The ROYAL COLLEGE of OPHTHALMOLOGISTS

Commissioning Guidance

Emergency Eye Care

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Contents

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1 Glossary

Abbreviation	In full
A&E	Accident and Emergency (also see ED)
ED	Emergency Department (also see A&E)
B/CRAO	Branch/Central retinal artery occlusion
B/CRVO	Branch/Central retinal vein occlusion
COS	Community Ophthalmology Service: are commissioned by CCGs. These may involve the assessment and management of patients whose eye conditions are at low-risk of deterioration who are either referred by primary care for further assessment or discharged from secondary care for monitoring. (Primary Eye Care, Community Ophthalmology and General Ophthalmology 2019)
CQUIN	Commissioning for Quality and Innovation
CT	Computed Tomography
Acute medical emergency	People needing emergency health care have a health problem that occurs suddenly, needs immediate attention and may be life-threatening. (NICE 2018)
EEC	Emergency Eye Care. Emergency care is provided in an eye medical emergency, when sight or long-term eye health is at risk and life-changing/ life threatening. (see The Systems and Assurance Framework for Eye Health SAFE on Emergency and Urgent Care (Clinical Council for Eye Health Commissioning, 2018)
ENT	Ear, Nose and Throat
FFT	Friends and Family Test
GCA	Giant Cell Arteritis (aka Temporal Arteritis)
GDG	Guidance Development Group
GOS	General Ophthalmic Services (England contract)

GP	General Practitioner
HES	Hospital Eye Service
MECS	Minor Eye Conditions Scheme
MIU	Minor Injuries Unit
NHS	National Health Service
NSAIDs	Nonsteroidal anti-inflammatory drugs
PEARS	Primary Eyecare Acute Referral Scheme
PECS	Primary Eye Care Services are commissioned by Clinical Commissioning Groups (CCGs) and are in effect add-on to an NHS sight test (contracted by NHS England) or a private eye examination. Previously, these were known as enhanced services. They are most commonly delivered in optical practices as services which precede referral decisions. (Primary Eye Care, Community Ophthalmology and General Ophthalmology 2019)
PICO	Refers to standard notation of any scientific research question: Population, Intervention, Comparator, Outcome
Primary Care	GPs and pharmacists can provide non-specialist eye care including initial assessment and treatment of common low-risk conditions not requiring specialist expertise or equipment (e.g. conjunctivitis), but first contact eye care is a small part of their routine workload. (Primary Eye Care, Community Ophthalmology and General Ophthalmology 2019)
RCOphth	The Royal College of Ophthalmologists
Urgent Eye Care	Urgent Eye Care can be based on a hospital site or stand-alone in the community or in primary eye care e.g. minor eye conditions. It provides patients with urgent advice or treatment in cases that are not sight-threatening or life-changing. (Systems and Assurance Framework for Eye Health (SAFE) on Emergency and Urgent Care (Clinical Council for Eye Health

	Commissioning, 2018)
WIC	Walk-in Centre
YAG	Yttrium Argon Garnet – chemical components of a type of laser commonly used in ophthalmology

2 Executive Summary

This guidance is for the commissioning of emergency eye care in England for adult patients.

Emergency eye care may be required for any eye condition that is of recent onset and is distressing or is believed by the patient, carer or referring health professional to present an imminent threat to vision or to the general health of the patient[1]. True emergencies, where there is a health problem that occurs suddenly and which may be life- (or in ophthalmology sight-) threatening, need immediate attention and are more likely to have a better outcome when treatment is initiated as early as possible. Early treatment of certain serious conditions can prevent blindness and reduce sight loss. In addition, because some patients with life-threatening conditions can present with eye symptoms, early diagnosis can save life. Commissioners must ensure adequate access to specialist emergency care for such patients, regardless of geographic location or time of day.

There are increased attendances at hospital eye casualty departments and rapid access clinics – particularly those that have a walk-in service – although the rate of true emergencies is not increasing. Many patients who attend these services have conditions that are not emergencies and not sight threatening, which could be treated in alternative care settings with successful outcomes[1]. Local robust triage mechanisms need to be implemented to differentiate between true emergencies and those conditions that do not require such urgent treatment. Clarity on signposting and awareness of type and purpose of the services available are critical to providers, patients and the public.

