

## LEEDS TEACHING HOSPITALS TRUST

Eye Care for Adult Critical care
<b>Guideline Detail</b> Publication date: July 2007 Next Review date: December 2018 Status: Current
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<b>Summary of Guideline</b> This guideline applies to all patients in a critical care setting and to all practitioners who have developed a competency in this procedure. It includes aims and objectives, background information, assessment, nursing cares and interventions.
<b>Aims</b> To improve the diagnosis and management of corneal complications and eye care associated with critical illness. <ul style="list-style-type: none"><li>• To prevent potential harm/trauma</li><li>• To treat any identified problems</li><li>• To replace any physiological functions that are compromised / absent.</li></ul>
<b>Objectives</b> To provide evidence-based recommendations for appropriate diagnosis, investigation and management of eye care in critically ill patients
<b>Background</b> Vision is one of the main senses and means of communication for most people. Impaired vision, therefore, can contribute to delirium. Treatments for critical illness, especially sedation and paralysis, may impair a patient's ability to maintain their own ocular health. Identified ocular problems should be treated where possible. Ocular health needs and risks should be assessed to identify whether or not interventions are needed (Woodrow, Elliot & Beldon, 2013). Ocular surface disorders are frequently encountered in patients in intensive care units (ICUs). Because of significant impairment of major organs, treatment is focused on the management of organ failures, therefore, ophthalmic complications are frequently overlooked (Grixti et al 2012a). <b>Definitions</b> (Rosenberg et al 2008) Lagophthalmos - Pathologic incomplete closure of the eyelids Keratitis - Inflammation of the cornea Keratopathy - a non-inflammatory disease of the cornea Chemosis - conjunctival swelling Scleritis - inflammation of the sclera Endophthalmitis - inflammation affecting the interior of the eyeball

Blepharitis - inflammation of eyelash follicles and sebaceous glands (Woodrow, Elliot & Beldon, 2013)

Sedation and muscle paralysis cause impaired blink reflexes and loss of eyelid muscle tone, while fluid balance and positive pressure ventilation may lead to chemosis. These factors often result in incomplete lid closure and consequent exposure keratopathy (McHugh et al, 2008, Hisham et al 2012). Excessive volume depletion impairs ocular perfusion resulting in desiccation and prevents restoration of damaged cells. Volume overload provokes conjunctival oedema and exposure keratopathy secondary to lagophthalmos (Grixti et al 2012a). Tears contain antimicrobial chemicals therefore insufficient tear production or spread across the eyes exposes the eye to potential infection. Clean gloves should be worn during eye care to prevent transferring skin-surface microorganisms into the patient's eye. Separate eye drops, lubricants and pads should be used for each eye to prevent micro-organisms being transferred between eyes. Suspected ocular infections should be reported to relevant practitioners and topical antibiotics prescribed (Woodrow, Elliot & Beldon, 2013)

The most prevalent ocular disorders identified in ICU patients are exposure keratopathy (3.6% -60%) with a peak incidence between 2 and 7 days from admission, chemosis (9%-80%) and microbial keratitis (Grixti et al 2012a). Soner et al (2014) found that the incidence of exposure keratopathy decreased significantly following the education of ICU staff in eye care and eye diseases and the use of a simple eye care protocol.

#### **Risk factors include**

- Sedation / paralyzing agents / impaired conscious level affecting spontaneous blink reflex
- Exposure and drying of the ocular surface
- Preexisting ocular conditions
- Acute head, ocular or orbital trauma and facial paralysis
- Positive pressure mechanical ventilation
- Nursing the patient in the prone position
- Infected respiratory secretions +/- open suction
- High flow oxygen and nebulisers
- Metabolic derangements and multiple organ dysfunction and fluid imbalance.
- Trauma to the eyes from equipment eg ventilator tubing, linen.
- Medications eg antihistamines, atropine, muscle relaxants.

(Soner et al, 2014, Grixti et al 2012b, Woodrow, Elliot & Beldon, 2013)

#### **Assessment**

Specific eye care needs are to be assessed within 6 hours of admission and then a minimum of once a shift. Unnecessary eye assessment can contribute to corneal drying. The initial assessment should include history from family and assessment for any foreign bodies / contact lenses. The admission and ongoing assessment should include the risk factors for eye problems, the ability of the patient to blink and maintain complete eye closure, the evaluation of the eye and eyelid for cleanliness, corneal dryness or discolouration, eye care interventions and the effectiveness of those interventions (Johnson & Rolls 2014).

Patients with identified eye problems will have a documented individual plan

of care including frequency of assessments, types of ointments and dressings used. Referral to an Ophthalmologist as dictated by the assessment.

The plan of care will be updated each shift.

Using the assessment tool below, record in the nursing care plan and on the 24 hour chart the number (1-6) that best indicates the condition of the patients' eyes. More than 1 condition can be present at any one time.

