**Friday, March 16, 2018**

Registration 9:00 – 10:00 a.m.

Welcome 9:55 a.m.

**Session One:**

Moderator: Pattye Jenkins

Hering vs Helmholtz: The Battle of the (19!) Century – Kyle Arnoldi 10:00 a.m.

Adult Seeking Amblyopia Treatment: A Case Study – Samantha Pape 10:30 a.m.

A Mysterious Case of Neuroretinitis – Kaila Bishop 10:45 a.m.

Eye Injuries Associated with Nonpowder Guns – Kimberly Beaudet 11:00 a.m.

Tips from a Pensioner...40 years of “Orthopticking” – Virginia Karlsson 11:15 a.m.

Discussion/Questions 11:30 a.m.

Adjourn to lunch 11:45 a.m.

Lunch – Introduction to IOA Council 12:00 p.m.

**Luncheon Lecture:**

Orthoptic Jeopardy! – Kyle Arnoldi 12:15 p.m.

**Session Two: Student Presentations Part I**

Moderator: Gill Roper-Hall

Binocular Vision in Children with a History of Preterm Birth – Basya Greenberg 1:00 p.m.

A Comparison of Allen Pictures and Lea Symbols – Jessica Tegeler 1:15 p.m.

Insights into Brain Imaging in Albinism – Kayla Stevens 1:30 p.m.

**Session Three:**

Moderator: Gill Roper-Hall

The Effect of Unilateral Fresnel Prisms on Visual Function When Both Eyes are Open – Rachael Calvey 1:45 p.m.

Binocular Diplopia Associated with Macular Disease – Xiaoyan Shan 2:00 p.m.

Discussion/Questions (Sessions Two and Three) 2:15 p.m.

Break 2:30 p.m.

**Session Four: Pediatric Anterior Segment**

Moderator: Kristyn Magwire
Approaching the Complex Pediatric Uveitis Patient – Jennifer Lambert  2:45 p.m.
Introduction to Uveitis – Kara LaMattina, MD     3:00 p.m.
Pediatric Uveitis – Courtney Kraus, MD      3:30 p.m.
Discussion/Questions        4:00 p.m.

Session Five: IOA Symposium

Moderators: Karen McMain & Kyle Arnoldi

Global Practice Trends in Orthoptics – Chikako Arai, Jan Roelof Polling,
        Sue Silveira, David Newsham, Birgit Wahl        4:15 p.m
Discussion/Questions         5:15 p.m.
Adjourn                  5:30 p.m
Reception @ Mansion on O!               6:30 p.m.
Session One:

Moderator: Pattye Jenkins, CO

Hering vs. Helmholtz: The Battle of the (19th) Century!

Kyle Arnoldi, CO, COMT

Course Description: Ophthalmologists, physicists and even philosophers have debated the physiology of human visual perception for millennia. Each era has had its own unique rivalries. In the mid- to late 1800’s, a rivalry took center stage in Germany between Hermann von Helmholtz and Ewald Hering. So heated was their battle that it continued to rage long after these giants were deceased. Helmholtz was an empiricist and Hering a nativist. They held diametrically opposed theories on the nature of our ability to perceive space, particularly with respect to binocular vision.

This presentation will review the opposing theories on physiological optics, color vision, and binocularity proposed by Hering and Helmholtz, and explain how they contributed to our current understanding.

Objectives: At the conclusion of this presentation, the attendee will be able to

1. List the evidence for binocular vision as an innate process vs. a learned process
2. Explain Hering’s Law of Motor Correspondence and how it differs from Helmholtz’s view
3. Compare the theories of Hering and Helmholtz with the current understanding of binocular vision.

Adult Seeking Amblyopia Treatment: A Case Study

Samantha Pape, CO

Course Description: This is a case presentation of a 63 year old female with amblyopia in her right eye. As a child, she was poorly compliant with her amblyopia therapy. Now, as an adult, she has lost much of her central vision in her historically normal and dominant left eye. Can she find success in treating her amblyopia now? This presentation will review and discuss her treatment options.

Objectives: To describe new therapies for the treatment of residual amblyopia.

