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## PEDIATRIC CONJUNCTIVITIS

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### DEFINITION

Inflammation and erythema of the conjunctiva, caused by hyperemia of tortuous superficial vessels secondary to infection (viral or bacterial) or allergic reaction (histamine).

Nurses with Remote Practice Certified Practice designation (RN(C)s<sup>1</sup>) are able to treat children with conjunctivitis who are **6 months of age and older**.

### POTENTIAL CAUSES

- Conjunctivitis is usually viral or bacterial
- The allergic form is more common when accompanied by other allergic symptoms such as rhinitis
- Wearing contact lenses
- Other causes include preseptal or orbital cellulitis, corneal injury, uveitis and glaucoma all of which are referred to a physician or nurse practitioner

### Bacterial Pathogens

- *Haemophilus influenza* (non-typable)
- *Streptococcus pneumonia*
- *Staphylococcus aureus* (more common in adults)
- Moraxella Species
- Chlamydia
- *Neisseria gonorrhoea*

**Note:** In an adolescent, gonococcal or chlamydial infection should be considered if the history is supportive of this diagnosis and the adolescent is sexually active.

### Viral Pathogens

- Adenovirus (most common virus in children)

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<sup>1</sup> RN(C) is an [authorized title](#) recommended by CRNBC that refers to CRNBC-certified RNs, and is used throughout this Decision Support Tool (DST).

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The DSTs are not intended to replace the RN(C)'s professional responsibility to exercise independent clinical judgment and use evidence to support competent, ethical care. The RN(C) must consult with or refer to a physician or nurse practitioner as appropriate, or whenever a course of action deviates from the DST.

- Enterovirus
- Epstein-Barr virus and herpes zoster virus (less common)
- Measles and rubella viruses

**Allergic**

- Seasonal pollens
- Environmental exposure

**PREDISPOSING RISK FACTORS**

- Contact with another person who has conjunctivitis, other atopic (allergic) conditions and exposure to allergens or exposure to a sexually transmitted infection (STI).

**TYPICAL FINDINGS OF CONJUNCTIVITIS****Physical Assessment**

Children with mild viral or superficial bacterial conjunctivitis do not usually have significant systemic symptoms. However, assess:

- Vital signs
- Weigh if less than 12 years of age (for medication calculations)
- Visual acuity if old enough
- Assess both eyes for symmetry
- Assess eyelids and orbits for crusting, edema, ulceration, nodules, discoloration, inversion of eyelashes, papillary reaction
- Palpate the bony orbit, eyebrows, lacrimal apparatus and pre-auricular lymph nodes for tenderness, swelling or masses
- Assess the conjunctiva for erythema, edema, discharge, foreign bodies, phlyctenules (white granules on corneal edge surrounded by erythema) or other abnormalities
- Note the pattern of injection such as conjunctival haemorrhage or ciliary flush<sup>2</sup>
- Pupils equal, round, reactive to light and accommodation (PERRLA)
- Examine the anterior segment of the globe with a small penlight
- Assess ocular mobility by checking range of movement

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<sup>2</sup> Conjunctival injection or ciliary flush refers to redness (almost lilac) around the limbus of the eye caused by dilatation of the deeper small blood vessels located around the cornea. It occurs in inflammation of the cornea, iris and ciliary body, and in angle-closure glaucoma.

- Use a fluorescein stain to assess for corneal abrasion or ulcers if history or physical findings suggest corneal abrasion. Corneal cells that are damaged or lost will stain green; cobalt blue light allows easier visualization of the abrasion.
- Perform a general assessment if the child appears systemically ill (i.e., fever)

Carefully document all evidence of external trauma

## **Bacterial**

### ***History***

- Eye(s) red, often unilateral initially
- Burning, gritty sensation or foreign body sensation in eyes
- Thick, purulent discharge with crusting in morning
- Complicating bacterial infections, such as otitis media, may be evident
- Recent contact with others with similar symptoms
- Recent sexual activity and possible STI