Clinical Commissioning Groups (CCGs) and wider commissioning systems should undertake regular reviews of unplanned and emergency eye care provision, to discover the best ways to improve and maintain safe, high quality services. This may include development of alternative care pathways for minor eye conditions. All commissioned changes in service provision should:

- be audited to assess the cost effectiveness across the whole pathway
- be well led with appropriate governance, demonstrating adherence to protocols and guidelines
- be staffed by professionals who are appropriately skilled and trained to offer the level of care required in each setting, with evidence of competence in accordance with national standards
- have appropriate specialist equipment available in each setting
- include clear signposting of availability and scope of services, to enable patients to be directed smoothly, without barriers, to the most appropriate care setting

3 Introduction

Some acute eye conditions/presentations can be sight or life threatening and require immediate specialist attention. This group of conditions is the focus of this guidance.

Many common (urgent and minor) acute eye conditions, which may be uncomfortable or distressing, are not sight or life threatening and can be managed safely outside of the emergency care setting, often by appropriately trained non-medical healthcare professionals[1].

Clarity on signposting and awareness of type and purpose of the services available are critical – to providers, professionals, patients and the public.

Robust triage based on risk-prioritisation at all first points of contact in the system is required to differentiate between these groups of patients. Criteria and triage protocols should be agreed and made available to all stakeholders in the pathway. Services for acute, sight or life-threatening conditions need to be promptly available and easily accessible to ensure high quality safe emergency eye care is provided. Alternative cover during 'out of hours' must be in place through service level agreements or similar, if eye emergency services are closed in the evening or at night.

Services for distressing but less sight threatening (urgent and 'minor') eye conditions also need to be clearly signposted and readily accessible to avoid inappropriate pressure on emergency services. This will contribute to more effective services being available for those with the most serious conditions and a more clinically and cost-effective eye service overall.

Why is this a commissioning priority?

Emergency eye care services have seen a similar increase in demand[4]. Caseload varies geographically but has been estimated at 20-30 per 1000 population per year.

Figure 1a. Annual number of attendances at Emergency Departments coded as primarily ophthalmological, 2010-2019 (Source: NHS Digital)

