

# Gleams

Glaucoma  
Research Foundation

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## The Importance of Clear Communication

What does “glaucoma” mean to you? One might think that “glaucoma,” being a medical word, would mean the same thing to all people. But the fact of the matter is, that is not true. Were we to put together the answers to that question, it would quickly become apparent that glaucoma means different things to different people.

Consider what glaucoma means to a widow who has no children and whose mother, uncle and aunt all went blind from glaucoma, becoming dependent and angry; she is terrified by hearing the doctor say, “You have glaucoma.” Consider a research scientist in a pharmaceutical company working on the development of a new drug found highly effective in the treatment of glaucoma who is told, “You have glaucoma.” It is likely that he is surprised, but not particularly concerned, because he knows that



there are effective ways to treat the condition.

Now consider the two examiners. The first considers glaucoma to be what he was told, specifically a condition in which the pressure inside the eye is above 21 mmHg. For him the issue is clear. One measures the pressure, makes the diagnosis and then advises treatment depending upon what the pressure is. Now consider the second examiner, a believer in new technology. He performs image analysis tests as

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## The Importance of Clear Communication

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well as a Humphrey visual field examination, and on the results of both tests, the printout says “outside normal limits.” But simply because a test shows a result which is not within normal limits does not necessarily mean that the person is sick.

The point should be obvious, but is one that we almost always forget. A word, even one we think is as specific as “glaucoma,” can mean something different to different people. Perhaps the widow has elevated intraocular pressure, but no optic nerve damage and may not even need treatment for her elevated intraocular pressure, because she may never develop any disability related to the process we presently call glaucoma. To tell her that she has glaucoma may be unnecessary. The pharmacologist may or may not have glaucoma, but certainly one cannot tell whether any treatment is necessary just on the basis of test results alone, no matter how up to date the tests are. Anyone receiving a diagnosis of glaucoma deserves to have it explained – what he or she has and what he or she needs to do – in a way that is caring and encouraging.

Meanings also change over time. To the ancient Greek physicians, glaucoma was a condition in which a person became blind without any apparent

inflammation of the eyes, whereas throughout most of the 20th century glaucoma was defined as a condition in which the intraocular pressure was above 21 mmHg, and yet more recently, glaucoma is considered “an optic neuropathy.”

This discussion has been limited to the word “glaucoma.” But it applies to all words. Good health care demands that communications be clear. In fact, a good life demands clear communications. Doctors can be examples in that regard. If doctors become better communicators, they will be happier and their patients with glaucoma and other conditions will be more likely to maintain their health.



George L. Spaeth, MD is Director of the Glaucoma Service and Research Laboratories at the Wills Eye Hospital/Jefferson

Medical College and current president of the Glaucoma Service Foundation to Prevent Blindness. Dr. Spaeth recently delivered the Shaffer-Hetherington-Hoskins Lecture on this topic at the Tenth Annual Glaucoma Symposium in San Francisco.

## Our Scientific Advisors— Key To Finding The Cure

The GRF Scientific Advisory Committee evaluates Pilot Project grant applications and determines which projects will be funded. Our Catalyst For a Cure Advisory Board assists in identifying target objectives for the CFC research consortium and monitors the progress of CFC principal investigators.

## Spotlight On Research:

# Three New Hypotheses Reported by Catalyst For a Cure Researchers

Recently, the Catalyst For a Cure (CFC) research team reported the development of three new hypotheses for how glaucoma is initiated and where new therapeutic targets can be found.



Philip J. Horner, PhD is Assistant Professor of Neurological Surgery at the University of Washington in Seattle, and one of the four principal investigators of the GRF-funded Catalyst For a Cure research consortium.

aspect of these data is that changes in glial cells appear to be the earliest event reported in the progression of glaucoma occurring well before vision begins

**Axonal degeneration** — The first theory is derived from a fascinating event that occurs months or even years before nerve cells die in the retina. During the lifespan of a neuron, it continuously samples the microenvironment of its distal connections. In the case of a Retinal Ganglion Cell (RGC), this means that the cell is sampling the microenvironment of the brain by its longest process called the axon. It appears that the transport machinery or highway that RGCs use to bring neurotrophins — “food” really — back from the brain becomes dysfunctional early in the disease long before the RGC cell dies.

**Gliososis** — The second hypothesis is based on two primary observations. The CFC has found that there are distinct changes in the structure and functional state of glial cells in the glaucomatous retina. Glial cells get their name as a type of support cell or glue for the neurons, but until recently glial cells have not been adequately studied. The CFC has made an important finding that glial cells react very early in the progression of glaucoma by releasing proteins that may be toxic to neurons. The most exciting

to decline. This makes gliosis a potentially good therapeutic target.

**Stretch injury** — The final favored hypothesis is based on a family of molecules that have been discovered in the last 10 years and their genes are just being discovered. The molecules are called mechanical receptors and are located throughout the brain and retina and represent a complex family of molecules that are designed to sense stretch. Their presence in the retina has obvious implications for a disorder where pressure is clearly a cofactor. The CFC proposes that these molecules may be what transmits a pressure signal into neuronal damage. Until this observation, the general concept was that pressure simply compressed the retina making it sick. These observations could provide a more specific mechanism for pressure-induced damage in the retina and, hence, one that could be specifically blocked therapeutically.

Over the next 2 years, the CFC has laid plans to rule in or out the relative contributions of each hypothesis to glaucoma progression.

# Q&A

Bradley Schuster, M.D.