### ***Common Findings***

- Conjunctiva erythematous (unilateral or bilateral)
- Chemosis (swelling of conjunctiva) if severe
- Purulent discharge
- PERRLA
- Visual acuity normal
- Pre-auricular nodes palpable in *Neisseria gonorrhoea* and Chlamydia

## **Viral**

### ***History***

- Acute onset of conjunctival injection<sup>3</sup> commonly preceded by a viral upper respiratory tract infection
- May begin unilateral, but often bilateral within 24-48 hours
- Mild to no pain, possibly gritty sensation or mild itching
- Tearing or mucoid discharge
- Systemic symptoms may be present (e.g., sneezing, runny nose, sore throat, preauricular lymphadenopathy)

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<sup>3</sup> Conjunctival injection refers to redness (bright red or pink) of the conjunctiva fading towards the limbus due to dilatation of the superficial conjunctival blood vessels occurring in conjunctival inflammations – e.g., conjunctivitis.

- Recent contact with others with similar symptoms

**Common Findings**

- Conjunctiva erythematous (unilateral or bilateral)
- Chemosis (swelling of conjunctiva) if severe
- Watery or mucoid discharge
- PERRLA Visual acuity - normal
- Lasts 1-4 days; infectious for up to 2 weeks
- Dendritic keratitis on fluorescein staining with herpes simplex virus

**Note: clinical factors cannot reliably differentiate viral from bacterial causes**

**Allergic****History**

- Seasonal, known, or environmental allergies, allergic rhinitis
- Eczema, asthma, urticaria
- Bilateral watery, red, itchy eyes, without purulent drainage

**Common Findings**

- Conjunctiva erythematous
- Chemosis and eyelid edema (swelling of conjunctiva due to non-specific irritation)
- Clear watery discharge
- PERRLA
- Visual acuity - normal

**Diagnostic Tests**

- May require a culture and sensitivity (C&S) if no response to treatment or if an STI is suspected

**MANAGEMENT AND INTERVENTION**

**Note:** Review Appendix 1: Algorithm for Diagnosing the Cause of Red eye

**Goals of Treatment**

- Relieve symptoms and resolution of infection
- Rule out more serious infections (e.g., uveitis)
- Prevent complications

- Prevent spread of infection to others

### **Non-pharmacologic Interventions**

- Apply warm or cool compresses to eyes, lids and lashes qid for 15 minutes
- Clean eyelids gently of discharge with warm water and a disposable wipe such as a cotton swab or tissue
- Avoid rubbing the eye(s)
- Public health measures that support good hygiene (i.e., frequent hand-washing, use of separate clean face cloth and towels).

### **Pharmacological Interventions**

#### **Note:**

- All oral drug doses must be calculated by weight until age 12 or as outlined below based on age. Topical eye drops and eye ointments may be used as listed below.
- Pediatric doses should not exceed recommended adult doses.
- Never use steroid or steroid-and-antibiotic combination eye drops, because the infection may progress or a corneal ulcer may rapidly form and cause perforation

#### **Bacterial**

- Acute conjunctivitis is frequently self-limiting, and antibiotics are of limited benefit. It may be appropriate to hold antibiotics for two or three days and start therapy if no improvement or the condition worsens.
- Topical antibiotic eye drop or ointment:
  - polymyxin B gramicidin eye drops, 2 or 3 drops qid for 7-10 days, or
  - sulfacetamide 10% eye drops, 2 or 3 drops q3-4 hrs. for 7-10 days, or
  - bacitracin-polymyxin eye ointment qid for 7-10 days, or
  - erythromycin 0.5% eye ointment qid for 7-10 days.

**Note:** eye ointment may be preferred for younger children and infants.

An antibiotic eye ointment may be used at bedtime in addition to the daytime antibiotic eye drops prn:

- erythromycin 0.5% eye ointment for 5-7 nights at bedtime, or
- bacitracin-polymyxin ointment for 5-7 nights at bedtime.