A Mysterious Case of Neuroretinitis

Kaila Bishop, MSc, OC(C), COMT

Course Description: Neuroretinitis is described as an inflammation of the retina and optic nerve. It is commonly referred to as the “great mimicker” as it can often be confused with various other retinopathies. This talk will discuss a patient who presented with a potential case of neuroretinitis. Patient B was referred to BCH by an outside optometrist for pigmentary degeneration of the left retina
discovered on routine examination after a failed vision screen. She was first seen in our clinic in September 2014 and shown to have what appeared to be longstanding retinal pigmentary changes in the left eye. She underwent Goldman visual field testing which demonstrated a full field in the right eye and a dense supratemporal scotoma in the left eye, corresponding to the retinal changes noted. The patient was then referred to one of our retina doctors for further examination. She underwent macular OCTs and full field ERG with the impression of neuroretinitis at a remote time. Patient B returned for a follow up exam in January of this year. She had another set of Goldman visual fields and repeat imaging. Although her vision had remained stable she now presented with a new infratemporal field defect in the right eye. The visual field defect in the left eye remained stable. Further imaging showed a new tongue shaped hypopigmented region in the right eye. The initial suspected diagnosis was neuroretinitis because the lesions had remained stable. However, there were now new lesions in extra macular retina with suspected activity at the level of the pigmentary epithelium. This raised the concern of an underlying inflammatory process. This talk will cover the basics of neuroretinitis in association with the case presentation.

**Objectives:** At the end of this lecture, attendees will be able to identify and describe findings of neuroretinitis.

---

**Tips from a Pensioner...40 years of “Orthopticking”**

Virginia Karlsson, CO, COMT

**Course Description:** I had a revelation last December. I had just learned 3 new things in one day and I wanted to share them with someone who would care! Of course, I told my orthoptic/MD colleagues but then I had the revelation. I thought, what other tips do I have that are worthy of sharing with a wider audience? And now that I’m senescent; could I remember them?!?

This will be a review of some varied and useful tips from an old orthoptist (who is NOT a life member yet!!).

**Objectives:** At the end of this presentation, participants will have been presented with clinical pearls from an experienced orthoptist that can be taken back and applied to in their own clinical practice.

---

**Eye Injuries Associated with Nonpowder Guns**

Kimberley Beaudet, CO, COMT

**Course Description:** Between 1990 and 2012 the rate of eye injuries tied to nonpowder guns such as BB, pellet and paintball guns in the United States rose 168.8%, according to a study published in the journal Pediatrics in January 2018. This talk will review the incidence of eye injuries related to recreational sports and the use of nonpowder guns, the rate of hospitalization associated with eye injuries and the associated risk factors influencing the rate of injury in the pediatric population.

**Objectives:** At the conclusion of this lecture, participants will be better equipped to evaluate and determine the visual function in children and adults suffering from these specific eye injuries.
Luncheon Lecture:

Orthoptic Jeopardy!

Kyle Arnoldi, CO, COMT

Course Description: Every year, senior students at accredited orthoptic schools begin an intensive period of study in preparation for the Board Exam in June. The 150-question exam is based on the 24 Chapters found in the AOC Syllabus of Orthoptics. Once the test is successfully completed, and as the months and years pass, much of this knowledge will be lost unless it is periodically refreshed.

The purpose of this team-based, quiz-style presentation is to test our knowledge in the basic sciences that underlie the practice of orthoptics and refresh our memories of the clinical presentation of uncommon forms of strabismus. Participants will compete for prizes as they answer questions on ocular anatomy, neuro-anatomy, sensory and motor physiology, ophthalmic optics, special forms of strabismus, and nystagmus.

Objectives: At the conclusion of this presentation, participants will be able to:

1. Identify the parts of the eye and orbit.
2. Name the parts of the central nervous system.
3. Describe the various equations and their appropriate use in ophthalmic optics.
4. Compare and contrast restrictive vs paralytic strabismus.
5. Explain the Laws of Donders, Listing, Sherrington, and Hering pertaining to eye movement.

Session Two: Student Presentations Part I

Moderator: Gill Roper-Hall, DBOT, CO, COMT

Binocular Vision in Children with a History of Preterm Birth

Basya Greenberg, BSc

Course Description: Premature infants treated for Retinopathy of Prematurity (ROP) have a greater risk of developing visual problems later in life. Management of ROP often includes destruction of peripheral retina using laser, or historically, cryotherapy. Though this method prevents retinal detachment and blindness, it often leads to visual field defects. Premature infants are also at higher risk of high myopia, strabismus, amblyopia, and visual impairment. The incidence, diagnosis, and management of each of these associated visual or ocular conditions has been studied.

