Retinoblastoma is a malignant eye tumor whose cure rate exceeds 95% in developed countries, in part because of early diagnosis. In low-income countries, cure rates are less than 50%, primarily because of advanced disease at the time of diagnosis. Children with intraocular (confined to the eye) retinoblastoma are almost always cured by enucleation (removal of eye), whereas extraocular disease is often fatal even with chemotherapy or radiation. Early diagnosis requires that parents and primary care providers recognize leukocoria (white pupil); the most common initial sign of retinoblastoma, and promptly refer the child to an ophthalmologist trained to treat the tumor. Several programs to reduce this high rate of mortality and blindness have been ongoing through the St. Jude International Outreach partner programs in Honduras, Guatemala and Jordan. These have resulted in a significant improvement in early diagnosis, effective treatment and improved survival rate of children with Retinoblastoma in these countries. Accomplishments of this program to date are:

1. Equipment has been procured including Retcams in Guatemala and Jordan, laser, cryotherapy equipment in Guatemala, Jordan and Honduras
2. A program for placement of brachytherapy plaques in Guatemala
3. A program for referral of patients to Guatemala
4. An internet based consult system on ORBIS (www.ORBIS.org)
5. Monthly Spanish internet conferences and English teleconferences
6. A visiting ophthalmologist program at St. Jude/ University of Tennessee School of Ophthalmology
7. Public education campaigns for early diagnosis in Honduras
8. A protocol to procure tumor tissue for study at St. Jude

Key events at St. Jude and at the International Partner Sites (2006-2009)

2006 - Retinoblastoma Symposium: International Outreach participated in an international symposium aboard the ORBIS plane at the FedEx hanger, Memphis International Airport, to discuss the Central American Retinoblastoma Program. International Outreach partnered with ORBIS, FedEx, and the University of Tennessee Hamilton Eye Institute to build the capacity to treat retinoblastoma. Speakers from St. Jude, Guatemala and Honduras presented the accomplishments of the program which include an early diagnosis program, new patients diagnosed and treated, retinoblastoma consults on the ORBIS internet site performed by St. Jude Children’s Research Hospital retinoblastoma experts.

2007 - International Retinoblastoma Conference: The International Outreach Program hosted the International Retinoblastoma Conference held here at St. Jude on January 25 & 26, 2007. The conference was jointly sponsored by St. Jude and The University of Tennessee Hamilton Eye Institute. This symposium and roundtable discussion brought together experts from around the world to discuss the treatment and research in retinoblastoma and provided opportunities for collaboration in the development of programs to treat children with this disease worldwide. This international symposium was of interest to pediatric oncologists, pediatric ophthalmologists, basic scientists, residents and fellows. The objectives of the conference were:

- To provide educational opportunities regarding the biology and treatment of retinoblastoma
- To provide a forum for knowledge exchange among researchers from different disciplines and different countries
- To discuss collaborative research opportunities

The conference was attended by 160 participants representing 35 countries, 90 institutions and 20 different languages. The retinoblastoma conference was transmitted via video conferencing and the www.Cure4Kids.org web conferencing to 15 countries around the world.
2007 – RETCAM donation to Honduras: International Outreach and The University of Tennessee Hamilton Eye Institute donated a Retinal Laser Camera (RETCAM) to our partner site at the Hospital Escuela in Tegucigalpa, Honduras valued at approximately US$80,000. Drs. Barrett Haik and Judy Wilimas and Mrs. Blanca Phillips attended a nationally broadcasted ceremony of the official donation of the RETCAM to our Honduran partners on behalf of St. Jude and the UT Hamilton Eye Institute. Following the donation ceremony, the local press conducted an interview with staff from both St. Jude and Hospital Escuela. Dr. Haik provided information about St. Jude, IOP, our global mission and childhood eye cancer and the improvements in survival of this form of cancer when detected and treated early.

2008 - St. Jude/UT Hamilton Eye Institute inaugurate new center in Panama: St. Jude Children’s Research Hospital and the University of Tennessee’s Hamilton Eye Institute under the leadership of Dr. Barrett Haik inaugurated the opening of a comprehensive eye cancer treatment center in Panama. This is the third center that St. Jude and the Hamilton Eye Institute have partnered in establishing these services in Central America. The two other centers are located at the IOP partner sites in Guatemala and Honduras. The new center in Panama will provide state-of-the-art care for diseases such as retinoblastoma and retinopathy of prematurity, where the burden of treatment for these complex disorders lies with local physicians that may not have the clinical volume to develop the expertise that physicians in large referral centers in the United States such as St. Jude can provide. The center will also capitalize on telemedicine consultations for difficult cases with St. Jude and the Hamilton Eye Center via the Cure4Kids web-conferencing technologies, free-of-charge. This initiative also demonstrates the goal of St. Jude IOP and the Hamilton Eye Institute of becoming not just a referral center for complex diseases, but to develop into a leader in prevention and treatment of children’s cancer and diseases of the eye worldwide.

2007-2009 – Major St. Jude Scientific Publications in Retinoblastoma Research

Mutations and cancer: one or two historical perspectives?, *Lancet Oncology*, May, 2009. Authors: Dyer MA, Abramson DH.


Differentiated horizontal interneurons clonally expand to form metastatic retinoblastoma in mice (Investigators at St. Jude Children’s Research Hospital have identified the cell that gives rise to the eye cancer retinoblastoma, disproving a long-standing principle of nerve growth and development. The finding suggests for the first time that it may one day be possible for scientists to induce fully developed neurons to multiply and coax the injured brain to repair itself). *Cell*, October, 2007. Authors: Ajioka I, Martins RA, Bayazitov IT, Donovan S, Johnson DA, Frase S, Cicero SA, Boyd K, Zakharenko SS, Dyer MA.