



Eye Care in Critical Care.

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Internal reviewer:

External reviewer:

Version: 1 **Issue Date:** Issue date **Review Date:** Review date

Background

Ophthalmology have highlighted two cases of exposure keratitis in critical care patients with suboptimal care. These may be classified as avoidable harm, and potentially could have been prevented with standardised care.

Introduction and Objectives.

The aim of this document is to provide a guideline for critical care clinicians to feel empowered to make decisions about eye care on Critical Care. Evidence suggests the health of the front surface of the eye depends on the ability to produce tears, to blink, and to close the eyes with rest or sleep. This can be impaired on Critical Care, whether by disease, (reduced conscious level, peripheral or central neurological injury) or treatments (drying effects of gas flows, muscle relaxants reducing the lids of lid closure, sedation reducing the blink reflex and the effects of prolonged prone positioning. Whatever the cause those unable to close the eye for themselves or whom blinking rates are substantially reduced are at increased damage to the front of the eye, and this risk is higher in those mechanically ventilated, due to greater length of stay, use of sedative/paralyzing drugs and the effects of positive pressure ventilation.

The aim of this SOP is to comply with the Intensive Care Society and the royal college of ophthalmologist's standards to a compliance of >90%, and reduce the risk of eye damage by providing consistent, evidence-based care. This document will assist in standardizing care and empowering clinicians to make decisions when providing eye care.

Indications.

Eye care should be provided to every Critical Care patient as per the care plan and a minimum of once daily.

Main problems affecting the eye of Intensive Care Patients:

1. Direct injury to the cornea (Corneal abrasion/scratch)
2. Exposure keratopathy (absence of adequate tear film causes breakdown of the corneal epithelium).
3. Chemosis (conjunctival swelling)
4. Microbial conjunctivitis and keratitis (inflammation of the cornea, can be infective or due to exposure due to eye lid closure).

Quality Improvement Team

Consultant support: J Williams

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Nursing project lead: Victoria Coles

Nursing team: Louise Ludlam, Rachel Williamson

Junior doctor supporting role: TBC if needed

External support: Patrick Watts (ophthalmology consultant) Patrick.Watts@wales.nhs.uk, Annie Tung (Ophthalmology SpR)

Care Standards (Minimum 4 hourly):

- Assessment: The eyelid closure and appearance of the eye should be checked with a bright light every 4 hours in a ventilated/sedated patient patient. If the eye is red, sticky, chemosed, or corneal abnormalities alert medical staff (consider ophthalmology review) and increase the lubrication given to 2 hourly. If the patient has lagophthalmos a great of severity must be assessed:
 Grade 0 – Lids are completely closed
 Grade 1- Any conjunctival exposure (any white being visible) but no corneal exposure.
 Grade 2- Any corneal exposure even a tiny amount.
- Treatment is based on the grading of exposure:
Grade 0- no action.
Grade 1- Exposure requires lubrication
Grade 2- Exposure needs treatment with lubrication and taping of lids or other method of lid closure.

Care Plan

Table 1. Patient nursed supine and unconscious.

Grade	Action
Grade 0- Eyelids close well	No action required.
Grade 1- Some conjunctival (white) exposure. 	EYES NEED LUBRICATING EVERY 4 HOURS. <ul style="list-style-type: none"> • Check corneal clarity with bright light. IF NOT CLEAR-ALERT MEDICAL STAFF. • Clean off old ointment before putting in new with warm water. (Either use cold sterile water or warm a sterile water ampoule (unopened) in a polybowl of warm tap water for particularly sticky eyes. • Pull lower lid down and instil ointment onto eye between lower lid and conjunctiva.
Grade 2- Conjunctival and some corneal exposure - MAJOR RISK. 	EYES NEED LUBRICATING AND LIDS TAPING/CLING FILM. <ul style="list-style-type: none"> • Always check corneal clarity with bright Light: IF NOT CLEAR-ALERT MEDICAL STAFF. • Continue to apply ointment as for grade 1 • Close lids ensure lashes outside eye and lids are free of ointment. • Tape upper lid down with micropore, tape horizontally or use 10x10cm cling film.

Table 2 Patient nursed prone and unconscious: Major risk to eye in all cases.

Major risk to eye in all cases.
EYES NEED LUBRICATING AND LIDS TAPING

- Always check corneal clarity with bright light: **IF NOT CLEAR- ALERT MEDICAL STAFF AND COMPLETE DATIX.**
- Apply ointment as for grade 1
- Close lids, ensure lashes are outside of the eye and free of ointment
- Apply micropore tape horizontally

Table 3 Red sticky Eye

- Take swab
- Use chloramphenicol ointment x4/day to the eye until defect improves.
- Condition contagious and can be transmitted to other patients.
- If no better in 24 hours after initiating treatment- **ALERT MEDICAL STAFF AND COMPLETE DATIX.**

Table 4 Eye not sticky

- Is the cornea clear?
- If cornea clear, or simple abrasion, check lubrication schedule and consider lid taping.
- Corneal opacity which does not move on rinsing, if there is no corneal opacity, or abrasion does not improve in 24hrs, or unsure of the cause- **ALERT MEDICAL STAFF AND COMPLETE DATIX. .**

Methods to Protect the Eyes:

- Lubrication

Liberal use of ointment lubricants into the eye four times daily E.G simple eye ointment, Lacrilube, Xailin Night, and VitA-POS). Drops do not last as long. This is applied directly to the eye.

