

Treating Bascom Palmer's



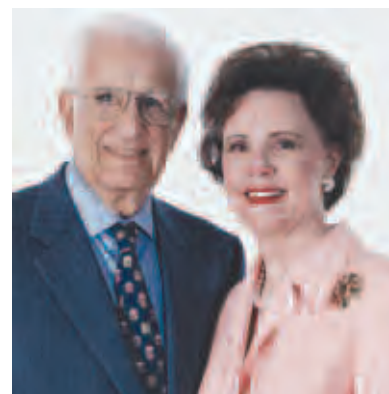
youngest patients with loving care



Craig A. McKeown, M.D. examines a young Bascom Palmer patient.

Socially, academically and athletically, vision plays an important role in childhood development. At Bascom Palmer, some of the world's most respected pediatric ophthalmologists diagnose and treat childhood eye disease and disorders, while conducting research to advance knowledge about pediatric ophthalmology.

Bascom Palmer's Pediatric Service treats approximately 7,000 children annually in its William and Norma Horvitz Children's Clinic, an outstanding ophthalmic facility designed specifically for pediatric care. The spacious outpatient clinic is designed to meet the unique ophthalmic and social needs of children with visual deficiencies. With the support of the extensive resources of the entire Institute, the Horvitz Clinic, funded by William and Norma Horvitz, specializes in the blinding and visually-impairing diseases of childhood, including: strabismus, amblyopia, retinopathy of prematurity, pediatric glaucoma, retinoblastoma and rare genetic disorders. Typically, patients are referred to Bascom Palmer by pediatricians who suspect a vision problem, or pediatric ophthalmologists who diagnose a severe eye condition or unusual disorder.



William and Norma Horvitz

Childhood Strabismus and Amblyopia

Craig A. McKeown, M.D., associate professor of clinical ophthalmology, diagnoses and treats strabismus, one of the most common conditions in children. Often referred to as "crossed-eyes" or "wall-eyes" strabismus is a visual defect in which the eyes are misaligned and point in different directions. Many children with the disorder have poor or no binocular vision, resulting in impaired depth perception.

"Examining the eyes of children, especially those between one-and-a-half and two-and-a-half years of age can be very challenging," says Hilda Capó, M.D., a Bascom Palmer professor who also practices in the Institute's Strabismus Service. "It is important to hold the child's attention in order to look for alignment and visual acuity. We make silly noises, play with them and use different toys in rooms specifically set up for children. That makes a huge difference," she explains.

As part of the comprehensive evaluation, patients first meet with a technician who gathers medical history, checks visual acuity and monocularly using simple tools like cards with varying widths of stripes.

EYE PROBLEMS

■ Amblyopia (“lazy eye”)

Common in about 1 in 25-50 people, amblyopia is a condition in which the visual function of one eye is underdeveloped while vision for the other eye is normal.



A common treatment for amblyopia is to patch the strong eye. The weak eye is strengthened because the child is forced to use it.

■ Strabismus (“misaligned eyes”)

A visual defect in which the eyes are misaligned and point in different directions. Common among children, but also present in some adults. Children will not outgrow true strabismus.



The main symptom of strabismus is an eye that is not straight. Sometimes children will squint one eye in bright sunlight or tilt their head to use their eyes together.

■ Retinopathy of Prematurity (ROP)

ROP is the leading cause of childhood blindness in developed countries. Premature or low birth weight babies often need to receive oxygen until their immature lungs develop. Infants must be exposed to the proper levels of oxygen so that their retinas are not damaged.

A pediatric ophthalmologist completes the examination, rechecking vision alignment and conducting a motility examination to determine if strabismus is present and to measure the eyes in different positions of gaze. The physician also checks for muscle dysfunction.

Eye misalignment causes the brain to receive two different visual messages. In young children, the brain may begin to “ignore” the image sent by the deviating eye while highly detailed visual information may be processed from the straight eye. This results in another common condition known as amblyopia, or “lazy eye.”

