of the eye (retinal detachment).

The more prematurely a baby is born, the more severe ROP development can be. Most cases improve by themselves, but a few will require treatment to prevent loss of vision.

What is the result?
ROP is a potentially blinding condition, and is one of the leading causes of vision impairment in children. Fortunately, this is now a rare outcome in areas where screening is available, and the vast majority of children develop normal or near-normal vision.

Who needs screening?
All babies born before 32 weeks of gestation (development) or weighing less than 1500g should be screened for ROP. This screening should begin at 34 weeks gestation or four weeks after birth, whichever comes later.

Who does the screening?
The screening is done by a children’s eye doctor (paediatric ophthalmologist), or an eye doctor who specialises in diseases of the retina.

How is screening done?
Drops are put into the baby’s eyes at least 30 minutes before the examination. This dilates the pupil (the black dot in the middle of the eye), to allow a better view of the retina. At the time of the examination, local anaesthetic drops are placed into the eye to numb the surface of the eye. The baby is wrapped firmly in a sheet or wrap and a nurse helps hold the baby still.

Usually the examination involves a special headlight worn by the eye doctor and a hand-held lens to focus light into the eye. A small device is used to hold the eyelids open, and another is used to move the eye around to allow the eye doctor to see all areas of the retina.
Babies often cry and become distressed during the examination. The local anaesthetic minimises discomfort, but having eyes held open and bright light shone into them can make a baby upset. Some parents prefer not to be present for the examinations for this reason.

How often does screening occur?
Generally every one to three weeks, depending on what level of disease is present.

How many times does a baby need to be examined?
This varies from baby-to-baby. Some will need only two to three examinations; others will need many more. Once vessels have developed enough to reduce the risk of sight-threatening disease, the screening can stop.

What happens after screening finishes?
Babies born prematurely, especially those who develop ROP requiring treatment, are at increased risk of some eye problems such as turned eyes (strabismus) and short-sightedness (myopia). These children should have two to three more examinations before school age (at about 18 months) at Caloundra Health Service, and at least another routine examination at about age three. You’ll need a referral from your doctor (to Caloundra Health Service eye clinic or alternative eye doctor). These are much simpler examinations. The child does not need to be held or have devices placed to hold eyelids open, but just sit on a parent’s lap to be examined. The eye’s pupils still need to be dilated.

Treatment for ROP
Most babies who develop ROP don’t end up needing any treatment, the disease simply resolves over time. However, it is vitally important that all babies with ROP continue to be examined until it is safe to stop.

Babies who develop more severe disease may need treatment. Unfortunately treatment does not guarantee there will be no loss of vision. Rarely, some vision loss (which can be severe in very rare cases) may occur despite treatment.

- **Laser**
  This is the most common form of treatment. The laser is applied to the area of retina which has not developed a blood supply (on the edge of the retina). The laser will cause a small effect to a child’s side vision, but hopefully prevents any loss of his/her important central vision.

- **Avastin/Bevacizumab**
  In some babies with severe disease, laser may not be enough to prevent poor vision from developing and an injection of a medicine called Avastin or Bevacizumab into the cavity of the eye may give a better vision outcome. This medicine blocks the chemical signal that makes the abnormal vessels grow. It works very quickly, and as it slowly wears off, more normal vessel growth will occur. Some babies may also require laser.