Retinopathy of Prematurity (ROP) is a disease that can lead to blindness. It is very important that your premature infant get checked for ROP. Your baby should continue to get checked by a pediatric ophthalmologist (a specialized eye doctor) after being discharged from the hospital.

What is Retinopathy of Prematurity?
Retinopathy of Prematurity (ROP) is a disease that can lead to blindness. It is caused by abnormal development of blood vessels in the retina in some premature infants born before 32 weeks. The retina is the inner layer of the eye. It receives light and turns it into visual messages that are sent to the brain.

The retina begins forming before a baby is born, starting at the very back of the eye and moving forward. In a full-term baby, the retina is fully formed shortly after birth. When a baby is born prematurely, the blood vessels in the retina are not fully grown.

Most ROP goes away on its own without causing damage to the retina. If the ROP is severe, it can cause the retina to pull away or separate from the wall of the eye causing blindness.

When are babies checked for ROP?
Babies will have an eye exam if they weigh less than 3.3 pounds and were born before 32 weeks.

How is ROP diagnosed?
An eye doctor (ophthalmologist) will examine your baby’s eyes. During the exam:
• Eye drops will be used to enlarge your baby’s pupils.
• A special tool called a speculum will be placed on your baby’s eyelids to keep them open.
• The doctor will look at your baby’s retina with a light and special lens.

The exam will not hurt your baby but may be uncomfortable. After the exam your baby’s eyelids may be slightly red and swollen.

How do doctors describe ROP?
ROP is described by 3 things:
• Where it is found in your child’s eye (this is called the “zone”).
• How severe it is (this is called the stage).
• What the blood vessels in the retina look like. This tells us if your baby has “plus disease.” Plus disease means that the blood vessels of the retina have become larger, twisted and the disease is getting worse.
Zones of the retina

There are three zones in the retina. They describe how far the blood vessels have grown outward from the back of the eye. The zones are centered on the optic nerve. This is the main nerve that sends visual messages from the retina to the brain.

Zone I disease is usually more severe than Zone II. This is because in Zone I disease the blood vessels have not grown out very far.

- **Zone I** – circular area in the center of retina
- **Zone II** – doughnut shaped area that surrounds Zone I
- **Zone III** – curved shape at the edge of Zone II

This is a view through the pupil to the back of the eye (the retina).

Stages of ROP

There are five stages, ranging from mild (stage I) to severe (stage V).

- **Stage I and Stage II** – Mild to moderately abnormal blood vessel growth. Many children who have stage I or stage II get better without treatment and may have normal vision. The disease often gets better on its own.
- **Stage III** – Severe abnormal blood vessel growth. The abnormal blood vessels grow toward the center of the eye instead of following their normal growth pattern along the surface of the retina. Some infants who develop stage III improve with no treatment and will have normal vision. Some infants with stage III ROP, and those with plus disease, may need treatment. In some cases, laser treatment can prevent the retina from separating.
- **Stage IV** – Partially separated retina. The abnormal blood vessels are pulling the retina away from the wall of the eye. This needs surgery by a specialist. A baby’s vision may be impaired.
- **Stage V** – Completely separated retina and the end stage of the disease. This needs surgery by a specialist. The child will likely have visual impairment.
How is ROP treated?
The treatment for your child will depend on the stage and how severe their disease is. Laser treatment is the most common treatment for stage III with plus disease. The laser is used on parts of the retina without blood vessels to stop the growth of the abnormal vessels and to prevent detachment.

Is it important to continue seeing an eye doctor after leaving the hospital?
Yes. If your baby has ROP, it is critical that you follow the timeline of visits the doctor gives you after you leave the hospital. Premature infants are more likely to have other eye problems so it is important for them to have an eye exam between 6 months and 1 year of age.