For both conditions McKeown points out that early intervention with the appropriate course of treatment is essential for a successful outcome. Children, he says, are born with poor vision, when compared to adults. With no problems present, their vision will develop normally through childhood. However, if either eye is at a disadvantage during the first nine years of life, the disadvantaged eye may shut down. After age nine, he says, treatment is rarely successful.

Treatment for strabismus is often as simple as some combination of glasses, eye drops and/or eye muscle exercises to realign the eyes and strengthen the muscles that control the eyes. Amblyopia is generally treated with placing a patch over the good eye and administering drops, which temporarily paralyze the focusing muscle in the good eye, forcing the lazy eye to work and strengthen. In some cases muscle surgery is necessary to realign the eyes.

Drs. McKeown and Capó perform surgical procedures each week on children with complex strabismus, often with amblyopia overlap. During the hour-long surgery, conducted under general anesthesia, eye muscles are either loosened, tightened, or both, to properly align the eyes.

The experience of Bascom Palmer pediatric ophthalmologists in performing surgical procedures is a major advantage in treatment outcomes. So, too, adds McKeown, is the institute’s comprehensive approach to pediatric eye care – an approach that combines examination, diagnosis, treatment and education, as well as access to other specialists, like neurologists, for further evaluation.

“We are unique internationally,” says Capó. “We have resources here you won’t find anywhere else, and can generally provide same day results on diagnoses, even when further evaluation is called for.”

Retinopathy of Prematurity

Bascom Palmer’s youngest patients are premature babies – babies sometimes born during the sixth month of pregnancy. Babies born between the 23rd and 26th week are highly likely to develop retinopathy of prematurity (ROP), a condition involving uncontrolled blood vessel growth in the retina. If not properly treated, ROP can lead to retinal detachment and permanent blindness. In fact, in developed countries, ROP is the leading cause of childhood blindness.

Bascom Palmer’s physicians and scientists have earned international recognition for pioneering research into the cause and prevention of ROP. Studies conducted in cooperation with community neonatologists and ophthalmologists have led the way to a new understanding of ROP and to the identification of its potential victims.

Premature or low birth weight babies often need to receive oxygen until their immature lungs develop. Today, physicians know that exposure to high levels of oxygen over extended periods of time can trigger the disease in infants, causing the retina’s tiny developing blood vessels to grow wildly and form scars. In some children the retina is able to recover and the damage is moderate. However, in severe cases, there is retinal detachment and ultimately, blindness.

Audina M. Berrocal, M.D., medical director of Bascom Palmer’s Retinopathy of Prematurity (ROP) Service, says the main issues associated with the disease are gestational age and birth weight. In the 1950s, she explains, doctors attributed ROP solely to the amount of oxygen a premature baby received at the time of birth. About 30 years later, however, doctors discovered that babies of a certain age and weight would develop ROP. Further, they noted that if the babies were diagnosed and received treatment at a certain point in their development, their vision could be saved.



Hilda Capó, M.D., administers a stereo test to assess her patient's depth perception which comes from the ability to have both eyes work together.

With this knowledge, neonatologists now include ROP screening as part of routine care for premature babies. Berrocal, a highly trained pediatric retina specialist, screens her young patients born during the 32nd week of pregnancy, in the University of Miami Miller School of Medicine/Jackson Memorial Hospital's Neonatal Intensive Care Unit. Diagnosis can be challenging because of the multitude of complications exhibited in premature babies.

Working with a specialized nurse, Berrocal conducts a relatively simple screening that involves pressing on a baby's eye with a metal speculum to check the retina for vessel growth. Based on what she sees, Berrocal stages the condition and prescribes a course of treatment. For ROP babies born during the 23rd to 26th week of pregnancy, Bascom Palmer pediatric ophthalmologists typically prescribe aggressive laser treatment, often two or three times, to control vessel growth.

"Experience is key," says Berrocal. "Laser treatment is highly specialized and requires tremendous skill. Our understanding of ROP and experience with the disease is so advanced that we know how and when to be aggressive."