**If the infection has been determined to be due to chlamydia or gonorrhea, systemic treatment is required and topical treatment is not necessary. Please refer to the appropriate STI DST.**

**Viral**

- Artificial tears or saline washes often provide excellent symptomatic relief (antibiotics are not indicated)
  - artificial tears, 1 or 2 drops prn

**Allergic**

- Artificial tears or saline washes and cool compresses often provide excellent symptomatic relief (antibiotics are not indicated)
  - artificial tears, 1 or 2 drops prn
- Oral antihistamines may be tried if symptoms are severe. Most common side effects are drowsiness, dry mouth, and fatigue:
  - cetirizine: 2-6 yrs: 5 mg po qd or divided bid; greater than 6 yrs: 5-10 mg po qd or divided bid  
OR
  - desloratadine: 2-6 yrs: 1.25 mg po daily; 6-11 years: 2.5 mg po daily; 12 yrs or older: 5 mg po daily  
OR
  - loratidine: 2-5 yrs: 5 mg po daily; 6 yrs. or older: 5-10 mg po daily
- For children 4 years and older, topical antihistamine eye drops are recommended if symptoms are not controlled by oral antihistamines or oral antihistamines cannot be tolerated:
  - cromolyn Na 4% eye drops, 1-2 drops every 4-6 hrs.

**Pregnant and Breastfeeding Women (dosing as above)**

- Erythromycin eye ointment, polymyxin B gramicidin eye drops, bacitracin-polymyxin eye ointment, artificial tears, cromolyn Na, cetirizine and loratidine may be used as listed above.
- ONLY USE sulfacetamide if clearly needed.
- DO NOT USE desloratadine.

**POTENTIAL COMPLICATIONS**

- Spread of infection to other eye structures
- Spread of infection to others

**CLIENT/CAREGIVER EDUCATION AND DISCHARGE INFORMATION**

- Advise on condition, timeline of treatment and expected course of disease process.
- Counsel parents or caregiver about appropriate use of medications (dose, frequency, and instillation).
- Advise parents or caregiver to avoid contamination of the tube or bottle of medication with the infecting organisms.

- Advise parents or caregiver to never share or use another person’s eye drops or ointments.
- Recommend avoidance of cosmetics during acute phase (current eye cosmetics should be discarded because they may harbor bacteria and cause recurrent infection). Avoid sharing eye cosmetics.
- Suggest ways to prevent spread of infection to other household members (do not share towels or face cloths, use different areas of the face cloth for each eye).
- Instruct parents or caregiver (and child, if of a suitable age) about proper hygiene, especially of hands and eyes. Wash hands often.
- If client wears contact lenses, advise them to discontinue wearing contact lenses until resolved
- For infectious forms, recommend school or day care restrictions until improved or there is no further discharge.
- For allergic form: recommend that child avoid going outside when pollen count is high and that protective glasses be worn to prevent pollen from entering the eyes.

## **MONITORING AND FOLLOW-UP**

- Clients with moderate or severe symptoms should be seen for follow-up at 24 and 48 hours.
- Follow up appropriately in 2 or 3 days or sooner if symptoms do not improve.

## **CONSULTATION AND/OR REFERRAL**

- Consult or referral as indicated under the following circumstances:
  - child is less than 6 months of age,
  - if condition deteriorates, if symptoms persist despite treatment, or if symptoms recur,
  - the diagnosis is in doubt and significant ocular infections like uveitis, herpes and gonorrhoea cannot be ruled out,
  - there is associated trauma (i.e., blow to eye) (high potential for referral),
  - visual acuity is decreased or deficit in colour vision,
  - moderate or severe pain
  - atypical ocular exam
  - the condition recurs frequently.

## **DOCUMENTATION**

As per agency policy

## REFERENCES

For help obtaining any of the items on this list, please contact CRNBC Helen Randal Library at [circdesk@crnbc.ca](mailto:circdesk@crnbc.ca)

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.

