32nd Annual Gifford-Truhlsen Conference:
Clinical and Translational Advancements in Ophthalmology and Visual Sciences

Surgical Simulation Workshop: Thursday & Friday, May 28 – 29, 2026
Conference: Friday & Saturday, May 29-30, 2026

OVERVIEW

Target Audience
The Annual Gifford-Truhlsen Conference is intended for Ophthalmologists, optometrists, residents, medical students, fellows, vision research scientists, and other eye care professionals and technicians.

Conference Goal
This two-and a half day workshop and conference will update participants in the current management across a broad range of ophthalmic conditions pertaining to cornea, lens, refractive error, glaucoma, retinal disease, uveitis, oculoplastic, global ophthalmic health, medical education, neuro-ophthalmology, ocular pathology, ocular surface disorders, oculoplastic, pediatric ophthalmology, and visual rehabilitation. In addition, the conference presents updates on the state-of-the-art vision science research to support collaborative opportunities to further understand disease processes and their clinical care.

About the Conference
The Annual Gifford-Truhlsen Conference was designed to meet the educational gaps for all ophthalmology and vision science professionals, including current trainees, in the Nebraska and Central Plains Region. The conference has continued its tradition of providing a forum to share discoveries and commemorates our local pioneers in ophthalmology who were instrumental in creating the ophthalmology program at the University of Nebraska Medical Center (UNMC): Harold Gifford, Sr., MD and his sons, Sanford and Harold Jr., Stanley M. Truhlsen, MD, and Charles Fritch, MD.

The conference has grown over the last twenty-nine years into the Annual Gifford-Truhlsen Conference: Current Concepts in Ophthalmology and Visual Sciences. Faculty, fellows, residents, and students from around the region are invited to share presentations on recent research findings and advances in clinical practice. Distinguished Lectures include the Stanley M. Truhlsen, MD Memorial Lecture, Judy and C. David Fritch, MD Lecture, Bernstein-Kroon Memorial Lecture, and the Gifford Memorial Lecture, which feature speakers from leading ophthalmology and vision science institutions from around the nation.

STATEMENT OF NEED

Needs Assessment
Vision problems can cause significant suffering, disability, loss of productivity, and diminished quality of life for millions of people.[1] Eye disease is a growing public health problem. Per the National Eye Institute, projections for vision impairment will continue to grow, more than tripling from 2010-2050.[2] This growth has been mirrored by an increase in clinical and basic science research in the ophthalmic sector. Thousands of articles are published annually in the field of ophthalmology, making it exceedingly difficult to stay current regardless of the sub-specialty or field of research.[3]

In order to determine the needs and gaps in knowledge of our target audience, our planning committee analyzed the clinical referrals to the Stanley M. Truhlsen Eye Institute (TEI) and had individual discussions with each of the faculty members and community-based physicians. We also reviewed the current literature to verify the validity of these needs. Our goal is to address these gaps in knowledge through several presentations involving original research, case discussions, and point-counterpoint debates.

1. CATARACT

Aging is the biggest risk factor for age related blinding diseases (ARBDs), however age-related cataract is the world's leading cause of blindness.[4] There are not enough Ophthalmologists and/or training centers in the world to care for all patients with reversible blindness from visually significant cataracts.[5]

Practice Gap:

a. Lack of opportunities via affordable and accessible technology for young surgeons to become proficient in cataract surgery.
b. Live patient eyes are not the best place to learn how to do cataract surgery.
c. Animal eyes do not replicate the human phacoemulsification experience in addition to concerns related to using animal eyes in a hospital setting due to risks of cross-contamination.
d. What new surgical equipment/technology will make cataract surgery more effective and efficient?

Talking Point:

a. We will highlight surgical simulation as an under-utilized but highly effective way for young surgeons to develop proficiency in cataract surgery and other procedures.[6]
b. There are more surgical simulation systems emerging that may be able to fill the gaps and offer additional training opportunities.
c. Immersive virtual reality training interfaces may offer the greatest promise.
d. Surgical simulation in cataract surgery can serve as a springboard for simulation in other subspecialties in Ophthalmology.
e. Live 3D Heads Up Visualization OR systems can further augment surgical training.
f. Patient selection and contraindications for Presbyopia correcting IOL's.
g. Intraoperative Imaging: 3D Heads up surgery versus Digital Alignment Systems.