The presence of any or any one of the above increases the risk of impaired binocular vision, yet binocular vision (sensory or motor fusion and stereopsis) has not been adequately investigated. A Medline search for articles on binocular vision outcomes in children with a history of prematurity yields only one article in a Polish medical journal. (Kobyłarz J, et al. Strabismus and binocular vision disorders in premature infants with retinopathy treated with cryotherapy. Klinika Oczna 2000; 102: 33 – 36.)
The purpose of this investigation is to determine the effects on binocular vision in former preterm infants treated for ROP. The presentation will feature an illustrative case report.

**Objectives:** At the conclusion of this presentation, the listener will be able to:

1. List the ocular and visual sequelae of successfully treated ROP.
2. Explain the effects of ROP management on binocular vision.

*A Comparison of Allen Pictures and Lea Symbols*

Jessica Tegeler, BSc

**Course Description:**
Visual acuity is the eye's ability to detect fine details and is the measure of the eye's ability to see an in-focus image at a certain distance. Visual development is most critical during infancy and preschool period. It is within this time that visual loss is easily and successfully treated. Detecting visual impairment at an early age is crucial in preventing conditions such as amblyopia or strabismus. This study seeks to compare the Lea symbols with Allen pictures and will compare the results obtained with both tests to assess whether one is better to measure visual acuity and to detect decreased vision.

**Objectives:** At the conclusion of this lecture, participants will be able to determine the best measure of visual acuity during infancy and preschool period.

*Insights into Brain Imaging in Albinism*

Kayla Stevens, BS

**Course Description:**
**PURPOSE** The diagnosis of albinism can be based on the clinical phenotype, with genetic testing being used more recently to determine the type. When a diagnosis is not recognized, nystagmus can precipitate brain imaging. We sought to determine factors influencing imaging in albinism.

**METHODS** After IRB approval, this retrospective review of 552 charts of individuals evaluated for albinism identified 52 (9%) who met the inclusion criterion of imaging prior to a diagnosis of albinism in our clinic. We recorded type of albinism, results, and when and why the scan was ordered.

**RESULTS** Type of albinism was OCA1B (12), OCA2 (24), OCA4 (1), OA1 (13), and OCA not further characterized (2). Thirty nine (75%) underwent brain MRI, 9 (17%) had CT, and 4 (8%) had both. Thirty-nine patients (75%) received imaging for nystagmus and 13 (25%) for unrelated reasons. Three scans (6%) were abnormal. Scans tabulated by decade showed: 1970-9 - 1, 1980-9 - 5, 1990-9 - 12, 2000-9 - 25, 2010-17 – 7, decade unknown (2).

**CONCLUSION** Only pigmenting types of albinism were imaged, as absent melanin (OCA1A) has a diagnostic phenotype. Imaging increased over the years, showing a higher rate in 2000-9, diminishing
recently; this could represent sampling bias. The majority were imaged for nystagmus and were normal. Continued educational efforts may reduce imaging in albinism. Most with nystagmus don’t have an acute disorder and have normal imaging.**1-3** An eye examination prior to imaging should be considered.

**Objectives:** Participants will be familiar with the factors that influence brain imaging in those with albinism.

**Session Three:**

Moderator: Gill Roper-Hall, DBOT, CO, COMT

**The Effect of Unilateral Fresnel Prisms on Visual Function When Both Eyes are Open**

Rachael Calvey, MMedSci, CO

**Course Description:**

**AIM** To determine whether there is any reduction in visual acuity (VA) and contrast sensitivity (CS) when tested both eyes open in a patient wearing a Fresnel prism. The prism is used to correct diplopia and placed in front of one eye. A comparison will be made to the measure of each without a Fresnel prism.

**METHODS** Twenty-two participants were recruited into the study, from the adult (18 years or older) patient population of the Orthoptic Department at the Manchester Royal Eye Hospital. Participants’ age ranged from 22 to 92, with a mean age of 52 and included 11 males. Participants were fitted with the strength of Fresnel 3MTM Press-onTM prism required to relieve diplopia and regain binocular single vision. The Fresnel was fitted to one lens of the patients distance glasses; if no glasses were worn plano glasses were provided. The prism was fitted in front of the eye with the worse vision, if equal in front of the non-dominant eye. The base of the prism was fitted horizontally or vertically. Monocular visual acuity, using the ETDRS logMAR chart, and contrast sensitivity, using the Pelli-Robson chart, were assessed both with and without the prism, and also for the fellow eye. VA and CS were then measured both eyes open with the Fresnel prism and without diplopia. A questionnaire was completed on the follow-up assessment, 6-8 weeks later, questioning the participants’ subjective change in visual acuity with the Fresnel prism.

