Ideas in ACTION

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"An Eye Toward Innovation"

Casting an eye toward innovation is exactly what Jerry Barker did in 2004 when he left the North Carolina Eye Bank and launched his own company, Ocular Systems, Inc. (OSI). As the title of his SciTech Lecture implied, *"An Eye Toward Innovation"* was a founding principle of a company that, since its inception, has processed in excess of 11,000 corneas for transplant.

Starting with one employee in a small office and steeped in years of experience in working in eye banking, Mr. Barker partnered with surgeons and eye banks to provide the first Endothelial Keratoplasty (EK) allograft processed outside of an Operating Room. Since inception, the company has grown to include an experienced staff of 18 employees, along with a team of medical advisors. Headquartered in Winston-Salem, North Carolina with a satellite office in Aurora, Colorado, OSI's mission is to deliver to physicians innovative surgical solutions to help patients improve their vision.

Ocular Systems, Inc. focuses their expertise on the human cornea. The cornea consists of five layers including the most posterior layer – the endothelium. The endothelium is a mono-layer of cells that function as metabolic pumps to maintain deturgescence in the cornea. Endothelial cells do not reproduce and through injury, disease and age, damaged cells can cause the cornea to cloud, become swollen or cause loss of sight. Through a specialized cornea transplant procedure called Descemets Stripping Endothelial Keratoplasty the damaged cell layer is removed and replaced with a donor graft.

At the core of OSI's business is processing donor corneas for transplant. OSI is not a tissue procurement facility but works with eye banks from across the country to obtain donor corneas. Surgeons contact OSI to request allografts for transplant procedures and based on patient needs and surgeon specifications, OSI fulfills requests for processed corneal tissue. Grafts are then sent directly to the operating room for transplant.

In addition to processing corneas, OSI launched an innovative surgical device in early 2011 called the EndoSerter® Corneal Endothelium Delivery Instrument. The EndoSerter® device is used to insert donor allograft tissue into the anterior chamber of the eye during Endothelial Keratoplasty procedures. This device replaces the traditional practice of folding the corneal tissue with forceps before it is inserted into the eye. Developed in Winston-Salem and manufactured in the Piedmont Triad Research Park, this innovative ophthalmic device is available commercially both in the U.S. and abroad. Ocular Systems, Inc. is on the leading edge of research and development as it partners with resources in the

Piedmont Triad Research Park and community on revolutionary initiatives dedicated to future advances in the ophthalmic industry.

OSI recognizes and respects the selfless gifts of donors and their families that make its work possible. Mr. Barker shared information related to and encouraged organ and tissue donation. He shared with the audience the statistics of those individuals who are waiting for organ transplants and the numbers were staggering. In the US alone, there were 110,716 people waiting for an organ transplant, while the number in North Carolina was 3,484. He also shared the tragic news that 20 people would die today waiting for a transplant.

He also explained that the process of organ and tissue donation is a simple one, involving three steps. First, indicate the desire to be a donor on your Driver's License. Second, register online at www.donatelifenc.org and, third, be sure to share with a family member (MOST IMPORTANT) the desire to be a donor, so in the event you are not able to voice your desires, a family member could provide this information. Mr. Barker also stated that if a donor is under the age of 18, a parent or guardian must grant their permission for the person to become a donor. He then posted a list of tissues that are recoverable for transplantation which are bone, skin, heart valves, veins, corneas, sclera, and whole globes used for research. It is estimated that one donor can save or help as many as fifty recipients and thereby allow the process of life to continue or either the continuation of a better quality of life.

By keeping "an eye toward innovation," Jerry Barker and his team have proven that it is rewarding to take risks, particularly if it can benefit our fellow man by providing one of those attributes that are so precious to all of us—the ability to see and enjoy the beauty around us.