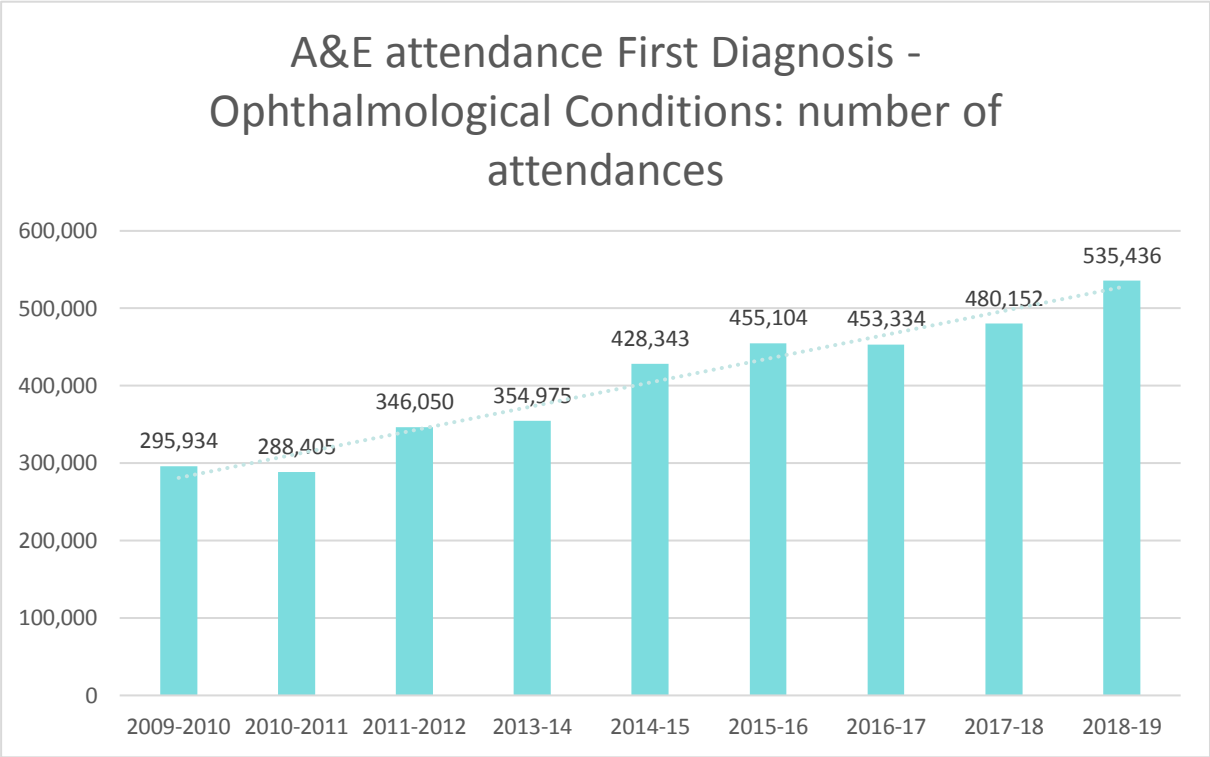
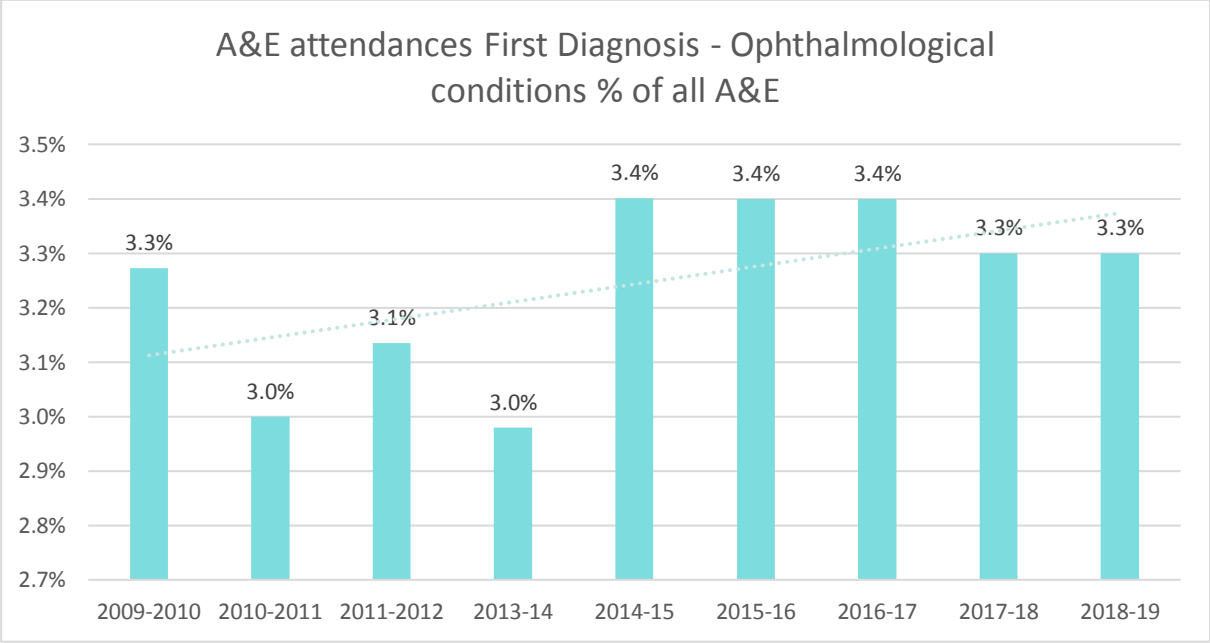