**RESULTS** Nineteen of the twenty-two recruited participants completed the primary section and 14 the follow-up section; 3 participants were excluded. Prisms strengths required were 1, 2, 5, 6, 8, 9, 10, 15 and 20. The base of the prism was either base-out, base-up or base-down. There was one participant for the strengths 1, 10, 12, 15 and 20. Strengths 5, 6 and 9 had 2 participants, and 2 and 8 had 4 participants. 12 participants required a prism to be fitted base out; the remaining 7 required a vertically orientated prism (4 base-up, 3 base-down).

Deterioration in visual acuity and contrast sensitivity was evident when assessed monocularly whilst wearing the prism compared to without, with a significant difference being measured \( p<0.05 \) for both entities. When visual acuity and contrast sensitivity were measured both eyes open however no significant difference was found either statistically or clinically between the scores obtained whilst
wearing the prism and not. The questionnaire highlighted a subjective deterioration in visual function with the Fresnel prism even though clinically there had been no change.

**CONCLUSION** A Fresnel prism used to correct diplopia does have a significant effect on the visual function of the eye the prism is placed over, however this effect is not clinically observed when tested with both eyes open. Subjectively on the other hand, there is a change noticed with the Fresnel prism indicating normal clinical tests are not equipped to determine this change. The subjective change is likely due to the aberrations and distortion of light created by the prism which is a well-documented adverse side effect of the Fresnel membrane prism. Further more detailed questioning may uncover this. The results of the study indicate that patients’ expectations must be well managed and comprehensive information with regards the prism is paramount to ensure success of the prism.

**Objectives:** Participants will be able to discuss the effect of Fresnel prisms on visual acuity and contrast sensitivity.

**Binocular Diplopia Associated with Macular Disease**

Xiaoyan Shan, PhD, CO

**Course Description:** Binocular diplopia associated with macular disease is one of the most difficult diplopia encountered in an orthoptic clinic. This paper will review the etiology of binocular diplopia in patients with macular disease and the clinic characteristics of disease and diagnostic tests for central peripheral rivalry. Will also briefly discuss clinical management of binocular diplopia in patients with macular disease.

**Objectives:** To understand etiology and management of binocular diplopia in patients suffering from macular disease.

**Session Four: Pediatric Anterior Segment**

Moderator: Kristyn Magwire, CO

**Approaching the Complex Pediatric Uveitis Patient**

Jennifer Lambert, CO

**Course Description:** Approaching the child with complex anterior segment eye disease including cataract, corneal disease, and uveitis can be a daunting task for the orthoptist. This presentation will discuss the special circumstances we as orthoptists must consider when caring for these patients through a complex case presentation.
Objectives: Following this presentation, participants will be able to confidently approach and provide necessary workup for those presenting with complex anterior segment disease.

Introduction to Uveitis
Kara LaMattina, MD

Course Description: This session will serve as an overview of pediatric uveitis. Focus will be on the signs, symptoms and etiology of uveitis in the pediatric population.

Objectives: Following this lecture, participants will have learned the symptoms, signs & etiology of uveitis, and will have the fundamental knowledge to approach these patients and determine appropriate clinical workup.

Pediatric Cataracts and Corneal Pathology
Courtney Kraus, MD

Course Description: This lecture will serve as an overview of cataracts and corneal pathology as they present in the pediatric population.

Objectives: Following this presentation, participants will be familiar with the presentation and etiology of cataracts and corneal pathology in children.

Session Five: IOA Symposium
Moderator: Karen McMain, MSc, OC(C), COMT & Kyle Arnoldi, CO, COMT

Global Practice Trends in Orthoptics
Chikako Arai, MEd, CO; Jan Roelof Polling, CO; Sue Silveira, MHS, DOBA; David Newsham, PhD, DBO; Birgit Wahl, MMedSci, CO

Course Description: Orthoptic Practitioners now are required to be more prepared to address health care complexities caused by increased knowledge base, longevity and diversity of population, and technological advances. A panel of global orthoptic experts will discuss the recent advances in the
practice of orthoptics globally. They will address recent trends in orthoptic practice for pediatric and adult patients and review the best evidence for care.

