

Transforming Cancer Care

“By learning to better treat children with eye cancer, we may learn to better treat all cancer patients,” says Associate Professor Joan O’Brien, MD, Director of the Ocular Oncology Center at the Beckman Vision Center. “Our research program is aimed at rapidly improving the care of these children through the application of basic scientific understanding.”

Deeply involved with the care of children with retinoblastoma eye cancer for more than a decade, Dr. O’Brien has developed one of the very few programs in the world to treat and research this genetic disorder. Here, a busy team of clinicians and scientists manages the care of children with a complex, life-threatening disease. In a single afternoon, the children are evaluated by Dr. O’Brien and her colleagues at UCSF, including specialists in pediatric oncology, neurology, endocrinology, radiology and radiation oncology.

Simultaneously, with an extensive patient database, Dr. O’Brien’s research team explores opportunities for early diagnosis, and treatment alternatives, including chemotherapy and gene therapy studies funded, in part, by That Man May See. “When we participate in clinical trials, it’s easy to see an agent that might work better, test it, and propose its use to improve diagnosis or care,” Dr. O’Brien explains.



Dr. Joan O’Brien (third from left) has developed one of the very few programs in the world to treat and research the genetic disorder, retinoblastoma.

“The possibility of gene therapy for this cancer is very real,” says Dr. O’Brien. “It appears that a mutation in a single gene is all that is necessary for the cancer to develop. Retinoblastoma was the first gene known to cause cancer when altered or absent, by failing to perform its function of regulating cell proliferation. If we can halt the disease by replacing the faulty gene product and restoring its regulatory function, that may have broad applications for all cancer patients, since this gene pathway is very frequently altered in the majority of human neoplasms.”

“When a child has retinoblastoma, there is a 90% probability that this eye cancer can be cured with aggressive treatment,” Dr. O’Brien says. “Many of these children also get secondary tumors with high mortality rates, and we are working to diagnose these tumors early, to effect a better rate of cure. Our hope for the future is to be able to diagnose this potentially devastating pediatric cancer with a degree of precision that permits us to design treatments that can effectively address each individual patient’s particular type and level of disease.” ■