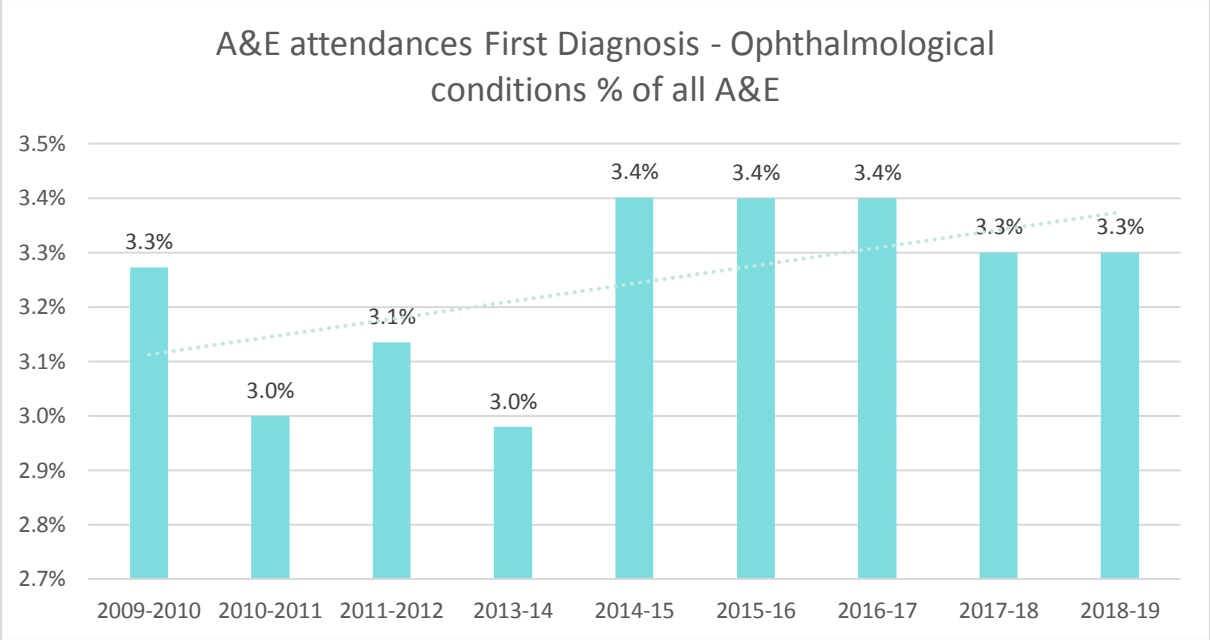
Figure 1b. Annual number of attendances at Emergency Departments coded as primarily ophthalmological % of all A&E attendances, 2010-2019 (Source: NHS Digital)



Many eye conditions of recent onset are seen and treated in primary care, with 1.5-2% of all primary care attendances being eye-related[6,7]. In some areas of the UK, acute 'minor eye care schemes' (MECS) have been commissioned, to provide clinically effective care in community settings and reduce pressure on ED and GP services. Evidence for these services

to date focuses on onward referral rates to hospital eye services from the MECS, rather than a benefit to the whole system, with a reduction in initial presentations to GP and ED services. However, the patient load in the hospital eye service (HES) remains high, with ophthalmology estimated to make up 1.46-6% of ED attendances[7](see Figure 2). The number of hospital ophthalmology specialists has not expanded to match the increased demand for elective and emergency eye care[9], leading to cases of avoidable loss of vision in follow up patients[11]. It is crucial therefore to offer risk stratified ophthalmic care in the most cost effective and efficient way, and in the most appropriate setting, to reduce the current unsafe burden on HES.

Figure 2. Annual number of attendances at Emergency Departments coded as primarily ophthalmological, 2010-2019 (Source: NHS Digital)



Current Practice: Why there is Scope for Change

There is a large variation in the delivery of emergency eye care across the UK. Historically, the service model used in each area was determined by perceived need of the local patient demographic, the NHS provider's choice of best hospital model and the local commissioner's choice of alternative pathways from both NHS and independent providers. Currently in England, for patients who develop an acute eye condition, there are two broad categories of service they can access:

- Non-hospital based:
    - **Primary care**: includes pharmacist, general medical practitioner and optometrist (emergency referral identified by an NHS sight test – General Ophthalmic Services – contracted by NHS England).
    - **Primary eye care services**: delivered by optometrists in their practices and separately commissioned, designed to refine referrals and assess and manage patients with conditions of recent onset (commissioned by

CCG). An integrated PECS is a part of the System and Assurance Framework for Eye health (SAFE).
    - **Community ophthalmology services**: often ophthalmologist led and can be delivered by an MDT commissioned for the assessment and management and monitoring of patients whose eye conditions are at low-risk of deterioration. Patients can be referred by primary care for further assessment or discharged from secondary care for monitoring (commissioned by CCG).
- Hospital based:
    - Specialist ophthalmologists working with an MDT within hospital general emergency departments, eye emergency, casualty or rapid or access urgent care clinics (direct access or booked) (commissioned by CCG).

Access is variable. Some services have direct urgent patient HES access, either through walk-in or telephone call. For some services this will relate to all conditions and some will be limited to certain eye conditions or only to known patients. For patients presenting to primary care professionals, depending on the condition, the patient may be seen and discharged. For true eye emergencies seen in primary care, referral to secondary care is necessary. This takes the form of either referral to the existing walk-in urgent eye care or ED service, or a bookable urgent specialist eye clinic.

