Ocular Lubricant Prescribing Guidelines (for the Treatment of Dry Eye Syndrome)

All ocular lubricants are available to purchase over the counter OTC policy no 88d

First Line (Low viscosity)

Hypromellose 0.3% eye drops 10ml
(contains benzalkonium chloride (BAK) preservative, other excipients depend on manufacturer)
£1.06 for 10ml
Lasts 28 days from opening
OR
Sno Tears® [Polyvinyl alcohol drops 1.4%]
(contains benzalkonium chloride (BAK) preservative)
£1.06 for 10ml
Lasts 28 days from opening

Second Line (Medium viscosity)

Clinitas® Gel [Carbomer 980] (contains cetrimide)
£1.49 for 10 grams
Lasts 28 days from opening
OR
Geltears® [Carbomer 980 (contains benzalkonium)
£2.80 for 10 grams
Lasts 28 days from opening

Third Line (Medium viscosity)

Systane® [Hydroxypropyl guar]
(contains propylene glycol low allergenic preservative system)
£4.66 for 10ml
Lasts 6 months from opening
OR
Optive® [Carmellose 0.5%]
(contains Purite; biodegradeable low allergenic preservative system)
£7.49 for 10ml
This product remains sterile for 6 months after opening

Consider preservative free preparations for the circumstances listed below

Tear -Lac®[hypromellose 0.3%]
(contains 200 drops)
£5.80 for 10ml
Last 6 months from opening
OR
Liquifilm tears®
[Polyvinyl alcohol drops 1.4%]
£5.35 for 30 x 0.4mL Unit Dose Vials
Discard each single dose vial after use

Consider preservative free preparations for the circumstances listed below

Viscotears® [Carbomer 980]
£5.42 for 30x0.6ml Unit Dose Vials
Discard each single dose vial after use

Consider preservative free preparations for the circumstances listed below

Celluvisc® [Carmellose 1.0%]
£3.00 for 30x0.4mL Unit Dose Vials
Discard each single dose vial after use
OR
Systane® [Hydroxypropyl guar]
£4.66 28x0.4ml Unit Dose Vials
Discard each single dose vial after use
OR
Clinitas® [Sodium Hyaluronate 0.4%]
£5.70 for 30x0.5mL Unit Dose Vials
Each unit dose vial (8 -10 drops) is resealable and suitable for use for up to 12 hrs
OR
Hylo -Tear® [Sodium Hyaluronate 0.1%]
£8.50 for 10ml (contains 300 drops)
Hylo-Forte® [Sodium Hyaluronate 0.2%]
£9.50 for 10ml (contains 300 drops)
Both Last 6 months from opening

Eye ointments (High Viscosity) for use at night in addition to day time treatment

Xailin Night ® preservative free ointment (white soft paraffin, white mineral oil, lanolin alcohols)
£2.51 for 5 grams Lasts 60 days from opening
Warning: Paraffin-based eye ointments are flammable, keep them away from heat, lights and naked flames
Artelac® Nighttime Gel (2mg Carbomer, Medium Chain Triglycerides, Sterile Water, Cetrimide, Sorbitol and Sodium Hydroxide) Less greasy option **£2.96 for 10g** Lasts 6 weeks from opening

Approved by APCO July2018 Review due 2020

References:

Drug Tariff April 2018
Clinical Knowledge Summaries (CKS). Dry Eye Syndrome 2017
Prescqipp B202. Eye preparations
All Wales Medicines Strategy Group
Rotherham Ocular Lubricant Prescribing Guidelines

Dry eye syndrome is a multifactorial disease of the tears and ocular surface that results in symptoms of dryness, discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film (that covers the cornea and exposed conjunctiva, contributing to the health of the cornea and conjunctiva by supplying nutrients, flushing away waste products and acting as a protective barrier) and inflammation of the ocular surface. Dry eye syndrome is estimated to affect between 5% and 33% of the adult population worldwide.

Dry eye syndrome is more common in people aged 50 years or older, in females and in those who have had refractive surgery. Symptoms typically worsen with prolonged visual tasks, exposure to wind and air conditioning.