**Objectives:** Upon completion of this course the audience participants should be able to:

1. Explain the scope of practice of orthoptists in different countries
2. Describe the relationship of orthoptists to ophthalmology in providing eye care services
3. List the latest practice trends in caring for orthoptic patients
4. Describe the best evidence used for orthoptic patient care
Saturday, March 17, 2018

Registration/Breakfast  7:00-8:00 a.m.

Session One: Children’s Vision Advocacy
Moderator: Jennifer Lambert

  Michael Repka, MD   8:00 a.m.
  Mary Lou Collins, MD 8:30 a.m.
  Danielle Ledoux, MD  9:00 a.m.

Discussion/Questions  9:15 a.m.
Break  9:30 a.m.
Regional Meetings  9:30 a.m.

Session Two: Student Presentations Part II
Moderator: Sarah Whitecross

  Spontaneous Consecutive Exotropia – Rachel Noles  10:15 a.m.
  Central Nervous System Anomalies Associated with Chiari Malformations – Erin Connelly  10:30 a.m.
  Causes and Consequences of Fixation Switch Diplopia – Elena Francis  10:45 a.m.

Session Three: Adult Strabismus
Moderator: Sarah Whitecross

  Asthenopic Symptoms due to Duction Deficits – Angela Serna  11:00 a.m.
  Why is Dad Seeing Double? – Kristyn Magwire  11:15 a.m.
  Discussion/Questions (Sessions Two and Three)  11:30 a.m.
  Adjourn to lunch  11:45 p.m.
Lunch  12:00 p.m.
Luncheon Lecture:
  Megan Collins, MD  12:00 p.m.

Session Four: Neuro-ophthalmology
Moderator: Caroline Fang

  Neuro-Ophthalomologic Sequelae Following Carbon Monoxide Exposure – Gill Roper-Hall  1:15 p.m.
Impact of Brain Tumors on Vision and Ocular Motility – Gena Heidary, MD 1:30 p.m.
Congenital Optic Nerve Anomalies – Mitch Strominger, MD  2:00 p.m.
Neuro-Ophthalmology Case Presentations 2:30 p.m.
Discussion/Questions 3:00 p.m
Break 3:15 p.m.

Session Five: Point-counterpoint Discussion
Moderator: Shelley Klein

Discussion 1: Is it necessary to treat amblyopia before strabismus surgery?
  – Sarah Whitecross & Danielle Ledoux, MD  3:30 p.m.

Discussion 2: Should you give prism for retinal diplopia?
  – Jorie Jackson & Aaron Miller, MD  3:50 p.m.

Discussion 3: Different tests for stereopsis – is one superior?
  – Kali Loberger & Jennifer Lambert  4:10 p.m.

Discussion/Questions 4:30 p.m.

Session Six: International Mission Work
Moderator: Sarah Whitecross

The Experiences of a Pediatric Ophthalmologist and Orthoptist in
  El Salvador: The Medical Campaign – Michael Struck, MD  4:45 p.m.

The Experiences of a Pediatric Ophthalmologist and Orthoptist in
  El Salvador: The Orthoptist’s Role – Kali Loberger  5:00 p.m.

I Can See My Eye Again – Katie Patterson & Julie Conley, MD  5:15 p.m.

ASAPROSAR (Asociacion Salvadorena Pro-Salud/Rural Salvadoran
  Association for Rural Health) – Ginny Karlsson  5:30 p.m.

Lesotho – Jennifer Lambert  5:45 p.m.

Discussion/Questions 6:00 p.m.

Adjourn 6:15 p.m.
Session One: Children’s Vision Advocacy

Moderator: Jennifer Lambert, CO

Michael Repka, MD; Mary Lou Collins, MD; Danielle Ledoux, MD

Course Description: Panelists will present an overview of national, state and local advocacy efforts aimed at improving the visual health of children. State and federal legislative issues will be addressed in addition to vision screening legislation and legislation that affects low vision and visually impaired children. Scope of practice legislative efforts will also be discussed in addition to involvement and advocacy on the local level. The Children’s Vision Massachusetts coalition will be presented in brief as an example of how to build a coalition; establish an identity; develop messaging; and plan and execute legislative action. Questions that will be addressed include:

- How do I find out about what is going on in my state around advocacy for children’s vision?
- What can I do to support current advocacy efforts or start an initiative if none exists?
- What will be the impact of any federal changes on benefits and practice in my state related to vision care for children?