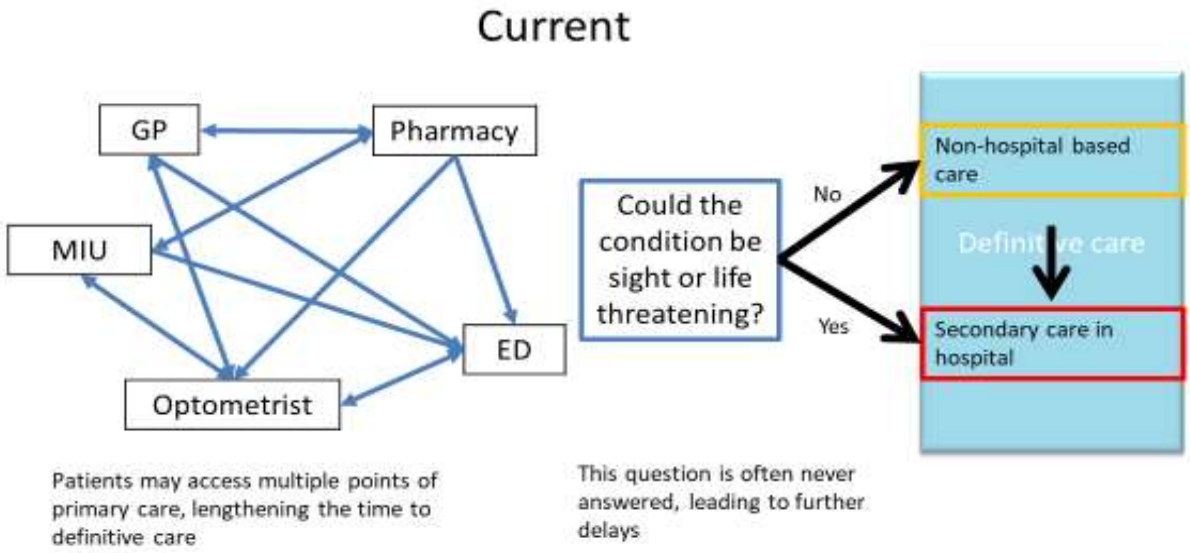
Whilst some variation is inevitable due to population density and access to appropriately trained staff and equipment, the current services are offered on a piecemeal approach and should be rationalised to ensure that:

- all true emergencies are seen, diagnosed and have treatment initiated at an optimal time point within 24 hours
- those conditions that do not require immediate attention are still seen and treated appropriately, but that they do not cause delays in treatment for true emergencies.

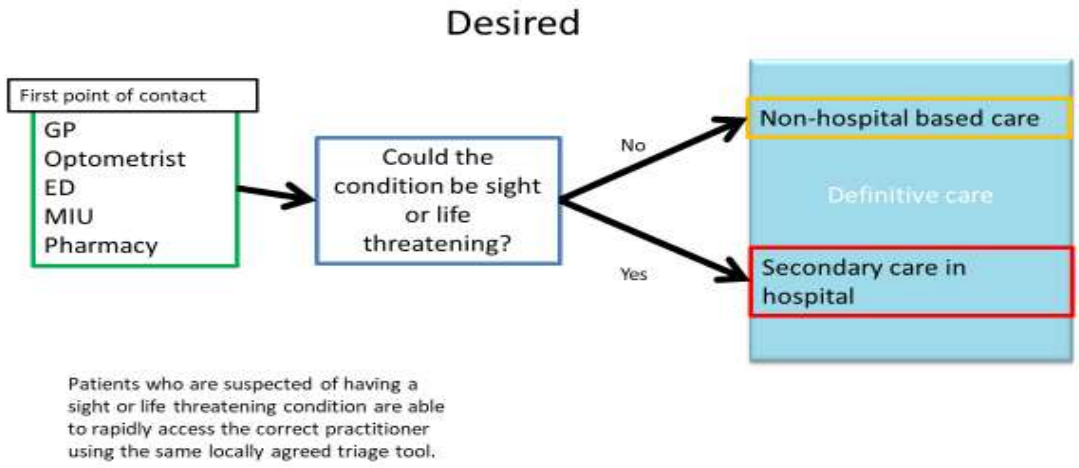
The available services within any location may vary ‘out of hours’, but this should not impact on the above requirements. Commissioners should monitor opening hours of available emergency eye care services to ensure that adequate care is maintained across a system.