## Eyedrop Techniques

First in a series of tips for putting in glaucoma eyedrop medication.

**Q:** Is there a “best technique” for getting my glaucoma medication eyedrops in my eyes?

**A:** There are two issues with getting the eyedrop where you want it: inside the eyeball. The first is getting the drop from the container onto the surface of the eye. The second issue is getting the drop from the surface of the eye to the inside of the eye where it will work to lower the eye pressure.

First, you will increase the chances that a single drop hits the eye if you lay down flat with your face up. Only one drop is needed, not two, even if the bottle says, “one drop or two.” Gently pull your lower lid down to increase the amount of eyeball showing, bring the bottle about an inch above the eye surface (hold the



bottle as vertical as possible), then gently squeeze the bottle until you see or feel the drop hit. Be careful not to touch the bottle to your eye as this can transfer bacteria to the bottle tip.

Next, to maximize effectiveness and minimize systemic side effects, use the 2-minute eyelid closure technique combined with closure of the tear drainage system:

Once the drop is on the eye, do not blink your eye or move it around to spread the drop. Instead, gently close your eyes just once, place the pad of your most sensitive finger at the inside corner of the eyelid by the nose and press gently. Leave the eyelids closed and the finger pressing gently for 2 full minutes. Studies

have shown that it takes 2 full minutes for the drop to completely penetrate the surface of the eye to get inside. Put the cap back on the bottle, with eyes still closed. The closed eyelids and pressure on the tear drainage duct avoids unwanted systemic side effects from the potent eyedrop drugs by preventing the drop from getting inside the nose where it could enter the bloodstream rapidly. After two minutes, the drop is fully absorbed into the eye. You can now put a different drop in, if you use more than one drop.

Dr. Schuster is a glaucomatologist at Kaiser Permanente, Denver, CO and Assistant Clinical Prof. Univ. of Colorado, Health Sciences Center.

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## Gifts and Grants Speed CFC Campaign

A gift of \$100,000 from **Allergan, Inc.**, will be used for both research and education initiatives. GRF research initiatives will benefit from a recent \$75,000 grant from **The Alcon Foundation, Inc.**, thanks to the advocacy from our board member **Martin Wax, MD**.

**Motorola Foundation's** gift of \$25,000, championed by new Catalyst Circle member **Mona Zander**, will specifically enable GRF's **Historically Black Colleges and Universities Glaucoma Awareness Initiative** to implement the first phase of its outreach to all 100+ HBCU campuses this fall. Meanwhile, the HBCU Leadership Council welcomed three of its members into The Catalyst Circle, including **Ken**

**Hedrick of Alta Capital, The Digby Eye Practice in North Carolina, and Cleopatra Vaughns**, along with a pivotal new gift from the **St. Francis Lutheran Church Foundation**.

Additional momentum for the Catalyst For a Cure campaign, as we enter our final – and public – phase, included a leadership gift of \$37,000 from the **Carol Young Brooke Foundation** thanks to **Michael and Gail Chmura** in Los Angeles, a renewal of our relationship with **The Mellam Family Foundation**, an increase from **R. Jean and James D. Taylor Foundation**, and an additional gift this year from **Emmett and Ann Skinner** in Chico.

**Bradford Hall** and **Dorothy and Dean Skanderup** so enjoyed the CFC Report

to Donors, they joined The Catalyst Circle at the Sponsor level.

**The Polakoff Foundation**, newly formed in Baltimore to fight glaucoma and partner with GRF, will hold its 1st Annual **Golf Outing to Fight Glaucoma** on June 26 at the Mountain Branch – Joppa, Maryland.



For exemplary efforts by employees of TBB Global Logistics, GRF President & CEO **Thomas M. Brunner** (right) welcomes to The Catalyst Circle **Willie Exum** (2nd from left), and owners **Sam and Denise Polakoff**, founders of The Polakoff Foundation and owners of TBB.

## In Appreciation

Our deepest appreciation for the generosity of THE CATALYST CIRCLE and THE BLANCHE MATTHIAS SOCIETY  
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## The President's Message



Dear Friends,

“Good health care demands that communications be clear.”

These inspiring words from **George Spaeth, MD**, world-renowned glaucoma specialist and this issue's guest medical editor, reinforce the importance of your doctor understanding your health concerns, and your understanding and carefully following his or her treatment advice.

Each year, GRF provides seed money for promising glaucoma research projects which often enable scientists to secure major funding. Recently, GRF awarded Pilot Project Grants totaling \$200,000 to researchers at **Dalhousie University, Devers Eye Institute/Discoveries in Sight, and the Universities of California, Washington, and Wisconsin.**

We are indebted to **Allergan, Inc., The Alcon Foundation, and the Motorola Foundation** for recent grants that demonstrate their commitment to glaucoma research and awareness. We deeply appreciate their strong vote of confidence in our missions and programs.

And as always, we appreciate your support, your ideas, and your participation.

Thomas M. Brunner, President and CEO

## Join The Blanche Matthias Society

The Blanche Matthias Society will hold its first-ever luncheon presentation on planned giving in June, thanks to Richard Pon and the generosity of his firm Lautze & Lautze, which will host.

Become a member of The Blanche Matthias Society and make a lasting contribution to glaucoma research and education. For information, please call Craig Palmer, 800-826-6693 or send an email to [cpalmer@glaucoma.org](mailto:cpalmer@glaucoma.org).

## Glaucoma Research Foundation

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