



STATE BOARD OF OPTOMETRY
2450 DEL PASO ROAD, SUITE 105, SACRAMENTO, CA 95834
P (916) 575-7170 F (916) 575-7292 www.optometry .ca.gov



Continuing Education Course Approval Checklist

Title:

Provider Name:

- Completed Application
 - Open to all Optometrists? Yes No
 - Maintain Record Agreement? Yes No
- Correct Application Fee
- Detailed Course Summary
- Detailed Course Outline
- PowerPoint and/or other Presentation Materials
- Advertising (optional)
- CV for EACH Course Instructor
- License Verification for Each Course Instructor
 - Disciplinary History? Yes No



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CONTINUING EDUCATION COURSE APPROVAL APPLICATION

Continuing and Board Use Only

\$50 Mandatory Fee

Table with 4 columns: Receipt #, Payor ID, Beneficiary ID, Amount. Values: 1-3323, 439591, 439591, 50

Pursuant to California Code of Regulations (CCR) § 1536, the Board will approve continuing education (CE) courses after receiving the applicable fee, the requested information below and it has been determined that the course meets criteria specified in CCR § 1536(g).

In addition to the information requested below, please attach a copy of the course schedule, a detailed course outline and presentation materials (e.g., PowerPoint presentation). Applications must be submitted 45 days prior to the course presentation date.

Please type or print clearly.

Course Title: Conjunctivitis; Course Presentation Date: 09/15/2017

Course Provider Contact Information

Provider Name: Joseph Pruitt Allan (First, Last, Middle)

Provider Mailing Address: Street 11980 Mt Vernon Ave., City Grand Terrace, State CA, Zip 92313

Provider Email Address: pruit्त.joseph@gmail.com

Will the proposed course be open to all California licensed optometrists? [X] YES [] NO

Do you agree to maintain and furnish to the Board and/or attending licensee such records of course content and attendance as the Board requires, for a period of at least three years from the date of course presentation? [X] YES [] NO

Course Instructor Information

Please provide the information below and attach the curriculum vitae for each instructor or lecturer involved in the course. If there are more instructors in the course, please provide the requested information on a separate sheet of paper.

Instructor Name: Joseph Pruitt Allan (First, Last, Middle)

License Number: 13429; License Type: TLG

Phone Number: (909) 721-7751; Email Address: pruit्त.joseph@gmail.com


I declare under penalty of perjury under the laws of the State of California that all the information submitted on this form and on any accompanying attachments submitted is true and correct.

Signature of Course Provider: [Handwritten Signature]

Date: 3/13/2017

1  **Conjunctivitis**


Joseph A. Pruitt, O.D., M.B.A., FAAO
Riverside-San Bernardino County Indian Health, Inc.

2  **What Is It...**

- Commonly referred to as:
 - "red eye"
 - "pink eye"
 -
- Definition:
 - a nonspecific term used to describe an inflammation of the conjunctiva

3  **Characterization**

- Most commonly:
 -
 -
 - Conjunctival hyperemia
 -
 - Ocular discharge
 -
 - Conjunctival Papillae
 -
 - Conjunctival Follicles

4  **Papillae vs. Follicles**

- Papillae
 -
 - Vascular reaction with cobblestone arrangement of flattened nodules with central vascular cores
 -
 - It can be a response to a mechanical stimulation or foreign body such as a contact lens or ocular prosthesis
 -
 - Papillae coat the tarsal surface of the upper eyelid and may reach large size (*i.e. giant papillary conjunctivitis*)
 -
 - The histologic appearance of papillary conjunctivitis is identical, regardless of the cause:
 - Closely packed,
 - Flat-topped projections
 - Numerous eosinophils, lymphocytes, plasma cells, and mast cells in the stroma surrounding a central vascular channel.

5  **Papillae vs. Follicles**

- Follicles
 -
 - Follicles are small, dome-shaped nodules without a prominent central vessel (*i.e. avascular*)

-
- Appears more pale on its surface and more red at its base
-
- Histologically, a lymphoid follicle is situated in the subepithelial region of conjunctiva
-
- The follicles in follicular conjunctivitis are typically most prominent in the inferior palpebral and forniceal conjunctiva

6 **Papillae vs. Follicles**

7 **Types**

- Allergic
-
- Bacterial
 - Chlamydial
 -
- Viral
-
- Contact lens-related
-
- Mechanical
-
- Traumatic
-
- Neonatal
-
- Parinaud Oculoglandular Syndrome
-
- Phlyctenular
-
- Secondary
-

8 **Allergic**

9 **Allergic**

- Symptoms
 - Swelling or puffiness of the eyes/Lid edema
 - Redness
 - Itching
 - Tearing
 - Foreign body sensation
 - Photophobia
 - Blepharospasm
 -
- Signs
 - Stringy/ropy mucous discharge
 - Conjunctival papillae
 - Shield ulcers
 - SEI's
 - Tranta dots (vernal/atopic)
 -

10  **Allergic**

-
- Atopic Keratoconjunctivitis
 - A severe chronic external ocular inflammation associated with atopic dermatitis
 -
 - Typically occurs late in teenage years through 4-5th decade of life
 -
- Simple Allergic Conjunctivitis
 - Occurs as the result of exposure to a wide variety of allergens
 - Commonly the result of exposure to eye medications and/or their preservatives

11  **Allergic**


-
- Seasonal Conjunctivitis (aka "Hayfever")
 - Technically a form of "simple allergic conjunctivitis"
 -
 - Recurrent, usually transient, and self-limiting exposure to ragweed, pollens, dander, dust or mold spores
 -
- Vernal Conjunctivitis
 - Majority of affected patients are males <20 years of age
 -
 - Tend to "outgrow" the condition by the age of 30
 -
 - Average period of time most patients suffer from the condition is 4 years
 -
 -

12  **Allergic**

- Atopic/Vernal conjunctivitis (con't)
-
-
-
-

13  **Allergic**

- Treatment
-
- Topical Steroids
 - Inhibit inflammatory process
 - e.g. edema → capillary dilation → fibroblast proliferation
 -
 - Curtail the migration of macrophages and neutrophils to inflamed areas
 -
 - Block phospholipase A2 activity
 - As well as subsequent induction of the arachidonic acid cascade
 -
 - *Should not be used chronically*
 - *Potential IOP increase*
 - *PSC*

- 14  **Allergic**
- Treatment
 - Topical Steroids (con't)
 - "Site-specific" steroids have been designed to reduce the complications of associated with topical use
 - Less risk of increase IOPs
 - Loteprednol etabonate 0.5%
 - Effective as treatment for GPC
 - Effective as prophylaxis for seasonal allergic conjunctivitis
 - Loteprednol etabonate 0.2%
 - FDA-approved and effective treatment for seasonal allergic conjunctivitis