Objectives: At the end of this lecture, attendees will be familiarized with national and state advocacy efforts for the visual health of children and be able to describe changes at the federal level and how these impact one’s practice at the state and local level. Attendees will also be able to identify current support initiatives and be better equipped to recruit support if none exists.

Session Two: Student Presentations Part II

Moderator: Sarah Whitecross OC(C), CO

Spontaneous Consecutive Exotropia

Rachel Noles, BA, COA

Course Description: Spontaneous Consecutive Exotropia (SCE) is associated with poor binocular vision in patients with childhood onset esotropia. Many of these cases are initially diagnosed with accommodative or mixed mechanism esotropia and are managed with spectacles rather than surgery. Over a period of years, alignment destabilizes and an exodeviation develops. This presentation will feature a case study of a four-year old female followed over a period of more than two years, over which time she evolved from an accommodative esotropia with full versions, to a constant exotropia with bilateral oblique dysfunction. The incidence, clinical features, associations, and risk factors for SCE will be reviewed.

Objectives: At the conclusion of this presentation, the listener will be able to:
1. List the risk factors for SCE.
2. Describe the clinical findings in SCE.

**Central Nervous System Anomalies Associated with Chiari Malformations**

Erin Connelly, BA

**Course Description:** Chiari malformations are congenital malformations of the cerebellum resulting in herniation of the lower part of the cerebellum into the foramen magnum. Chiari type I is present in early infancy or acquired through infection or trauma. Chiari type II, or Arnold-Chiari, is typically diagnosed in adolescence or early adulthood when symptoms present. Both types are associated with multiple central nervous system anomalies; Nystagmus, strabismus, headaches, and diplopia to varying degrees can be found. These ocular signs and symptoms can be some of the early clinical signs of a patient presenting with an Arnold-Chiari malformation. This presentation will feature a case report of an adult with a recent diagnosis of Arnold-Chiari malformation.

**Objectives:** At the conclusion of this presentation, the listener will be able to:

1. List the most common ocular signs and symptoms of a Chiari malformation.
2. Explain the difference between Type I and Type II Chairi.

**Causes and Consequences of Fixation Switch Diplopia**

Elena Francis, BS

**Course Description:** As the name implies, Fixation Switch Diplopia (FSD) is diplopia secondary to an alternation in the habitual fixation pattern. Changes in visual acuity or suppression, including a decrease in vision of the dominant eye or an improvement in acuity of the non-dominant eye, may lead to an involuntary or intentional change in sighting dominance. When this occurs in a patient with a history of childhood-onset strabismus and suppression of the non-dominant eye, diplopia is often the result.

In this presentation, the pathophysiology of FSD will be reviewed. Common conditions leading to FSD will be highlighted through a series of case reports. The clinical tests necessary to differentiate FSD from other causes of diplopia will be discussed. Finally, the role of the orthoptist in assisting the ophthalmologist with management of these difficult cases will be presented.

**Objectives:** At the conclusion of this presentation, the attendee will be able to:

1. Explain the pathophysiology of FSD
2. List the most common causes of FSD
3. Perform the diagnostic tests necessary to differentiate FSD from other types of diplopia

**Session Three: Adult Strabismus**

Moderator: Sarah Whitecross, OC(C), CO
Asthenopic Symptoms due to Duction Deficits
Angela Serna, BAppSc (Orthoptics)

**Course Description:** Adult strabismus cases can be challenging due to complex ocular and medical histories, as well as patients’ potential for fusion or lack thereof. The most common complaints of adult strabismus patients tend to be diplopia, cosmesis, and asthenopic symptoms such as blurry vision, headaches, and eye strain. This talk will discuss three adult strabismus cases with subtle duction deficits causing bothersome asthenopic symptoms. These cases will highlight the value of listening to the nature, timing, and frequency of patients’ symptoms, and will illustrate the importance of observing fixation preference and looking for primary and secondary deviations.

**Objectives:** At the end of this lecture, participants will be able to better evaluate and manage patients with adult strabismus with complaints of asthenopic symptoms.

Why is Dad Seeing Double?
Kristyn Magwire, CO

**Course Description:** The ocular health of a person is a good representation of his general health. A 57 year old man presents with sudden onset diplopia resulting from a sixth nerve palsy. The real hurdle is figuring out the cause of the sixth nerve palsy, and convincing the patient to seek immediate medical attention.

**Objectives:** Participants will become familiar with a case of acute onset sixth nerve palsy in an otherwise healthy individual and be able to identify potential causes and to further consider management.