She adds that Bascom Palmer uses a different type of laser technique, called continuous laser, to treat ROP. Unlike traditional laser treatment (intermittent laser) which treats the retina one spot at a time, continuous laser works more like a brush stroke, treating the entire retina with less skipped areas. The continuous laser technique was developed by Timothy G. Murray, M.D., F.A.C.S., a professor at Bascom Palmer and director of the Institute's Ocular Oncology Service.

Along with ROP, Bascom Palmer ophthalmologists treat a number of significant pediatric retinal conditions, including complicated hereditary conditions.

Pediatric glaucoma, a group of disorders that affect the eye's optic nerve, is much different than adult glaucoma. It occurs in about one in 25,000 babies born in the United States. Left untreated, it can lead to permanent blindness.

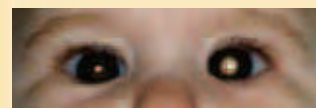
Bascom Palmer's pediatric and glaucoma specialists are skilled at detecting all forms of pediatric glaucoma, disorders which often go undetected because signs of the disease may not be obvious, or may appear to mimic another condition.

■ **Pediatric Glaucoma**

Pediatric glaucoma is treated differently from adult glaucoma. Most young patients require surgery and are referred to specialists for treatment.

■ **Retinoblastoma**

A rare form of cancer affecting the light-sensitive retinal cells that enable sight. Although it is very rare, it is the most common ocular malignancy in children and third most common cancer to affect children – occurring in one out of every 15,000 births.



When looking at a photograph of a child, "red-eye" is good. If the child's eye appears to have white centers in flash photos, request a pediatric ophthalmic examination immediately.



HEALTHY EYES FOR CHILDREN

Although a baby's eyes are optically capable of seeing, infant vision is limited to about 20/1500, in part because the brain has not learned how to process the visual messages it receives. As visual development proceeds, the child will eventually be able to detect the finest details in an image.

When should my child have his first eye exam?

■ Your pediatrician should examine your child's eyes during the first year of life. If you or your pediatrician suspect any abnormality, or if there is a family history of misaligned eyes, childhood cataracts or a serious eye disease, the child should see a pediatric ophthalmologist.

■ All children should have a comprehensive eye exam by their fourth birthday if vision appears to be developing normally, and every two years thereafter.

■ Early diagnosis and treatment of childhood eye disease may mean better visual results.

To schedule an appointment with a pediatric ophthalmologist, please call 1-888-845-0002



Alana Grajewski, M.D. and Elizabeth Hodapp, M.D. examine a patient in the children's clinic.

Palmer's Ocular Oncology Service. Patients, many just a few months old, travel from all parts of the world to seek the expert, integrated care offered by Bascom Palmer physicians and specialists.

Retinoblastoma, a malignant tumor in the retina, is the most common form of eye cancer. It can occur in one or both eyes, and accounts for only about three percent of cancers in patients under the age of 21. For children, however, retinoblastoma is particularly significant. It is the number one cancer in children under the age of five.

Caught early, by the time a child reaches three months of age, retinoblastoma almost always can be cured, and generally vision can be preserved. Often however, retinoblastoma is misdiagnosed, or missed completely, accounting for the significant number of deaths associated with the disease. In very young children, retinoblastoma almost always occurs bilaterally – in both eyes.

"At Bascom Palmer, we see more eye cancers and do more surgeries than anyone else in the world," says Murray. "We have the best program in the world for clinical management of diseases of the retina and creative approaches to treatment."

Children with retinoblastoma typically present with a pupil that appears white, rather than red, when a light is shone into the pupil. The symptom is known as leucocoria and can sometimes be detected looking at home photographs. Where healthy eyes will reflect a red spot, ("red eye"), in a photograph taken with a flash, the eyes of children with retinoblastoma will often reflect a white spot. While there may be other causes for leucocoria, it is an important symptom which should be evaluated by a retina specialist.

Diagnosis of retinoblastoma is often challenging and difficult for children. Typically evaluations are conducted under anesthesia, and once confirmed, an involved course of treatment is prescribed. A biopsy is never part of the evaluation because, with an intraocular tumor, biopsy increases the potential for spread through the tumor line.