15  **Allergic**

- Treatment
 - Topical vasoconstrictor/antihistamines
 - Cause vasoconstriction
 - Decrease vascular permeability
 - Reduce itching by blocking H1 histamine receptors
 - e.g. Naphcon-A, Visine-A, Opcon-A
 - Topical antihistamines
 - Competitively bind with histamine receptors
 - Reduce itching and vasodilation
 - e.g. Lastacaft, Elestat, Alocril

16  **Allergic**

- Treatment
 - Systemic antihistamines
 - Useful when associated findings are present such as:
 - Lid edema
 - Dermatitis
 - Rhinitis
 - Sinusitis
 - 1st generation antihistamines greater risk of anticholinergic sedation (diphenhydramine)

17  **Allergic**

- Treatment
 - Topical non-steroidal anti-inflammatory (NSAIDS)
 - Inhibit activity of cyclo-oxygenase
 - One of the enzymes responsible for conversion of arachidonic acid into prostaglandins

- e.g. Acular/Ketorolac (only one FDA approved for allergic conjunctivitis), Diclofenac

18  **Allergic**

- Treatment
-
- Mast Cell Stabilizers
 -
 - Inhibit the degranulation of mast cells
 - Which limits the release of inflammatory mediators (e.g. histamine, neutrophil + eosinophil chemotactic factors)
 -
 - Examples: nedocromil 2% + cromolyn sodium 4.0%

19  **Allergic**

- Treatment
-
- Agents with multiple mechanism of action
 -
 - Olopatidine hydrochloride (Patanol/Pataday)
 - Selective H1 histamine antagonist
 - Mast cell stabilizer
 -
 - Ketotifen fumarate (Zaditor or Alaway)
 - Histamine antagonist
 - Mast cell stabilizer

20  **Allergic**

- Treatment
-
- Immunosuppressants
 -
 - Cyclosporin A (Restasis)
 -
 - A potent immunosuppressant when administered systemically
 -
 - Exact mechanism unknown when administered topically as an ophthalmic solution
 - Prevailing thought is it acts as an immunomodulator

21  **Bacterial**

- Hyperacute
-
- Rapid onset of copious purulent discharge, severe conjunctival hyperemia, conjunctival chemosis, and lid edema
 -
 - May be:
 - unilateral or bilateral
 - (+) pain
 - Globe tenderness
 - Preauricular lymphadenopathy
 -
 - Example: gonococcal infections

22  **Bacterial**23  **Bacterial**

• Acute

•

- Acute onset of unilateral discharge, irritation, and diffuse conjunctival hyperemia

•

- Typically involves a tarsal palpebral response

•

- Mucopurulent/purulent discharge is common

•

- Preauricular lymphadenopathy is generally absent

•

- Fellow eye likely to become involved within 48 hours

•

24  **Bacterial**

• Acute (continued)

•

- Children 6 months → 3 years old


- Bluish discoloration + swelling of periorbital skin suggests progression to orbital cellulitis

- Likely the result of *Haemophilus influenzae*

- *H. influenzae* may be associated with fever, upper respiratory tract infection

- Can progress to septicemia, metastatic meningitis, septic arthritis, or endophthalmitis

•

25  **Bacterial**26  **Bacterial**

• Chronic

•

- A variety of nonspecific symptoms + clinical findings

- Often symptom of irritation > 4 weeks

- Foreign Body Sensation

- Low grade conjunctival hyperemia

- Papillary or follicular reaction can occur

- Mucoïd discharge may be present

- Often accompanied by lid hyperemia + eyelid "crusting" particular upon waking

27  **Bacterial**

• Chlamydial

•

- Caused by *Chlamydial trachomatis*

•

- Organism causes Trachoma and Inclusion Conjunctivitis

- Trachoma primarily occurs in impoverished regions

- Inclusion conjunctivitis occurs more in developed countries

•

- The same serotypes that cause genital infections cause Inclusion Conjunctivitis
 - Of the 19 Human Serotypes, they are serotypes D, Da, E, F, G, H, I, Ia, J, and K

28 **Chlamydial**

- Adult Inclusion
 - Large follicles
 - predominantly in the lower palpebral conj. + fornix
- Often hyperemia
- Mild Mucoid Discharge
 - Can be moderate to severe in cases of secondary infection
- Lid edema
 - More common in early course of infection
- Preauricular Lymphadenopathy
 - More common in early course of infection
- Can persist for up to 3-12 months without proper treatment!
 - Causes an indolent conjunctivitis resistant to standard topical antibiotics

29 **Chlamydial**30 **Bacterial**

- Treatment
 - Ideally, the method of treatment is to identify the causative organism then initiating a known effective antimicrobial
 - Typically broad spectrum antimicrobial is initiated

31 **Bacterial**

- Treatment
 - Aminoglycoside (gentamicin/tobramycin)
 - Effective against:
 - Staphylococcus
 - Streptococcus
 - Haemophilus
 - Proteus
 - Escherichia coli
 - Moraxella
 - Pseudomonas

32 **Bacterial**

- Treatment
 - Bacitracin ung
 - Effective against:
 - Staphylococcus
 - Streptococcus
 - Neisseria


- Chloramphenicol
 - Effective against:
 - Staphylococcus
 - Haemophilus
 - Proteus

33  **Bacterial**

- Treatment

- Erythromycin
 - Effective against:
 - Staphylococcus
 - Streptococcus
 - Neisseri
 - Haemophilus

- Fluoroquinolone
 - Effective against:
 - Staphylococcus
 - Streptococcus
 - Haemophilus
 - Pseudomonas

34  **Bacterial**

- Treatment

- Polymyxin B/neomycin
 - Effective against:
 - Staphylococcus
 - Proteus
 - Moraxella
 - Pseudomonas
- Polymyxin B/trimethoprim sulfate
 - Effective against:
 - Staphylococcus
 - Streptococcus
 - Proteus
 - Escherichia coli
 - Haemophilus

35  **Bacterial**

- Treatment

- Sodium sulfacetamide
 - Effective against:
 - Streptococcus
 - Haemophilus
 - Moraxella

- Sulfisoxazole diolamine
 - Effective against:
 - Streptococcus
 - Neisseria
 - Escherichia coli

36  **Bacterial**

- Treatment
 - - Tetracycline
 - Effective against:
 - Staphylococcus
 - Neisseria
 - Escherichia coli

37  **Bacterial/Chlamydial/Gonococcal**

- Treatment
 - - Chlamydial
 - Systemic antibiotics:
 - Azithromycin 1 gram (single dose)
 - Doxycycline 100mg bid x 7 days
 - Hyperacute/Gonococcal
 - Ceftriaxone (single dose intramuscularly)

38  **Viral**

- Adenoviral
 - - Classically:
 - Acute onset of unilateral → then bilateral
 - Bulbar + palpebral hyperemia
 - Epiphora
 - Marked inferior tarsal and fornix follicular response

39  **Viral**

- Adenoviral (con't)
 - - Less "classically" so...but possible
 - Petechial hemorrhages can be present (particularly bulbar)
 - Possible associated diffuse pattern of punctate keratitis
 - Multiple SEI's can follow
 - Pseudomembranes on superior or inferior tarsal conjunctiva
 - Lid Edema
 - Preauricular Lymphadenopathy
 - More prominent on the side initially affected

40  **Viral**

- Adenovirus (con't)

41  **Viral**

-
-
-
- Adenoviral (con't)
 - With Adenoviruses, Epidemic Keratoconjunctivitis (EKC) is possible
 - Serotypes 9, 19, & 37 have been found to be associated with EKC
 - Highly contagious
 -
 - Signs/Symptoms similar to other adenoviral infections
 - Perhaps more pronounce...?