Staff should adhere to LTH standard universal precautions and hand hygiene policies prior to all procedures. Full explanations and reassurance should be given to the patient at all times and dignity maintained.

Assessment	Rationale and Treatment
1. Adequate blink reflex and clear corneas	Reassess 6-12 hourly.
2. Reduced or absent blink reflex.	Instil prescribed ocular lubricant and reassess 4 hourly.
3. Incomplete lid closure.	Use of eye pad and tape to close lids.
4. Crusting.	Clean with sterile water and reassess 4 hourly.
5. Corneal clouding/visibly dry eyes	Inform medical staff/ophthalmology doctor. Instil prescribed ocular ointment. Reassess 4 hourly.
6. Redness, discharge, Inflammation.	Inform medical staff. Use individual prescribed treatments.

### Investigation

If there are signs of infection and needs for swabs are indicated. Follow instructions in Marsden Manual ch8.3

### Treatment / Management

In the literature there are a limited number of studies and significant variability in the methods of eye care with some referring to the use of geliperm (which is no longer available) and the use of cling wraps or polyethylene covers or swimming goggles, the evidence supporting these practices is inconsistent. Support does exist for the use of lubricants and the use of regular eye hygiene (Johnson & Rolls 2014, Demirel et al 2014).

#### Equipment

Sterile gauze, sterile water, examination gloves, any prescribed drops, ointments.

Action	Rationale
<b>Following assessment</b>	
Wash hands, apply apron and gloves.	Reduces the potential for infection.
Explain procedure.	Ensures patient understands and gives co-operation.
Position patient with head tilted	Allows for comfort and ease of eye

back if possible.	care.
Always treat any unaffected eye first.	Avoids cross infection.
Moisten gauze with sterile water, taking care not to saturate it.	Excess water can possibly contaminate the other eye. Cotton wool must not be used as fibres can scratch the cornea.
Wiping once from the nasal edge outwards clean the eyelid but avoid touching the cornea.	Avoids swabbing discharge into the lachrymal duct or across the bridge of the nose into the other eye. Reduces risk of corneal abrasion.
Repeat with new gauze until lid is clean.	Reduces risk of infection.
With a new piece of sterile gauze remove excess water, dry eyes and ensure patient is comfortable.	Leaves no discomfort for patient.
Repeat the procedure with fresh gauze to the other eye	Prevents cross infection
If lid closure is incomplete apply prescribed ocular lubricant 4 hourly	Provides artificial lubrication.
If patient is awake, provide explanation and use eye pad to promote eye closure	Helps alleviate fear. Use of eye pads is more comfortable than tape.
Evaluate, document and report any changes in eye condition. Take swabs as necessary.	Monitors trends and effectiveness of treatment.

NB If nursing the patient prone; assess the eyes 2-4 hourly especially for signs of chemosis, apply prescribed ocular lubricant and cover both eyes with eye pads secured with tape. Tilt whole bed in head elevated position to reduce the risks due to the raised intraocular pressure.

#### Audit and Monitoring Compliance

This guideline will be monitored through local audit. See appendix for audit tool.

“Audit results will be presented to the Critical Care Quality meeting, which will agree actions arising from the recommendations, and monitor the progress of the actions.”

#### Provenance:

Author Sheelah Ainsworth. Clinical Quality Practitioner updating on previous guidelines by H McGarvie.

Clinical condition: Eye Care

Target patient group: Critically ill patients

Target professional group (clinical competence): Nursing staff, Clinical support workers, assistant nurse practitioners.

#### Evidence Base:

References and Evidence levels:

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Demirel S, Cumurcu T, Firat P et al (2014). Effective management of exposure keratopathy developed in intensive care units: the impact of an evidence based eye care education program. *Intensive Care Nursing*. 30.1 38-44

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Johnson K, Rolls K (2014) Eye Care for Critically Ill Adults SHPN (ACI) 140005 NSW Agency for Clinical Innovation, Intensive Care Coordination and Monitoring Unit.

McHugh J, Alexander P, Kalhor A, Ionides A (2008) Screening for ocular surface disease in the intensive care unit. *Eye* 22, 1465-1468

Rosenberg, JB Eisen LA. (2008) Eye care in the intensive care unit: narrative review and meta-analysis. *Critical Care Medicine* 36.12: 3151-3155

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# Appendix

## Eye Care Audit Tool

ACC CSU Eye Care Audit								
Ward								
Date								
Auditor								
	1= Yes	0=No						
Is the patients' eye assessment recorded in the care plan?	1	2	3	4	5	0	0.00%	
Is the eye score recorded on the observation chart						0	0.00%	
Is eye care administered according to the eye score						0	0.00%	
Is there a record of evaluation of eyes in the care plan						0	0.00%	
Is the eye lubricant given according to prescription						0	0.00%	
						0	0.00%	
	0	0	0	0	0			
		what				by whom	by when	evidence
Action required	1							
	2							
	3							
	4							
	5							