Treatment for retinoblastoma generally involves laser focal therapy techniques, combined with aggressive chemotherapy followed by a laser surgical procedure. Occasionally, radiation therapy is used in place of chemotherapy. The course of treatment usually lasts about one year.

"At Bascom Palmer we have the best success rates with retinoblastoma, not just for child survival, but for preserving the eye and the vision," says Murray. "The disease needs to be treated perfectly from the start."

Because most eye doctors do not have experience treating infants or young children with glaucoma, patients are referred to specialists for treatment. Pediatric glaucoma specialists, Alana Grajewski, M.D., and Elizabeth Hodapp, M.D., use a wide range of medical and surgical options to treat pediatric glaucoma, including trabeculotomy and goniotomy, two complex surgical procedures which are almost never used in the treatment of adult glaucoma. When performed early, these procedures generally yield a lifetime of normal or near normal vision.

As part of the service, Bascom Palmer's pediatric ophthalmologists and other eye care specialists offer long-term rehabilitative care and monitoring of visual development in addition to short-term treatment of the immediate problem.

Retinoblastoma

Murray, one of the world's leading experts in eye cancer diagnosis and treatment, leads Bascom



Timothy G. Murray, M.D., F.A.C.S. observes a small child at play in the Horvitz Children's Clinic.

Murray feels strongly that integrated care, the type of care available at Bascom Palmer, plays an important role in successful treatment outcomes for patients with retinoblastoma. The entire treatment team, including pediatric oncologists, radiation therapists, anesthesiologists, oncological nurses and rehabilitative therapists must work closely together, hand-in-hand to ensure optimal results.

Interestingly, researchers have known for several years the gene that causes retinoblastoma. While it is now possible to screen genetically for the disease, current screenings do not provide adequate information. Therefore, Murray says additional evaluations are always conducted when retinoblastoma is suspected. He adds that it is now possible to see retinoblastoma in the womb through ultrasound, a major boost to early diagnosis that sets the stage for the earliest possible intervention and successful treatment. Again, he credits Bascom Palmer's exceptionally skilled specialists, including the best photography and ultrasound teams and imaging technicians in the country, who make early and accurate diagnosis possible.

With improved diagnostic and survival rates for retinoblastoma has come increased incidence of the disease. Statistically, Murray says 50 percent of the children of parents with retinoblastoma will develop the disease. Knowing this information allows pediatric ophthalmologists to screen for the disease at the earliest possible moment, improving a child's chances for a positive outcome.

At Bascom Palmer, advances in the laboratory also are helping to improve outcomes for children with retinoblastoma. Currently, Murray and his team are testing two combination treatment therapies for advanced stage retinoblastoma. One trial involves chemotherapy delivered in two ways: systemically via intravenous infusion; and focally, injected around the patient's eye. A second trial combines chemotherapy delivered systemically in combination with low dose radiation. Both trials show great promise, and again highlight the benefit of receiving care at a top ocular facility like Bascom Palmer.

"It's extremely important to go to a facility like Bascom Palmer for diagnosis and treatment," says Murray. "Bascom Palmer Eye Institute is the number one eye institute in the country. That is an absolutely remarkable thing. From the center's unique and specialized experience, diagnostic capabilities, integrated care and truly talented staff of ophthalmologists and specialists, children being treated at Bascom Palmer are at a tremendous advantage."

EYE SAFETY AT HOME

- To provide the safest environment for your children or grandchildren, select games and toys that are appropriate for their age.
- Always supervise children when they are using pencils, scissors, forks and knives. Even common household items such as paper clips, rubber bands, or wire hangers can cause serious eye injury.
- Childproof your home and keep all chemicals, sprays, household cleaners and detergents out of reach of small children.
- Have children wear protective eyewear when participating in sports or other hazardous activities.

When an injury does occur, it is always best to have an ophthalmologist examine the eye as soon as possible.



Don't forget, Bascom Palmer Eye Institute in Miami has a 24-hour/7-day a week Emergency Room for all of your eye emergencies.