42  **Viral**

43  **Viral**

44  **Viral**

45  **Viral**

- Enterovirus (includes subtype Coxsackievirus)
 - Causes Acute Hemorrhagic Conjunctivitis
 -
 - Humans are the sole host
 -
 - Signs/Symptoms similar to viral conjunctivitis, but includes subconjunctival hemorrhage
 -
 - Highly contagious
 - Spreads via fecal-oral route; thus higher incidence in areas of poor sanitation
 - Generally self-limiting
 - Resolves in ~5-7 days

46  **Viral**

47  **Viral**

- Herpetic
 - Lid edema
 -
 - Hyperemia
 -
 - Pseudomembrane formation (occasionally)
 -
 - Conjunctival Dendrites or geographic ulcers (possible)
 -
 - Characteristic dermatological manifestations
 - Vesicular eruptions
 - May be observed on the lids or periobital skin

48  **Viral**

- Herpetic
-


49  **Viral**

- Treatment
 - Adenovirus
 - No effective treatment
 - Supportive therapy (e.g. lubricants + cool compresses)
 - Topical steroids remain controversial due to potential side effects
 - Herpes simplex
 - Trifluridine
 - Up to 9 drops/day
 - Toxic!!!
 - Supportive therapy only...?
 - Oral anti-virals

50  **Contact Lens-Related**

- As the name suggests, associated with contact lens wear
 - Mild Itching
 - Hyperemia
 - Giant Papillae (common)
 - Mucous Discharge (possible)
 - Conjunctival Thickening
 - Unilateral or Bilateral


51  **Contact Lens-Related**


52  **Contact Lens-Related**

- Treatment
 - DISCONTINUE CONTACT LENS WEAR
 - Then treat underlying/associate causes if necessary

53  **Mechanical**

- Physical agitation of conjunctiva
 - Usually from personal rubbing of eyes or trichiasis
 - Can be an exacerbating component of allergic conjunctivitis
 - Also can be the result of more psychological etiologies (e.g. trichotillomania)
- Focal or diffuse hyperemia
- Foreign body sensation
- Epiphora

- 54  **Mechanical**
- Treatment
 - - Remove trauma-inducing agent
 - e.g. stop rubbing eyes or correct trichiasis
 - Artificial tears
 - Prophylactic antibiotic could be considered
 - Dependent on severity

- 55  **Traumatic**
- Self explanatory

- - Hyperemia

- - Epiphora

- - Foreign body sensation

- 56  **Traumatic**

- Treatment

- - Totally dependent of nature of condition

- 57  **Toxic**

- Conjunctival exposure to irritating substance or agent

- - Unilateral or Bilateral hyperemia

- - Mixed follicular/papillary reaction of the tarsal conjunctival

- 58  **Toxic**

- Treatment

- - Often the result overuse of topical meds or make-up

- - Offending agent should be identified and removed

- - Then supportive therapy

- 59  **Neonatal**

- The result of birthing through the birth canal







- - Diffuse hyperemia

- - Other manifestations dependant on the etiology of disease


- 60  **Neonatal**

- 61  **Neonatal**

- Treatment

-
- Should be co-managed with pediatrician, neonatologist, or pediatric infectious disease specialist
-
- Gonococcal
 - Ceftriaxone (25-50 mg/kg)
- Herpes simplex
 - Acyclovir (30-60 mg/kg/day)
- Chlamydial
 - Erythromycin (50 mg/kg/day)
- 62  **Parinaud Oculoglandular Syndrome**
 - A broad category generally used to describe granulomatous conjunctivitis
 -
 - Caused by a wide range of infectious agents
 -
 - Cat-scratch disease is the most common cause
 - Usually unilateral
 - With accompanied ipsilateral lymphadenopathy
 - Conjunctival granulomas or ulcerations typically present
- 63  **Parinaud Oculoglandular Syndrome**
- 64  **Parinaud Oculoglandular Syndrome**
- 65  **Parinaud Oculoglandular Syndrome**
 - Treatment (Cat-Scratch Disease)
 -
 - Self-limiting
 -
 - Focus is to relieve PA lymphadenopathy tenderness
 - Warm soaks
 - Topical vasoconstrictor/lubricant
 -
 - Biopsy of granuloma in severe cases only
- 66  **Phlyctenular**
 - A delayed hypersensitivity reaction to the introduction of foreign proteins can lead to phlyctenular conjunctivitis
 -
 - Though historically associated with tuberculo-protein sensitivity, now most commonly associated with staphylococcal infection.
 -
- 67  **Phlyctenular**
 - Unilateral
 -
 - Sectoral hyperemia
 -
 - Development of an elevated nodule
 - Nodule can be ulcerated
 -
 - Patients may experience:
 - Pain

- Epiphora
- Photophobia (especially with corneal involvement)

68  **Phlyctenular**69  **Phlyctenular**

• Treatment

-
- Treat the underlying mechanism
 - For example:
 - Eliminating chronic lid disease (reservoir for Staph aureus)
-
- Topical antibiotic/corticosteroid combos effective
-
- Oral doxycycline can be useful with associated blepharitis or dermatologic disorder
 - Erythromycin should be used in pregnant women or children <8 years old

70  **Secondary**


- Associated with other ocular and systemic disorders
 - Non-specific
 -
 - Examples of primary etiologies include:
 - Keratoconjunctivitis sicca
 - Lyme disease
 - Blepharitis
 - Superior limbic
 - Reiter's syndrome keratoconjunctivitis
 - Cicatricial pemphigoid
 - Floppy lid syndrome
 - Erythema multiforme
 - Mucous fishing syndrome (Stevens-Johnson syndrome)
 - Collagen-vascular diseases
 - Relapsing polychondritis
 - Sarcoidosis

71  **Secondary**

- Superior Limbic Keratoconjunctivitis (SLK)
-
- Rare chronic inflammatory disease of:
 - Superior bulbar conjunctiva
 - Limbus
 - Upper cornea
-
- Unknown etiology
-
- Suspect its secondary b/c it has been associated with:
 - Thyroid dysfunction
 - Keratoconjunctivitis sicca
 - Rheumatoid arthritis

72  **Secondary**

- SLK

73  **Secondary**

- Treatment

-
- Underlying disease is the focus and must be treated
-

-
- Consider managing ocular symptoms with appropriate medical professional treating the underlying cause
-

74  **Secondary**

- Specifically with SLK, multiple treatment modalities have been described but there is not a gold standard

- Topical silver nitrate
- Therapeutic soft contact lens
- Lacrimal puncta occlusion
- Topical vitamin-A
- Topical cyclosporine-A
- Ketotifen fumarate
- Autologous serum
- Cromolyn sodium
- Lodoxamide tromethamine
- Botulinum injection in the muscle of Riolan
- Supratarsal triamcinolone injection

Conjunctivitis

Joseph A. Pruitt, O.D., M.B.A., FFAO
 Riverside-San Bernardino County Indian Health, Inc.