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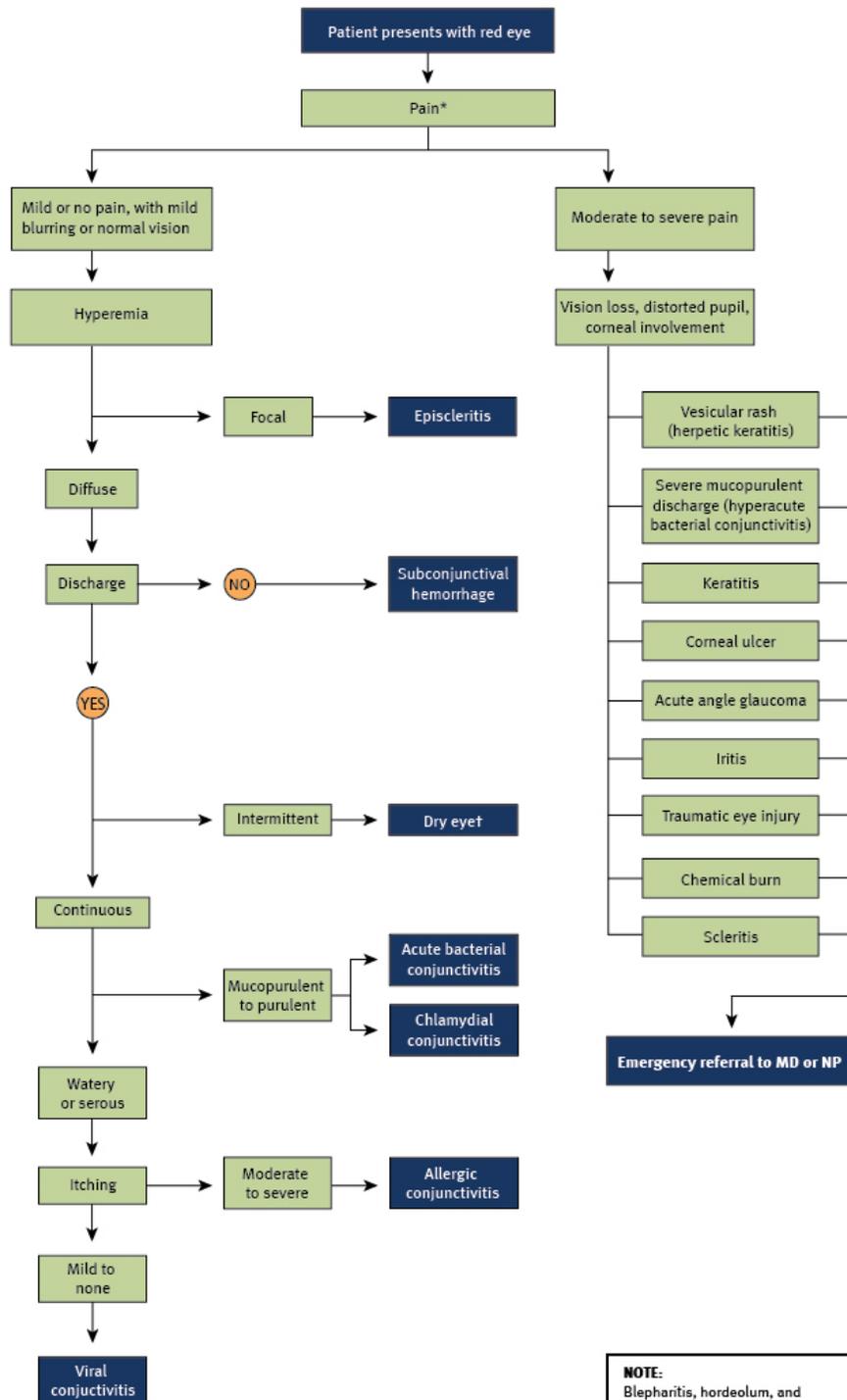
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## APPENDIX 1: ALGORITHM FOR DIAGNOSING THE CAUSE OF RED EYE



Cronau, Kankanala, & Mauger (2010)

Adapted with permission from *Diagnosis and Management of Red Eye in Primary Care*, January 15, 2010, Vol 81, No 2, American Family Physician Copyright © 2010 American Academy of Family Physicians. All Rights Reserved.

**NOTE:**  
Blepharitis, hordeolum, and chalazion are associated with localized red, swollen, tender eyelid; other symptoms are rare.  
\* -- patients with corneal abrasion may present with severe pain, but treated by a primary care physician.  
† -- Paradoxical tearing of the eye.