Luncheon Lecture:

Vision for Baltimore: A New Model for School-Based Eye Care
Megan Collins, MD

**Course Description:** This presentation will discuss the rise of school-based vision programs with the objective of delivering eye care in high-poverty communities. Public health data obtained in addition to some the barriers to providing eye care, and strategies being employed to promote compliance with eyeglasses to these communities will be discussed.
**Objectives:** To discuss strategies to deliver eye care to high-poverty communities and promote compliance with eyeglasses in this population.

**Session Four: Neuro-ophthalmology**

Moderator: Caroline Fang, CO

---

**Neuro-Ophthalmologic Sequelae Following Carbon Monoxide Exposure**

Gill Roper-Hall, DBOT, CO, COMT

**INTRODUCTION** Carbon monoxide is a colorless, odorless, tasteless and non-irritating gas which enters the bloodstream through the lungs causing hypoxia. CO exposure may result in a variety of neurologic sequelae and the eye movement system may be particularly vulnerable.

**PURPOSE** We studied neuro-ophthalmologic findings in several individuals who were exposed to CO when a heater at their school malfunctioned.

**METHODS** These patients were referred for neuro-ophthalmological and orthoptic evaluation for persistent ocular problems within three years of CO exposure. The patients were examined by a neuroophthalmologist, neuroorthoptist and neurologist. Evaluation included HVF, OCT, color vision, dilated fundus exam, and full motility work up. Neurologic examinations, including MRI, were performed prior to referral.

**RESULTS** Visual acuity, fundus, visual fields, color vision, OCT results, ductions, versions, pursuit and saccades were normal. Asthenopia, intermittent diplopia, blurred vision, headache, convergence dysfunction and decreased accommodation were common.

Additional neurologic findings included any or all of the following: headache, dizziness, mild balance and memory problems, depression, anxiety, photophobia, hyperacusis and motion-intolerance. All had documented MRI abnormalities.

**CONCLUSIONS** CO poisoning causes acute damage to the brain and other tissues and may cause vergence, accommodation and vestibulo-ocular dysfunction and closely resembled the findings in patients with post-concussion syndrome. Delayed neurologic sequelae (DNS) has been reported so symptoms worsen, rather than resolve. Patients should be followed long-term for their ocular problems or as symptoms demand.

---

**Impact of Brain Tumors on Vision and Ocular Motility**

Gena Heidary, MD, PhD
**Course Description:** Vision and ocular motility changes and manifestations resulting from the presence of an intracranial tumor will be discussed in a case-based format, starting with tumors affecting the anterior visual pathways and moving posteriorly toward those affecting the posterior visual pathway.

**Objectives:** Following this lecture, participants will be able to describe vision and ocular motility changes that can result from the presence of brain tumors and be able to anticipate what type of impact to expect depending on tumor location.

**Optic Nerve Anomalies**

Mitchell Strominger, MD

**Course Description:** Congenital optic nerve anomalies are an important finding in assessing the afferent visual system. Some have normal ocular development and acuity while others lead to reduced vision. This may present as an efferent ocular motor anomaly. They also may have systemic and central nervous system implications. Thus it is important for the orthoptist to understand and recognize the more common developmental optic nerve anomalies and what additional ocular, central nervous system, and systemic findings might also be present. Diagnosis such as optic nerve hypoplasia, morning glory disc anomaly, megalopapillae, myelinated nerve fiber, and tilted disc syndrome will be discussed.

**Objectives:** At the conclusion of this presentation, participants will be able to understand and recognize common optic nerve anomalies and their association with certain system findings, and how these can present to the orthoptist clinically.

**Neuro-ophthalmology Panel – Case Presentations**

Gill Roper-Hall, DBOT, CO, COMT; Gena Heidary, MD, PhD; Mitchell Strominger, MD

**Course Description:** This case based presentation will allow attendees to present neuro-ophthalmologic cases encountered in their practice to a panel of experienced neuro-ophthalmologists and orthoptists. Significant clinical findings, differential diagnoses and appropriate management when applicable will be discussed among the panel in this inter-panel style format.

**Objectives:** Following this presentation, attendees should feel more comfortable in identifying and diagnosing neuro-ophthalmologic conditions.
**Session Five: Point-counterpoint Discussions**

Moderator: Shelley Klein, CO, COMT

Kali Loberger, CO; Jennifer Lambert, CO; Jorie Jackson, CO; Aaron Miller, MD; Sarah Whitecross, CO; Danielle Ledoux, MD

**Course Description:** This point-counterpoint style lecture will discuss and demonstrate differing clinical viewpoints with an emphasis on clinical pearls. Both sides of each topic will be discussed.