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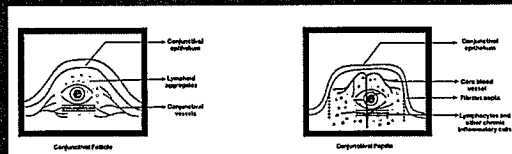
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Papillae vs. Follicles



Types

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- Bacterial
 - Chlamydial
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- Contact lens related
- Mechanical
- Traumatic
- Neonatal
- Parinaud Oculoglandular Syndrome
- Phlyctenular
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Allergic

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Allergic

- Atopic/Vernal conjunctivitis (cont)

Allergic

◦ Treatment

◦ Topical Steroids

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- e.g. edema → capillary dilation → fibroblast proliferation

Curtail the migration of macrophages and neutrophils to inflamed areas

◦ Block phospholipase A2 activity

- As well as subsequent induction of the arachidonic acid cascade

Should not be used chronically

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- Decrease vascular permeability
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◦ Topical antihistamines

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Allergic

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◦ Systemic antihistamines

Useful when associated findings are present such as:

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- Sinusitis

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 - Exact mechanism unknown when administered topically as an ophthalmic solution
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- Hyperacute
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 - May be
 - unilateral or bilateral
 - (+) pain
 - Globe tenderness
 - Preauricular lymphadenopathy
 - Example: gonococcal infections

Bacterial



Bacterial

- Acute
 - Acute onset of unilateral discharge, irritation, and diffuse conjunctival hyperemia
 - Typically involves a tarsal palpebral response
 - Mucopurulent/purulent discharge is common
 - Preauricular lymphadenopathy is generally absent
 - Follow eye likely to become involved within 28 hours

Bacterial

- Acute (continued)
 - Children 6 months \rightarrow 3 years old
 - Bluish discoloration + swelling of periorbital skin suggests progression to orbital cellulitis
 - Likely the result of *Haemophilus influenzae*
 - H. influenzae* may be associated with fever, upper respiratory tract infection
 - Can progress to septicemia, meningitis, epiglottitis, or endophthalmitis

Bacterial



Bacterial

◦ Chronic

- A variety of nonspecific symptoms + clinical findings
- Often symptom of irritation > 4 weeks
- Foreign Body Sensation
- Low grade conjunctival hyperemia
- Papillary or follicular reaction can occur
- Mucoid discharge may be present
- Often accompanied by lid hyperemia + eyelid "crusting" particular upon waking

Bacterial

◦ Chlamydial

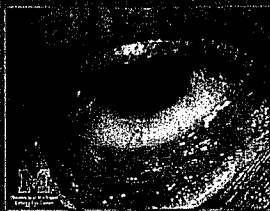
- Caused by Chlamydial trachomatis
- Organism causes Trachoma and Inclusion Conjunctivitis
 - Trachoma primarily occurs in impoverished regions
 - Inclusion conjunctivitis occurs more in developed countries
- The same serotypes that cause genital infections cause Inclusion Conjunctivitis
 - Of the 19 Human Serotypes, they are serotypes D, Da, E, F, G, H, I, Ia, J, and K

Chlamydial

◦ Adult Inclusion

- Large follicles
 - predominantly in the lower palpebral conj. + fornix
- Often hyperemia
- Mild Mucoid Discharge
 - Can be moderate to severe in cases of secondary infection
- Lid edema
 - More common in early course of infection
- Preauricular Lymphadenopathy
 - More common in early course of infection
- Can persist for up to 3-12 months without proper treatment!
 - Causes an indolent conjunctivitis resistant to standard topical antibiotics

Chlamydial



Bacterial

◦ Treatment

- Ideally, the method of treatment is to identify the causative organism then initiating a known effective antimicrobial
- Typically broad spectrum antimicrobial is initiated

Bacterial

- Treatment
 - Aminoglycoside (gentamicin/tobramycin)
 - Effective against
 - Staphylococcus
 - Streptococcus
 - Haemophilus
 - Proteus
 - Escherichia coli
 - Moraxella
 - Pseudomonas

Bacterial

- Treatment
 - Bacitracin ung
 - Effective against
 - Staphylococcus
 - Streptococcus
 - Neisseria
 - Chloramphenicol
 - Effective against
 - Staphylococcus
 - Haemophilus
 - Proteus

Bacterial

- Treatment
 - Erythromycin
 - Effective against
 - Staphylococcus
 - Streptococcus
 - Neisseria
 - Haemophilus
 - Fluoroquinolone
 - Effective against
 - Staphylococcus
 - Streptococcus
 - Haemophilus
 - Pseudomonas

Bacterial

- Treatment
 - Polymyxin B/neomycin
 - Effective against
 - Staphylococcus
 - Proteus
 - Moraxella
 - Pseudomonas
 - Polymyxin B/trimethoprim sulfate
 - Effective against
 - Staphylococcus
 - Streptococcus
 - Proteus
 - Escherichia coli
 - Haemophilus

Bacterial

- Treatment
 - Sodium sulfacetamide
 - Effective against
 - Streptococcus
 - Haemophilus
 - Moraxella
 - Sulfisoxazole diolamine
 - Effective against
 - Streptococcus
 - Neisseria
 - Escherichia coli

Bacterial

- Treatment
 - Tetracycline
 - Effective against
 - Staphylococcus
 - Neisseria
 - Escherichia coli

Bacterial/Chlamydial/Gonococcal

◦ Treatment

Chlamydial

Systemic antibiotics:

- Azithromycin 1 gram (single dose)
- Doxycycline 100mg bid x 7 days

Hyperacute/Gonococcal

- Ceftriaxone (single dose intramuscularly)

Viral

◦ Adenoviral

Classically:

- Acute onset of unilateral → then bilateral
- Bulbar + palpebral hyperemia
- Epiphora
- Marked inferior tarsal and fornix follicular response

Viral

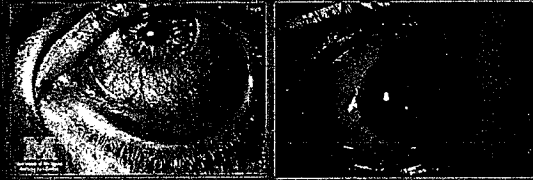
◦ Adenoviral (con't)