2. CORNEA/REFRACTIVE SURGERY

Corneal disease and refractive error are conditions that also plague our patients. By 2050, we expect more than half the global population to suffer from myopia.[7] Refractive surgery is a continuously evolving field with many new procedures and treatment options that are either recently available or in development.

The incidence of keratoconus in the United States is considered extremely low, at 1 in 2000 people.[8] However, we see in our clinical practice that the incidence is higher than one would expect based on this reported incidence. Keratoconus in addition to various other corneal diseases from congenital dystrophies to degenerative disorders of the anterior segment present a major of area of focus at Truhlsen Eye Institute. The goal of this section will be to provide the latest updates in these areas.

Practice Gap:

a. Exploring global trends in refractive surgery.
b. Gaining consensus on the workup and management of patients presenting for refractive surgery.
c. Exploring the efficacy and safety of new refractive technology and how to adopt these technologies into your practice.
d. Update on Corneal Imaging: Corneal tomography, biomechanical analysis, and anterior segment OCT.
e. What is the prevalence of Keratoconus in the Midwest in a high-risk population?
f. Discussion of when to do crosslinking for Keratoconus, and what new techniques are available?

Talking Points:

a. Trending and emerging technologies for treating refractive surgery.
b. Contrasting customized versus non-customized treatments for Refractive surgery.
c. Benefit of anterior Segment OCT analysis in diagnosing and managing corneal conditions.
d. Discussion of Phakic IOL's and techniques to improve success.
e. Lowering the threshold for Corneal Collagen Crosslinking.
f. Regional Keratoconus Prevalence Analysis.

3. GLAUCOMA

Glaucoma can lead to blindness. Medical and surgical therapies are available and new treatment options have recently been evaluated. Eye care professionals need to recognize which treatment options may be most beneficial to their patients. Conventional glaucoma surgery has a high rate of complications. Micro invasive glaucoma surgery procedures hope to minimize the rate of these complications and have been rapidly advancing.[8]

Practice Gap:

a. Lack of consensus in the management of glaucoma.

Talking Points:

a. Recent advances in the diagnosis and management of glaucoma.
b. Results from recent publications on surgical outcomes in glaucoma patients.
c. The role of micro invasive glaucoma surgery in early glaucoma cases and ocular hypertensives.
d. Original TEI research analyzing the predictors of success for micro-invasive glaucoma surgery procedures.
e. Laboratory research into the mechanisms of vision loss in glaucoma.
f. Research in Ophthalmology resident education in glaucoma.

4. OCULOPLASTICS

Clinical studies of thyroid associated ophthalmopathy show that treatment with steroids, which is the current gold standard of care, has a 20-30% chance of relapse when the steroids are stopped and does not significantly change proptosis.[9] The studies also show that most patients show a decreased progression of their orbitopathy rather than a regression or reversal of the disease.

Neurotrophic keratopathy is a devastating corneal condition which can quickly lead to blindness. Prior to corneal neurotization medical and surgical treatments poorly managed this condition. Corneal neurotization is an innovative new surgical approach for restoring corneal sensation.[10]

Blepharoplasty is a common oculoplastic procedure. However, intimate knowledge of the pre-operative assessments, eyelid anatomy and surgical adjuncts is needed to preform

blepharoplasty effectively and reliably.[11]

Orbital and ocular trauma results in significant morbidity if not accurately accessed and addressed in a timely manner. As with blepharoplasty, an intimate knowledge of eyelid anatomy is needed.

Practice Gap:

a. Lack of a treatment for thyroid associated ophthalmopathy that leads to regression and has a low relapse rate.
b. Understanding of novel biologic therapies for thyroid eye disease.
c. Lack of treatment for neurotrophic keratopathy can lead to devastating corneal outcomes.
d. Evaluating periocular anatomy in the setting of ocular trauma.

Talking Point:

a. Significant recent advances including medical and surgical therapies in the management of thyroid associated ophthalmopathy.
b. Corneal neurotization has shown promise in restoring corneal nerves in neurotrophic keratopathy.
c. Pre-operative assessments, eyelid anatomy and surgical adjuncts will be reviewed, and highlights discussed.
d. Case series of ocular trauma reviewing important periocular anatomy.

5. RETINA

Diabetic retinopathy is the leading cause of blindness in working-age adults. Diabetic macular edema (DME) alone affects approximately 5.5% of the 828 million people with diabetes worldwide. While advances with anti-vascular endothelial growth factor (anti-VEGF) treatments have helped to improve the loss of vision due to DME, early screening and diagnosis is imperative to minimize the long-term burden of visual loss with this disease.