Severe complications of dry eye disease (such as keratinization of the ocular surface; corneal scarring, thinning, ulceration or neovascularisation; and visual loss) are rare and usually associated with an underlying condition such as Sjögren's syndrome.

It is loosely categorised as the following, but clinically these often overlap and co-exist. :
Evaporative dry eye: The most common form of dry eye syndrome often associated with increased evaporation and an unstable tear film. Dysfunction of the Meibomian glands (which produce the lipid component of tears) is thought to be the leading cause.

Aqueous tear-deficient dry eye: Refers chiefly to a failure of lacrimal tear secretion. It can be associated with non-autoimmune causes including some medications as well as autoimmune diseases such as rheumatoid arthritis and Sjögren's syndrome.

Symptoms of dry eye can be due to:

- **Meibomian gland dysfunction** — secretion of lipids from the Meibomian ducts can be obstructed by cell debris and hardened meibomian lipids.
- **Blepharitis** — for further information, see the CKS topic on Blepharitis.
- **Age-related lacrimal gland deficiency**.
- **Low blink rate** for example with computer screen use, reading or Parkinson’s disease.
- **Vitamin A deficiency**.
- **Malposition of the eyelids**, for example, lagophthalmos (inability to fully close the lid aperture), lid retraction, or proptosis.
- **Environmental causes** such as low relative humidity, high wind velocity, and allergens.
- **Iatrogenic factors** such as:
    - Contact lens wear.
    - Medications such as retinoids, topical ophthalmic medications (especially those containing preservatives, in particular, benzalkonium chloride), oral contraceptives, antihistamines, beta-blockers, anticholinergics, and some psychotropics.
    - Ocular surgery, in particular laser corneal refractive surgery.
    - Post-radiation fibrosis of the lacrimal gland.

- **Underlying conditions** such as:
  - Primary or secondary Sjogren's syndrome:
    - Primary – autoimmune inflammation and destruction of lacrimal and salivary glands.
    - Secondary – associated with rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis.
  - HIV.
  - Sarcoidosis.
  - Allergic conjunctivitis.
  - Trachoma.
  - Endocrine disorders such as diabetes mellitus, thyroid disease, and androgen deficiency.
  - Menopause.
  - Dermatological disorders such as rosacea, Steven Johnson's syndrome and mucous membrane pemphigus.
  - Haematological disorders including lymphoma and leukaemia.

Symptoms and signs of dry eye syndrome

They may vary from person to person but are usually bilateral and may include:

- Irritation or discomfort — this may be described as burning, stinging or a 'gritty' sensation.
- Dryness.
- Intermittent blurring of vision.
- Redness of the eyelids or conjunctiva.
- Itching.
- Photosensitivity.
- Mucous discharge.
- Ocular fatigue.

Management:

The condition is managed using self-management precautions and ocular lubricants (encompassing artificial tear substitutes and non-medicated eye ointments).People should be advised that by taking self-management precautions, the symptoms of dry eye syndrome can be lessened, and, in mild cases, this may be sufficient to avoid the need for treatment. These precautions include:

Maintaining good eyelid hygiene:

- Eyelids should be cleaned in a stepwise manner twice-daily initially, then once-daily as symptoms improve: Apply a warm compress to closed eyelids for five to ten minutes. The compress should be a clean cloth warmed in hot water (but not so hot as to burn the skin), reheated frequently. Alternatively, commercial compresses are available, which should be self-funded (PrescQIPP bulletin 167 Medical devices DROP-List
- Massage closed eyelids in a circular motion across the length of each lid.
- To clean the eyelid, wet a cloth/cotton wool pad with cleanser (such as baby shampoo diluted 1:10 with warm water) and wipe along the eyelid margins.
- Limiting contact lens use to shorter periods, especially if these cause irritation.
- Stopping smoking.
- Using a humidifier to moisten ambient air, and avoiding prolonged periods in air-conditioned environments.
- If using a computer for long periods, placing the monitor at or below eye level, avoiding staring at the screen, and taking frequent breaks.
- Avoiding makeup.

Pharmacological treatments:

First- and second-line pharmacological treatments are outlined in the All Wales Medicines Strategy Group guidance on managing dry eye syndrome. The eye treatments suggested do not treat the root cause of Meibomian gland dysfunction as they do not loosen blockages in the Meibomian glands. They should therefore be used in conjunction with self-management methods.