Less "classically" so...but possible

- Petechial hemorrhages can be present (particularly bulbar)
- Possible associated diffuse pattern of punctate keratitis
- Multiple SEI's can follow
- Pseudomembranes on superior or inferior tarsal conjunctiva
- Lid Edema
- Preauricular Lymphadenopathy
- More prominent on the side initially affected

Viral

◦ Adenovirus (con't)



Viral

◦ Adenoviral (con't)

With Adenoviruses, Epidemic Keratoconjunctivitis (EKC) is possible

- Serotypes 9, 19, & 37 have been found to be associated with EKC

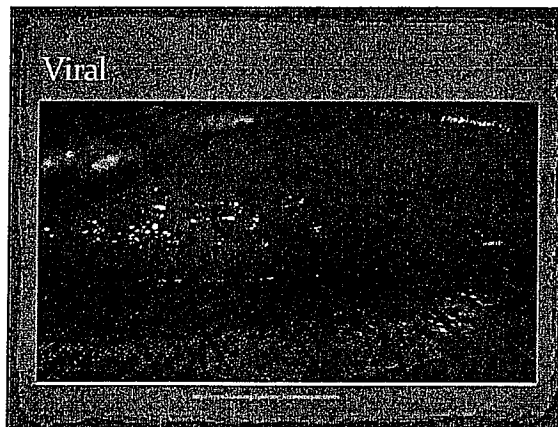
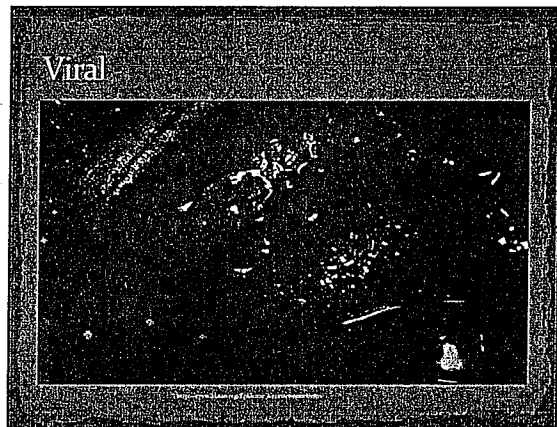
Highly contagious

Signs/Symptoms similar to other adenoviral infections

- Perhaps more pronounce...?

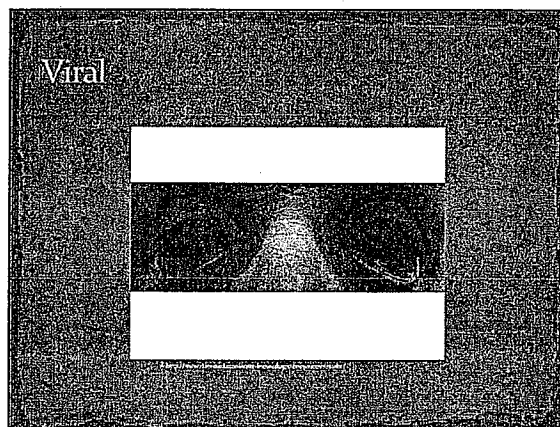
Viral





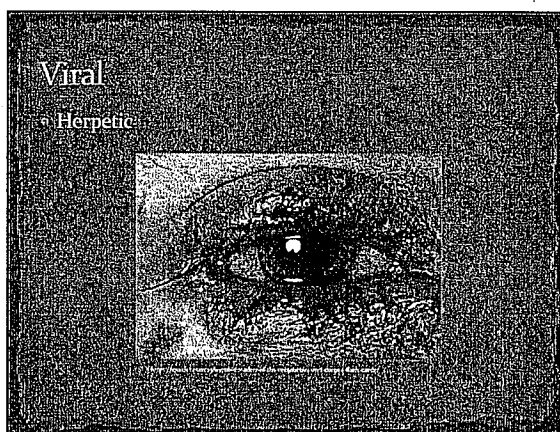
Viral

- Enterovirus (includes subtype Coxsackievirus)
 - Causes Acute Hemorrhagic Conjunctivitis
 - Humans are the sole host
 - Signs/Symptoms similar to viral conjunctivitis, but includes subconjunctival hemorrhage
 - Highly contagious
 - Spreads via fecal-oral route, thus higher incidence in areas of poor sanitation
 - Generally self-limiting
 - Resolves in 5-7 days



Viral

- Herpetic
 - lid edema
 - Hyperemia
 - Pseudomembrane formation (occasionally)
 - Conjunctival Dendrites or geographic ulcers (possible)
 - Characteristic dermatological manifestations
 - Vesicular eruptions
 - May be observed on the lids or periorbital skin



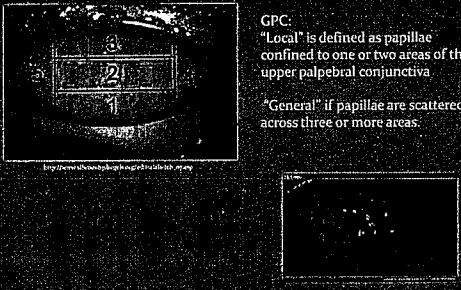
Viral

- Treatment
 - Adenovirus
 - No effective treatment
 - Supportive therapy (e.g. lubricants + cool compresses)
 - Topical steroids remain controversial due to potential side effects
 - Herpes simplex
 - Trifluridine
 - Up to 9 drops/day
 - Toxic!!!
 - Supportive therapy only...?
 - Oral anti-virals

Contact Lens-Related

- As the name suggests, associated with contact lens wear
 - Mild Itching
 - Hyperemia
 - Giant Papillae (common)
 - Mucous Discharge (possible)
 - Conjunctival Thickening
 - Unilateral or Bilateral

Contact Lens-Related



GPC:
 "Local" is defined as papillae confined to one or two areas of the upper palpebral conjunctiva

"General" if papillae are scattered across three or more areas.

Contact Lens-Related

- Treatment
 - DISCONTINUE CONTACT LENS WEAR
 - Then treat underlying/associate causes if necessary

Mechanical

- Physical agitation of conjunctiva
 - Usually from personal rubbing of eyes or trichiasis
 - Can be an exacerbating component of allergic conjunctivitis
 - Also can be the result of more psychological etiologies (e.g. trichotillomania)
- Focal or diffuse hyperemia
- Foreign body sensation
- Epiphora

Mechanical

- Treatment
 - Remove trauma-inducing agent
 - e.g. stop rubbing eyes or correct trichiasis
 - Artificial tears
 - Prophylactic antibiotic could be considered
 - Dependent on severity

Traumatic

- Self explanatory
- Hyperemia
- Epiphora
- Foreign body sensation

Traumatic

- Treatment
- Totally dependent of nature of condition

Toxic

- Conjunctival exposure to irritating substance or agent
- Unilateral or Bilateral hyperemia
- Mixed follicular/papillary reaction of the tarsal conjunctival