Practice Gaps:

a. Therapeutic alternatives to monthly anti-VEGF injections in the management of diabetic macular edema (DME) and/or age-related macular degeneration (ARMD).
b. Screening tools for early detection of diabetic retinopathy among diabetic patients.
c. Better diagnostic metrics of DME for knowing when to treat and what intravitreal injections might be best employed.
d. Implementation of new therapeutics with novel mechanisms of action in the treatment of macular degeneration.
e. Understanding of how sustained release platforms and gene therapy may impact the treatment of macular degeneration in the future.
f. Surgical platforms that improve the surgical efficiencies, safety, and quality-of-life for patients with vitreoretinal diseases that require surgical intervention.

Talking Point:

a. AI-retinal imaging cameras that can screen diabetic patients in primary care offices for early retinal disease, requiring examination by an eye care specialist.
b. AI-powered OCT analysis tool “edema score” for grading the degree of macular edema with a precision up to multiple decimal places to aid in early detection when asymptomatic, monitor progression and treatment response, and even determine the amount and type of treatment needed.
c. Availability and uses of sustained release platforms for macular degeneration and diabetic retinopathy.

d. Discussion of new complement inhibitors and therapeutic options on the horizon for dry macular degeneration.
e. Simulation and visualization techniques including 3D Heads Up Display (HUD) technology and surgical platforms can improve surgical efficacy, safety, and the care of patients at-risk of vision loss from surgical diseases of the retina.

6. UVEITIS

Uveitis, an ocular inflammatory disease process that may have infectious and noninfectious associated disease etiologies. Improved delivery systems of therapeutic agents in uveitis can increase bioavailability of treatment to the choroid and posterior pole while minimizing other ocular adverse effects.

Practice Gaps:

a. Lack of knowledge or adoption of different therapeutic options for treating posterior segment inflammation.
b. Technique for suprachoroidal administration of uveitis therapies.

Talking Point:

a. Discuss options for drug delivery in uveitis treatment.
b. Provide safety and efficacy data for new drug delivery options.

7. NEURO-OPHTHALMOLOGY/NEUROLOGY

Cranial nerve palsies, particularly those affecting the third and sixth nerves, can lead to significant misalignment of the eyes and diplopia. While conservative management, such as occlusion, is initially considered, strabismus surgery is often required to restore ocular alignment and improve the patient's quality of life. However, surgical intervention, in paralytic extraocular muscles, presents a special challenge to the strabismus surgeon.

Practice Gaps:

a. Limited surgical options for strabismus surgery in cranial nerve palsy with high variability in outcome.
b. Higher risk for surgical complications.

Talking Point:

a. Discuss surgical techniques tailored for different cranial nerve palsy types and how to avoid certain complications.

8. PEDIATRIC OPHTHALMOLOGY

Amblyopia is a significant cause of vision loss in children. Many therapies exist for the treatment of amblyopia however quality of life and mental health may be affected.[12] Persistent fetal vasculature is a spectrum of congenital anomalies cause by partial failure of ocular fetal vasculature to regress. Surgical treatment may improve long-term visual outcome.

Practice Gap:

a. Amblyopia recognition on quality of life and mental health.
b. Persistent fetal vasculature diagnosis and treatment.

Talking Point:

a. Discuss amblyopia management and social implications.
b. Review medical and surgical treatment of persistent fetal vasculature.

PROPOSAL FOR EDUCATION

Given the increasing array of therapeutic options available to our field including all subspecialty disciplines, ophthalmologists must understand the evolving scope of vision science and how it applies to their practice to provide optimal care for their patients. Current guidance and decision-making related to the management of ophthalmic diseases changes requires up-to-date understanding of high-level clinical trial data, balanced by experience and discussion. Ophthalmologists in clinical practice and in training will gain an in-depth educational platform to understand the current treatments for the most common eye diseases and recognition of rarer, but key conditions that can lead to vision loss.

To close gaps in knowledge, the 31st Annual Gifford-Truhlsen Conference will address the latest clinical data and discuss how current research will affect clinical care. Our goal is to improve the knowledge, competence, and performance of attending ophthalmologists, resulting in improved visual function for patients with vision problems. The proposed agenda will provide participants with a comprehensive overview of new and emerging treatments for eye diseases.