Topics to be discussed in this lecture are:

- Is it necessary to treat amblyopia before strabismus surgery?
- Should you give prism for retinal diplopia?
- Different tests for stereopsis – is one superior?

**Objectives:** Attendees will be presented with differing clinical viewpoints, and following this lecture, be able to discuss/support both sides of each topic and formulate an opinion on which clinical practice is more feasible/supported.

**Session Six: International Mission Work**

Moderator: Sarah Whitecross, OC(C), CO

The Experiences of a Pediatric Ophthalmologist and an Orthoptist in El Salvador: The Medical Campaign

Michael Struck, MD

**Course Description:** We will discuss what it takes to organize a pediatric eye campaign, how to make it happen, who you need to succeed and what our individual experiences entail while working with ASAPROSAR in Santa Ana, El Salvador. This lecture will focus on the medical side of the medical mission and the role and experience of the pediatric ophthalmologist.

**Objectives:** To discuss the role of the pediatric ophthalmology team and the necessary steps to run a successful medical campaign in El Salvador.

The Experience of a Pediatric Ophthalmologist and an Orthoptist in El Salvador: The Orthoptist’s Role

Kali Loberger, CO
Course Description: We will discuss what it takes to organize a pediatric eye campaign, how to make it happen, who you need to succeed and what our individual experiences entail while working with ASAPROSAR in Santa Ana, El Salvador. This lecture will focus on the role of the orthoptist as part of the medical campaign and will focus on the orthoptist’s experience.

Objectives: To discuss the role of the pediatric ophthalmology team and the necessary steps to run a successful medical campaign in El Salvador.

ASAPROSAR (Asociacion Salvadorena Pro-Salud/Rural Salvadoran Association for Rural Health)
Virginia Karlsson, CO, COMT

Course Description: Over 30 years ago the Salvadoran Association for Rural Health which is a multi-service non-governmental community service organization needed help to implement their mission. They needed to “Improve the quality of life for the neediest families of El Salvador through integration and linking of programs to meet the fundamental needs of sanitation, environment, education, culture, economics and health. Priority is given to children, youth and women of the rural areas and marginalized urban settings.”

They found some of the help they needed in a church community on the south shore of Boston and the “Friends of ASAPROSAR” was created. Every year a group of about 60 private individuals: ophthalmologists, optometrists, technicians, orthoptists, ophthalmic dispensers, anesthesiologists, OR staff and interpreters travel to El Salvador in Central America and do a 6 day marathon of free eye exams, glasses dispensing and surgeries. In this past February, in two sites, we did 1200 eye exams, dispensed as nearly as many eye glasses, and did almost 150 surgeries. The vast majority of surgeries were cataracts with a few pterygia surgeries; there were also 25 strabismus surgeries. All for free.

Objectives: This presentation will focus on the struggles to get the job done and the difficulties faced every day by the people in this impoverished and beautiful country.

I Can See My Eye Again
Katie Patterson, CO & Julie Conley, MD

Course Description: A case study of a patient with very significant esotropia. He was seen on a medical mission trip to the Dominican Republic. This trip has been partnering with Island Impact for the last 10 years and works with local optometrists and ophthalmology residents to provide care to the people of Puerto Plata and Santiago, DR. We will discuss this patient with “extreme” esotropia over a course of a few years and the impact his strabismus surgery has had on his life. We will discuss global ophthalmology and medical trips highlighting the importance of leaving a sustainable impact, with a specific focus on pediatric ophthalmology.
Objectives: Following this presentation, attendees will be familiar with the role of pediatric ophthalmology in medical mission initiatives and how this presence can positively impact the quality of life of the patients seen during these campaigns.

Lesotho
Jennifer Lambert, CO

Course Description: Lesotho, a landlocked mountainous country in Southern Africa with 2.1 million people, is a country with scarce eye care resources. This talk will discuss healthcare in Lesotho, focusing on the need for specialty care. In addition, a new project which aims to bring specialty eye care to a district hospital in the northern part of the country will be discussed.

Objectives: Following this presentation, participants will become familiar with a project aimed at providing specialty eye care to a country with very scarce resources, and potentially apply this to other nations and communities in need worldwide.