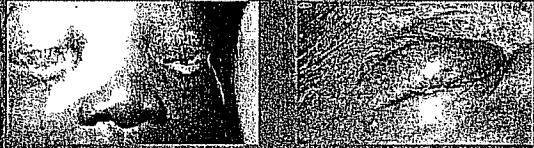
Toxic

- Treatment
- Often the result overuse of topical meds or make-up
- Offending agent should be identified and removed
- Then supportive therapy

Neonatal

- The result of birthing through the birth canal
- Diffuse hyperemia
- Other manifestations dependant on the etiology of disease

Neonatal



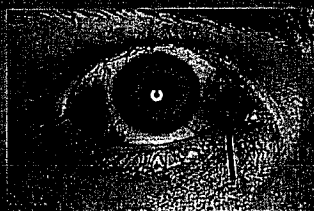
Neonatal

- Treatment
 - Should be co-managed with pediatrician, neonatologist, or pediatric infectious disease specialist
 - Gonococcal
 - Ceftriaxone (25-50 mg/kg)
 - Herpes simplex
 - Acyclovir (30-60 mg/kg/day)
 - Chlamydial
 - Erythromycin (50 mg/kg/day)

Parinaud Oculoglandular Syndrome

- A broad category generally used to describe granulomatous conjunctivitis
- Caused by a wide range of infectious agents
- Cat-scratch disease is the most common cause
 - Usually unilateral
 - With accompanied ipsilateral lymphadenopathy
 - Conjunctival granulomas or ulcerations typically present

Parinaud Oculoglandular Syndrome



B. henselae conjunctivitis multiple nonulcerative granulomas (arrows) are seen in the bulbar conjunctiva

Parinaud Oculoglandular Syndrome



Oculoglandular tularemia. Bulbar conjunctival granuloma with ipsilateral regional adenopathy with loss of jaw angularity (arrow).

Parinaud Oculoglandular Syndrome

- Treatment (Cat-Scratch Disease)
 - Self-limiting
 - Focus is to relieve PA lymphadenopathy tenderness
 - Warm soaks
 - Topical vasoconstrictor/lubricant
 - Biopsy of granuloma in severe cases only

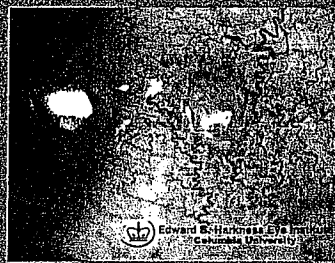
Phlyctenular

- A delayed hypersensitivity reaction to the introduction of foreign proteins can lead to phlyctenular conjunctivitis
- Though historically associated with tuberculo-protein sensitivity, now most commonly associated with staphylococcal infection.

Phlyctenular

- Unilateral
- Sectoral hyperemia
- Development of an elevated nodule
 - Nodule can be ulcerated
- Patients may experience:
 - Pain
 - Epiphora
 - Photophobia (especially with corneal involvement)

Phlyctenular



Phlyctenular

- Treatment
 - Treat the underlying mechanism
 - For example
 - Eliminating chronic lid disease (reservoir for Staph aureus)
 - Topical antibiotic/corticosteroid combos effective
- Oral doxycycline can be useful with associated blepharitis or dermatologic disorder
 - Erythromycin should be used in pregnant women or children <8 years old

Secondary

- Associated with other ocular and systemic disorders
 - Non-specific
- Examples of primary etiologies include:
 - Keratoconjunctivitis sicca
 - Lyme disease
 - Blepharitis
 - Superior limbic
 - Reiter's syndrome/keratoconjunctivitis
 - Cicatricial pemphigoid
 - Floppy lid syndrome
 - Erythema multiforme
 - Mucous fishine syndrome (Stevens-Johnson syndrome)
 - Collagen vascular diseases
 - Relapsing polychondritis
 - Sarcoidosis

Secondary

- Superior Limbic Keratoconjunctivitis (SLK)
 - Rare chronic inflammatory disease of:
 - Superior bulbar conjunctiva
 - Limbus
 - Upper cornea
 - Unknown etiology
 - Suspect its secondary b/c it has been associated with:
 - Thyroid dysfunction
 - Keratoconjunctivitis sicca
 - Rheumatoid arthritis

Secondary

- SLK



- Upper tarsal conjunctiva: papillary reaction
- Upper bulbar conjunctiva: foldings, hyperemia, redundancy, and filament formation
- Fluorescein and lissamine green or rose bengal staining

Secondary

- Treatment

- Underlying disease is the focus and must be treated

Consider managing ocular symptoms with appropriate medical professional treating the underlying cause

Secondary

- Specifically with SLK, multiple treatment modalities have been described but there is not a gold standard

- Topical silver nitrate

- Therapeutic soft contact lens

- Lacrimal puncta occlusion

- Topical vitamin-A

- Topical cyclosporine-A

- Ketotifen fumarate

- Autologous serum

- Cromolyn sodium

- Lodoxamide tromethamine

- Botulinum injection in the muscle of Riolan

- Supratarsal triamcinolone injection

Joseph A. Pruitt, O.D., M.B.A., FAAO

Objective:

Education:

Nova Southeastern University, Fort Lauderdale-Davie, Florida Master of Business Administration, 2011	2008-2011
West Los Angeles Veteran Affairs Healthcare Center, Los Angeles, California Residency Certificate, Geriatric/Primary Care, 2008	2007-2008
Illinois College of Optometry, Chicago, Illinois Doctor of Optometry, 2007	2003-2007
California State Polytechnic University, Pomona, California Bachelor of Science, Biology, 2003	2000-2003
University of Memphis, Memphis, Tennessee Major in Biology	1999-2000

Licenses:

Tennessee #2753 • Active • Injectable Certification • Therapeutic Certification	Date of Issue: July 10, 2007
California #13429T • Active • Therapeutic and Pharmaceutical Agent + Lacrimal Irrigation and Dilation + Glaucoma (TLG) Certified	Date of Issue: Sept. 28, 2007
Georgia #OPT002454 • Active • Diagnostic and Therapeutic Pharmaceutical Agent Certified	Date of Issue: June 12, 2008
Minnesota #3130 • Active • Diagnostic Pharmaceutical Agent (DPA) Certified • Therapeutic Pharmaceutical Agent (TPA) Certified	Date of Issue: June 17, 2008

Board Certification:

American Board of Certification in Medical Optometry • Board certified	Date of recertification: Feb 2018
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Certifications:

Drug Enforcement Agency (DEA) Certified	Date of Expiration: Mar 2020
Cardiopulmonary Resuscitation (CPR) & Automated External Defibrillator (AED)	Recommended Renewal: Mar 2017
Bausch & Lomb Overnight Orthokeratology • Certification Number: 20060406002	Date of Issue/Completion: April 6, 2006

- Certification Number: 161000

Advance Competence in Medical Optometry (ACMO)

Date Taken: June 13, 2008

- Administered by the National Board of Examiners in Optometry (NBEO)
- Examination only made available to candidates meeting specific clinical experience requirements/pre-requisites
- Passed examination