Conference Educational Objectives

After the conference, learners should be better able to:

1. Describe current management options and recommendations for treatment of ophthalmologic diseases, as well as innovations on the horizon for ophthalmic care.
2. Summarize late-phase clinical trials will provide additional therapeutic alternatives for the treatment of ophthalmic disease.
3. Illustrate how diagnostic imaging techniques including corneal topography, optical coherence tomography (OCT), angiography, B-scan ultrasonography, and radiologic imaging including PET-CT scan enhance our ability to diagnose and treat ophthalmologic conditions.
4. Understand options to enhance the surgical environment including surgical platforms, 3D Heads Up Display (HUD) technology, and technologies that will facilitate cataract surgical care and vitreoretinal surgery to improve the quality-of-life for patients.

Outcomes Evaluation

At the conclusion of the CME conference, participants will complete an evaluation to assess the effectiveness of achieving the educational goals, an overall assessment of the conference, perceptions of commercial bias, and items on intent to change their practice and perceived barriers (Moore Level 4).

UNMC Department of Ophthalmology and Visual Science and the Stanley M. Truhlsen Eye Institute

The University of Nebraska Medical Center is the only state-aided academic institution educating health professionals in Nebraska. UNMC has trained well over half of health professionals currently practicing in the state. The UNMC Department of Ophthalmology and Visual Sciences provides care for over 40,000 patients annually and is the only tertiary referral center in the state of Nebraska. In May 2013, the Stanley M. Truhlsen Eye Institute opened to provide expanded opportunities for training ophthalmologic professionals and patient care, including a state-of-the-art diagnostic center and the Carl Camras Center for Innovative Clinical Trials in Ophthalmology.

References

1. National Eye Institute. National Eye Health Education Program, https://www.nei.nih.gov/sites/default/files/NEHEP-pdfs/NEHEP_Five-Year_Agenda_2012-2017.pdf
2. National Eye Institute. https://www.nei.nih.gov/eyedata
3. PubMed https:/www.ncbi.nlm.nih.gov
4. Foster, A., & Resnikoff, S. (2005). The impact of vision 2020 on global blindness. *Eye (Lond), 19*(10), 1133-5. https://doi.org/10.1038/sj.eye.6701973
5. Soares, R.R., Mokhashi, N., Sharpe, J., Zhang, Q., Hinkle, J., Patel, S.N., Ho, A.C., Yonekawa, Y., & Hsu, J. (2022). Patient accessibility to eye care in the United States. *Ophthalmology, S0161-6420*(22), 00923-X. https://doi.org/10.1016/j.ophtha.2022.11.017
6. Ali Momin, S. N., Memon, A. S., Malik, M. B., & Mahar, P. S. (2022). Surgical training in ophthalmology: Role of EyeSi in the era of simulation-based learning. *The Journal of the Pakistan Medical Association (JPMA), 72(Suppl 1)*(2), S127–S129. https://doi.org/10.47391/JPMA.AKU-26
7. Holden et al. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. *Ophthalmology*. 2016;123(5):1036-1042
8. Rabinowitz YS. Keratoconus. Surv Ophthalmol. 1998 Jan-Feb;42(4):297-319. doi: 10.1016/s0039-6257(97)00119-7. PMID: 9493273
9. Smith, T. J., Kahaly, G. J., Ezra, D. G., Fleming, J. C., Dailey, R. A., Tang, R. A., Harris, G. J., Antonelli, A., Salvi, M., Goldberg, R. A., Gigantelli, J. W., Couch, S. M., Shriver, E. M., Hayek, B. R., Hink, E. M., Woodward, R. M., Gabriel, K., Magni, G., & Douglas, R. S. (2017). Teprotumumab for thyroid-associated ophthalmopathy. *The New England Journal of Medicine, 376,* 1748-1761. https://doi.org/10.1056/NEJMoa1614949
10. Koaik, M., & Baig, K. (2019). Corneal neurotization. *Current Opinion in Ophthalmology, 30*(4), 292-298. https://doi.org/10.1097/ICU.0000000000000578
11. Massry, M., Murphy, M., & Azizzadeh, M. (2011). *Master techniques in blepharoplasty and periorbital rejuvenation.* New York, NY: Springer. https://doi.org/10.1007/978-1-4614-0067-7
12. Bata, B. M., Chiu, H. H., Mireskandari, K., Ali, A., Lam, W., Wan, M. M. (2019). Long-term visual and anatomic outcomes following early surgery for persistent fetal vasculature: a single-center, 20-year review. *Journal of American Association for Pediatric Ophthalmology and Strabismus, 23(6),* 327.e1-327.e5. https://doi.org/10.1016/j.jaapos.2019.07.009