First-line

Hypromellose is the traditional choice of treatment and should be appropriate for most people with mild dry eye syndrome. Treatments containing carbomers or polyvinyl alcohol require less frequent administration than hypromellose, but they may be less well tolerated. People with aqueous tear-deficient dry eye often benefit from paraffin-based ointments at night. Paraffin-based products should not be used in the day as they can be uncomfortable and blur vision. They should not be used with contact lenses.

Second-line

After a six to eight week trial of first-line agents, lubricants containing hydroxypropyl guar, carmellose sodium or sodium hyaluronate may be tried if necessary. Many products are available for both first- and second-line treatments and formularies should support prescribers to select appropriate, cost-effective options.

Indications for preservative-free eye drops

Guidance on dry eye syndrome from the All Wales Medicines Strategy Group makes recommendations about the use of preservative-free drops, which are also relevant to other eye conditions. The guidance states that preservative-free formulations are appropriate for those with:

- True preservative allergy
- Evidence of epithelial toxicity from preservatives
- Severe dry eye syndrome with ocular surface disease and impairment of lacrimal gland secretion
- Chronic eye disease who are on multiple, preserved topical medications
- A prolonged daily frequency of administration greater than 6 times a day
- Soft or hybrid contact lens wearers. In some cases it may be appropriate to use preserved drops and leave a gap of 15 minutes between drop instillation and insertion of contact lenses;14 follow the ophthalmologist's advice.

Details of excipients (including preservatives) contained in eye preparations can be found in the Summary of Product Characteristics (SPCs) of individual products (usually available via Electronic Medicines Compendium (eMC)). The BNF lists preservatives and substances identified as skin sensitisers under excipients statements in preparation entries. Subscribers to MIMS can access tables on 'Ophthalmic Preparations, Preservatives and Potential Sensitisers as Ingredients'

What else might it be?

- Conjunctivitis: infection; allergy/irritation (e.g. from topical medication or environmental exposure); Entropion (in-turning of the eyelid).
- Watering of the eye: blocked lacrimal duct.
- Acute red eye (pain, photophobia, marked redness): keratitis (inflammation of the cornea caused by infection, trauma, or allergy); acute glaucoma; iritis (inflammation of the iris); episcleritis (inflammation of the sclera).

Referral should be considered under these circumstances:

- Appropriate signposting advice can be found from the Minor Eye Conditions Services Algorithm
- Arrange same day assessment by ophthalmology if the person is suspected of having a serious eye condition such as acute glaucoma, keratitis, iritis or cornel ulcer
  - Urgent referral to ophthalmology is required for children with any corneal change.
- Arrange referral to ophthalmology or the appropriate medical speciality (with urgency depending on clinical judgement) if the person:
  - Is suspected of having an underlying systemic condition such as Sjogren's syndrome.
  - Has persistent symptoms that do not respond to underlying systemic condition after 12 weeks.
  - Has abnormal lid anatomy or function.
- Discuss with, or refer to, ophthalmology (with urgency depending on clinical judgement) if uncertain of diagnosis.
  - Have a low threshold for referral of younger people with dry eye symptoms.

General prescribing information:

- Hypromellose is recommended as the first line option in most cases and is available for patients to purchase OTC for approximately £2/10ml. It may need to be applied frequently (e.g. hourly) for adequate relief
- Carbomer 980 is longer acting and may only require dosing four times a day, but may be less well tolerated
- Each ocular lubricant formulation should be prescribed and used for 4-8 weeks before a different treatment is trialled. Unless otherwise indicated a bottle should be discarded 28 days after opening.
- If the patient has tried 2 agents from the first line choices which are either not effective or tolerated, trial formulations from second line.
- 3rd line treatments are indicated only if 2nd line formulations prove ineffective or not tolerated
- A preservative-free product should be used if more than six applications are used daily – the risk of irritation increases with the frequency of dosing or if soft contact lenses are worn as benzalkonium chloride, the most commonly used preservative, accumulates in lenses and causes further irritation
- Liquid paraffin eye ointment may be uncomfortable and blur vision, so should only be used at night and never with contact lenses