Employment:

Riverside San Bernardino County Indian Health, Inc (RSBCIHI)	Oct. 2014- present
<ul style="list-style-type: none"> • Director of Eye Care • Staff Optometrist 	
Riverside San Bernardino County Indian Health, Inc (RSBCIHI)	July 2014- Oct. 2014
<ul style="list-style-type: none"> • Staff Optometrist 	
Minneapolis Veteran Affairs Health Care System	Nov 2008- June 2014
<ul style="list-style-type: none"> • Low Vision/Staff Optometrist • Optometric Residency Coordinator <ul style="list-style-type: none"> ◦ Spearheaded and implemented program • Student Externship Coordinator <ul style="list-style-type: none"> ◦ Spearheaded and implemented program 	
Wal-Mart Vision Center (Red Wing & Rochester, MN)	Jul 2008- Nov 2008
<ul style="list-style-type: none"> • Associate Optometrist 	
EyExam of California	Oct 2007- June 2008
<ul style="list-style-type: none"> • On-call/Fill-in Optometrist 	

Faculty Appointments:

Western University of Health Science / College of Optometry, Pomona, California	Jan 2015 - present
<ul style="list-style-type: none"> • Clinical Assistant Professor of Optometry • RSBCIHI Externship Site Program Director <ul style="list-style-type: none"> ◦ As part of being RSBCIHI Eye Care Director 	
University of the Incarnate Word-Rosenberg School of Optometry, San Antonio, Texas	May 2012- June 2014
<ul style="list-style-type: none"> • Clinical Assistant Professor • Minneapolis VA HCS Externship Site Program Director 	
Midwestern University-Arizona College of Optometry, Glendale, Arizona	May 2012- June 2014
<ul style="list-style-type: none"> • Adjunct Clinical Assistant Professor • Minneapolis VA HCS Externship Site Program Director 	
Southern College of Optometry, Memphis, Tennessee	Dec 2010- June 2014
<ul style="list-style-type: none"> • Adjunct Faculty • Minneapolis VA HCS Externship Site Program Director 	
University of Missouri, St. Louis College of Optometry, St. Louis, Missouri	Jul 2009- June 2014
<ul style="list-style-type: none"> • Adjunct Assistant Professor • Minneapolis VA HCS Externship Site Program Director 	

Experience:

Riverside-San Bernardino Indian Health, Inc	Oct 2014 - present
<ul style="list-style-type: none"> • Director of Eye Care <ul style="list-style-type: none"> ◦ Oversee all organizational Eye Care activities 	

- Staff Optometrist

Riverside-San Bernardino Indian Health, Inc

Jul 2014 – Oct 2014

- Staff Optometrist

Minneapolis Veteran Affairs Medical Center

Nov 2008- June 2014

- Staff Optometrist
 - Primary Eye Care
 - Low Vision
 - Sole low vision eye care provider
 - Polytrauma/Traumatic Brain Injury (TBI) Ocular Health & Vision Assessments
- VISN 23 Low Vision Continuum of Care Conference (May 2009)
 - Faculty
 - Planning committee
- Established Associated Health Education Affiliation Agreement with University of Missouri, St. Louis College of Optometry, Ferris State University Michigan College of Optometry, & Southern College of Optometry for the optometric externship program
 - Externship program director
- Established Associated Health Education Affiliation Agreement with the Illinois College of Optometry for the optometry residency program
 - Residency in Primary Care/Brain Injury and Vision Rehabilitation
 - Residency program director
 - Designed the program's curriculum
 - Secured all necessary approvals and funding
 - After the initial site visit, program received full ACOE accreditation

Wal-Mart Vision Center (Red Wing & Rochester, MN)

Jul 2008- Nov 2008

- Associate Optometrist

Residency:

West Los Angeles Veteran Affairs Healthcare Center

Jul 2007- June 2008

- Geriatrics/Primary Care
 - Primary Care including Diabetic exams
 - Low Vision evaluations/exams
 - Nursing home/in-patient exams
 - Medically justified specialty contact lenses' exams/ fittings
 - Lecture Internal Medicine's and Endocrinology's Residents & Interns on Diabetic Retinopathy
 - Given during Chief Resident rotation
 - Precept Southern California College of Optometry's interns

Optometric Externships:

Atlantic Eye Institute, Jacksonville Beach, FL

Feb-May 2007

- OD/MD private practice with an emphasis on Contact Lenses and Primary Care
- Observed multiple surgical procedures:
 - Cataract Extraction
 - Blepharoplasty
 - Strabismus recession and resection

Memphis Veterans Affairs Medical Center (VAMC), Memphis, TN

Nov 2006-Feb 2007

- Emphasis on Primary Care
- Assisted in direct care in a high patient volume

- medical optometric eye clinic
- Assisted in optometric injections and fluorescence angiographies procedures

Illinois Eye Institute (IEI), Chicago, IL

Aug-Nov 2006

- Emphasis on Pediatrics/Binocular Vision, Advance Care, and Low Vision
- Performed comprehensive eye exams on pediatric patients (infants-11yrs of age)
- Performed comprehensive eye exams on "at risk/2nd chance" children one day a week at Maryville Academy
- Constructed, tailored and performed successful binocular vision/vision therapy treatments to 4 children over a 10 week period
- Assisted in the treatment of advance glaucoma with attending University of Chicago ophthalmologist
- Performed problem specific examinations one day per week in IEI's Emergency/Urgent Care/Walk-in clinic
- Performed full Low Vision examinations including Low Vision device selection and training

Body of Christ Optometry Clinic, Tegucigalpa, Honduras

May-Aug 2006

- Emphasis on Primary and Advance Care
- Performed full-scope optometric care in a high patient volume medical clinic geared towards the underprivileged
- Also worked closely with a local ophthalmologist
 - Observed and assisted in Cataract Extraction and Incision and Curettage procedures
 - Provided pre and post-surgical care

Primary Care Clinical Education

Illinois Eye Institute, Chicago, IL

Aug 2005-May 2006

Volunteer Optometric Assistant

Body of Christ Optometry Clinic, Tegucigalpa, Honduras

Jun-Aug 2004

- Assisted staff optometrist in direct patient care in the clinic and multiple remote satellite outreach locations

Professional Affiliations/Memberships:

- Accreditation Council on Optometric Education
 - Consultant, 2014-present
- American Academy of Optometry (AAO)
 - Fellow; Class of 2009
- American Optometric Association (AOA)
- Armed Forces Optometric Society (AFOS)
- European Academy of Optometry and Optics (EAOO)
 - Candidate for Fellowship
- Fellowship of Christian Optometrists (FCO)
- Minneapolis VAMC Medical Staff Association
 - Steering Committee, member 2010-2014
- National Association of Veteran Affairs Optometrists (NAVAO)
 - Newsletter Committee, member 2010-2014
- National Optometric Association (NOA)
 - Minnesota's NOA State Representative 2010-2012
 - National Optometric Student Association (NOSA)
 - NOSA National Vice-President: 2006-2007
 - NOSA-ICO President: 2005-2006
 - NOSA-ICO Vice-President: 2004-2005