If a patient is conscious an alternative is 2 hourly lubricant drops (e,g Hylotears) and ointment before sleep.



- Closing the eyelids

Manual closure of the eyes.

Taping the eyes shut- lid taping is not always necessary and can be distressing to relatives and repeated removal may lead to facial skin or eyelid injury or irritation. Therefore, it should only be undertaken if necessary. It is crucial that when taping the eyes are completely shut and the tape is not touching the eye surface as this will cause more damage than it prevents.



Cling film can be used as a safe alternative to tape to protect the eye as it does not cause damage if in contact with the eyeball. Apply a 10CMx10CM square over each eye and change every shift. Never share a cling film roll between patients.

Hydrogel or silicone dressings or pads (e.g Kerrapro, Gelliperm) may be used instead or taping, if oedema prevents manual lid closure. They should be changed once per shift and not allowed to dry out or position poorly as this can damage the eye. Only use with great care to avoid causing eye damage.

What Order to do this.

Every 4 hours.

- Bathe eyes with warm water first to remove dried ointment.
- Before the next lubricant application, examine the eye for abnormalities, with a bright light.
- Apply new ointment to the eye surface by pulling the lower lid down with a finger and insert the ointment over the top of the lower lid into the gap between the lid and the conjunctiva.
- If taping is performed, ointment is put in first and the eyes are closed. The position of the lashes is then checked as the lashes must be clear of the cornea (if iatrogenic corneal abrasion is to be avoided). The outside of the eye must be free of the lubricant for the tape to stick properly. Micropore is then applied horizontally across the lids to seal them shut.

Proned Unconscious Patients- When patients are prone the eyelid and face can become oedematous and chemosis is common. As in all ventilated patients, exposure keratopathy (a drying of the corneal surface) can occur. Direct eye compression can be avoided using a 3-pin head holder. The eyes should always be re-lubricated, and taped or cling-filmed shut as above. If swollen conjunctiva prolapses through the closed eye lids refer to ophthalmology for possible suturing of the eyelids.

Delivering Treatment.

Treatment of eye conditions is usually in the form of ointment or drops. Sometimes several different drops are required.

- When giving several different types of drops do not give them at the same time as this may dilute them, thereby reducing effectiveness of treatment. Allow 1 minute between each medication.
- Always put drops in before ointment. The ointment is water repellent and will prevent the drops getting into the tissues.
- When administering eye ointment in poor lid closure, manually shut eyelids after instilling ointment to ensure it is spread over the whole eye surface.

Prescribing Guidelines for Occulant lubricants

If NO preservative allergy

Step 1 Evolve Hypromellose 0.5% x10ml

Step 2 Evolve Carbomer 980 0.2% (viscotears/xalin gel) x10g

Step 3 Evolve Hypromellose 0.5% x10ml and Carbomer 980 0.2% (viscotears/xalin gel) x10g

Step 5 Carmellose 0.5% (optive) x10ml and Carbomer 980 0.2% (viscotears/xalin gel) x10g

If known preservative allergy

Step 1 Evolve HA

Step 2 Carmellose 1% (Celluvisc) x30 x0.4ml unit dose.

De-escalation should initially be halving the treatment and ensuring eye closure if the patient is sedated, additionally if the patient is awake ointment at night should continue.

Summary

Assessment of the eye at least once per shift (if grade 0) using light to assess for corneal clarity.

Grade 0	No Treatment required
Grade 1	Assessment, eyes lubrication and closure every 4 hours
Grade 2	Major risk Eyes Assessment, eyes lubrication and closure every 4 hours.

When to contact ophthalmology

- If the patient is not responsive to supportive management.
- Those patients with microbial keratitis or endogenous endogenous endophthalmitis, an ophthalmologist referral should be made immediately

Please complete Datix for any new change in corneal clarity

Support for clinicians

Education and support will be provided in a number of ways:

- Bed side support and teaching
- Formal teaching sessions
- Information posters.

Documentaion

A care plan will be created and will be added to the daily care plan.

Audit

An audit to compre current eye care practices, with the Intensive Care Society eye care standards (2020) will be carried out before and after the intervention and results made available. This will be fed back to the Critical Care quality and safety group and submitted for presintaion at a national meeting.

References and further reading.

Ophthalmic Services Guidance Eye care in the intensive care unit (ICU) 2017 Intensive Care Society and the Royal College of Ophthalmologists. Available at: <https://www.rcophth.ac.uk/wp-content/uploads/2017/11/Intensive-Care-Unit.pdf>

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