- Volunteer Optometric Service to Humanity (VOSH)
- Journal of Rehabilitation Research and Development
 - Peer Reviewer, 2013-2014

Activities:

- VOSH Medical Mission Trip, Bamenda, Cameroon (May 2010)
- Mayo Medical School/Brighter Tomorrow's Winter Warmth Festival (Jan 2009 & Jan 2010)
 - Fun day of activities for children battling cancer and their families
 - Volunteer
- Veteran Affairs Disaster Emergency Medical Personnel System (DEMPS)
 - Volunteer (Aug 2009-present)
- FCO Optometry Mission Trip, Port Au Prince, Haiti (Feb 2007)
- SVOSH Medical Mission Trip, Addis Addaba, Ethiopia (Mar-Apr 2006)
- FCO Optometry Mission Trip, Tegucigalpa, Honduras (Apr 2003 & Nov 2004)

Honors/Rewards:

- Recognition of Excellence in Teaching as Clinical Assistant Professor, Western University Health Sciences/College of Optometry (2015-2016 Academic Year)
- Nomination for Medical Staff Clinical Excellence Award (2012 & 2013)
- Recognition for Outstanding Dedication and Service as Adjunct Assistant Professor, University of Missouri – St. Louis (2010-2011 Academic Year)
- Journal of the American Optometric Association: Optometry's Eagle Award (Nov 2010)
- Certificate of Appreciation (July 2009)
 - Department of Veterans Affairs – VISN 23
 - Awarded for participation in VISN 23 Blind and Low Vision Continuum of Care Conference
- Recognition for Clinical Excellence (May 2007)
- Derald Taylor Low Vision Award (May 2007)
- Clinical Dean's List (summer 2005; summer & fall 2006, winter & spring 2007)
- Academic Dean's List (fall 2004)
- Wildermuth Leadership Award/Scholarship (Aug 2006)
- Vistakon Acuvue Eye Health Advisor Citizenship Scholarship (Jan 2006)
- NOSA Service Award/Scholarship (Aug 2004)

Publications:

Pruitt JA. *The Management of Homonymous Hemianopsia Secondary to Hemispheric Ischemic Cerebral Vascular Accident. Accepted for publication by Review Optometry (July 2010)*

Rittenbach TL, Pruitt JA. A Roundup of Recently Approved Ophthalmic Drugs (and their Use in Practice.) *Rev Optom.* 2014. 151(2):22-28.

Pruitt JA. Management strategies for patients with AION. *Rev Optom.* 2011. 148(6):57-65.

Pruitt JA. Neuro-Optometric Rehabilitation Association Program Summary. *Optimum VA: The Official Newsletter of the National Association of VA Optometrists Summer 2010.*

Pruitt JA, Ilsen P. On the frontline: What an optometrist needs to know about myasthenia gravis. *Optometry* 81(9): 454-460.

Pruitt JA, Sokol T, Maino D. Fragile X Syndrome and the Fragile X-associated Tremor/Ataxia Syndrome. *Eye Care Review: Ophthalmology, Optometry, Opticianry* 4(2): 17-23

Posters/Presentations

Pruitt JA. The Curious Case of the Functionally Legally Blind Patient with 20/25 (6/7.5) Visual Acuity. *Accepted into American Optometric Association Annual Meeting: Optometry's Meeting (2012) Poster Session.*

Pruitt JA, Prussing N. Successfully Treated Horizontal Diplopia Returns with Subsequent Traumatic Brain Injury. *Accepted into American Optometric Association Annual Meeting: Optometry's Meeting (2012) Poster Session.*

Pruitt JA, Prussing N. The Curious Case of the Functionally Legally Blind Patient with 20/25 (6/7.5) Visual Acuity. European Academy of Optometry and Optics Annual Meeting (2012) Poster Session.

Pruitt JA, Prussing N. Successfully Treated Horizontal Diplopia Returns with Subsequent Traumatic Brain Injury. European Academy of Optometry and Optics Annual Meeting (2012) Case Presentation Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. Minnesota Optometric Association Annual Meeting (2012) Poster Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. American Optometric Association Annual Meeting: Optometry's Meeting (2011) Poster Session.

Pruitt JA, Prussing N. Traumatic Brain Injury Resulting in Horizontal Diplopia Resolved 5 Years Later with 12 Weeks of Vision Therapy. European Academy of Optometry and Optics Annual Meeting (2011) Poster Session.

Pruitt JA. Overcoming Mental Barriers in Visual Rehabilitation. European Academy of Optometry and Optics Annual Meeting (2011) Case Presentation Session.

Pruitt JA, Wiley LM. Overcoming Mental Barriers in Visual Rehabilitation. Minnesota Optometric Association Annual Meeting's (2011) Poster Session

Pruitt JA, Ilsen P, Yeung C. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary to Myasthenia Gravis. American Optometric Association (AOA) 2008 Optometry Meeting Poster Session

Pruitt JA, Ilsen P. Ptosis Crutch: Success Treating Myogenic Ptosis Secondary To Myasthenia Gravis. Southeastern Congress of Optometry (SECO) 2008 Multimedia Poster Session

Lectures and Other:

Riverside-San Bernardino County Indian Health, Inc.: Eye Care Rounds (Nov 2016)

- Ptosis Crutch: Success Treating Myogenic Ptosis Secondary to Myasthenia Gravis
- CA Board of Optometry-approved CE

Riverside-San Bernardino County Indian Health, Inc.: Eye Care Rounds (Sept 2016)

- Visual Fields
- CA Board of Optometry-approved CE

Riverside-San Bernardino County Indian Health, Inc.: Eye Care Rounds (July 2016)

- Ethical Concerns with Short-term Mission Trips
- CA Board of Optometry-approved CE

Riverside-San Bernardino County Indian Health, Inc.: Eye Care Rounds (July 2016)

- Systemic Urgencies and Emergencies
- CA Board of Optometry-approved CE

Riverside-San Bernardino County Indian Health, Inc.: Eye Care Rounds (Mar 2016)

- Episcleritis, Scleritis, and Iritis
- CA Board of Optometry-approved CE

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2011)

- Represented and presented on VA Optometry
- Participated in panel discussion on "Residency-trained Optometrists"

University of Minnesota: Pre-Optometry Club (Oct. 2010)

- Presentation on the profession of Optometry
- Presented and represented VA Optometry and NOA

Illinois College of Optometry: Capstone Ceremony (May 2010)

- Represented and presented on VA Optometry

Illinois College of Optometry: Practice Opportunities Symposium (Mar 2010)

- Participant in Residency-trained Speaker's Panel
- Represented and presented on VA Optometry

Illinois College of Optometry: White Coat Ceremony/Smart Business Program (Sept 2009)

- Participant on Recent Graduate Speaker's Panel