This guidance is intended to support commissioners in developing more coherent, clinically effective and cost-effective services for their own populations and to help ensure reduced variation in the quality of emergency eye services across the country.

Figure 3 The pathways below depend on practitioners having the relevant skills and equipment, as well as agreed risk stratification across the pathway.



GP – General practitioner, ED – Emergency department, MIU – Minor Injuries unit



GP – General practitioner, ED – Emergency department, MIU – Minor Injuries unit

Cost of Commissioning the Service

Whilst safety and clinical effectiveness of any services is of prime importance, with finite public resources, both outcomes and cost-effectiveness must be considered.

The most popular innovations trialled to improve cost-effectiveness in acute eye care involve redistribution of acute, but not emergency, eye care work away from doctors and traditional secondary or tertiary care institutions. It has long been established that appropriately trained and supported ophthalmic nurses and optometrists can provide safe and effective acute eye care services within secondary care institutions and in primary care settings [12-15]. Such services, offering greater choice, accessibility, and care closer to home, are often popular with patients[16, 17]. However, commissioning new services must be undertaken very carefully to avoid introducing duplication (extra visits) or extra costs into the overall patient pathway.

An accurate assessment of cost-effectiveness of these newer models of care is challenging because of the necessity to take a whole system approach to eye health and care systems. Simply comparing costs of new services with costs of previous HES based care can miss hidden costs. Randomised prospective evaluation of acute eye care systems is not practicable, so the question of cost-effectiveness can perhaps best be answered by asking "what is the total impact and spend on acute, urgent and emergency eye care before and after the inception of a new model of care?". This will require close monitoring of total costs of eye care across GP, ED, HES and any newly commissioned services. Overall, addition of newly commissioned service should aim to increase appropriate access to care based on risk stratification whilst not increasing overall costs.

So far, the model for delivery of community-based non-ophthalmologist-delivered EEC with the most uptake is MECS. This is recognised within the RCOphth Ophthalmic Services Guidance for Emergency Eye Care[6]. However, "*There are still considerable reservations from ophthalmologists about the ability of optometrist schemes to prevent unnecessary secondary care attendances and some concerns about potential patient safety risks*"[5]. There is a need for high-quality evidence to demonstrate patient safety, scalability and financial efficiency. There is also some concern it may reduce equality of access. However, commissioners are under pressure to deliver savings and efficiencies whilst maintaining care for patients. Whilst it is recommended that further research is undertaken, robust audit of system-wide cost savings and quality metrics from any new commissioned scheme may be a practical alternative.

To evaluate the cost effectiveness of such schemes, data would be required on numbers of patients presenting for eye problems, both acute and non-acute, to GP, ED/MIU/WIC and secondary care EEC services as well as current utilisation of General Ophthalmology Services (GOS) sight tests by patients whose primary driver is their acute problem rather than their annual sight test being due. It would also be important to assess rates of false positives, false negatives and those patients where the scheme ends up requiring more attendances per patient than previously. Shifts in these metrics would indicate which patients have migrated into the MECS schemes and how well the MECS scheme is able to provide one stop or definitive care and avoid unnecessary HES attendances. They would also permit ascertainment of the extent to which the MECS scheme awakens currently unmet need, bringing patients who are currently self-managing or being seen by community pharmacists into the ophthalmic care system.

Some economic evaluation of MECS schemes has been undertaken, but comprehensive capture of all relevant metrics with construction of a comparator to permit a whole system analysis has been beyond the scope of any evaluation thus far[18].

Any commissioning body involved in setting up primary or community care schemes should build in whole system evaluation of the scheme in its construction – and include all relevant data sets to describe the impact of the scheme on existing workload and estimate the amount of new clinical activity that would previously not have come to attention of commissioned services[19].

4 Commissioning

This commissioning guidance aims to support the commissioning of high-quality services and local service design to provide evidence-based, cost effective, patient centred ophthalmic health care that meets the needs of the local population. The guidance is topic-specific and encourages commissioning within the context of national drivers for change such as the Five Year Forward View and the NHS Long Term Plan. It is a resource to assist commissioners and providers to deliver high quality and evidence-based healthcare across England.

High value care pathways provide patients and the public, health and social care professionals, commissioners and service providers with a clear description of what constitutes a high-quality service. Organisations can use the guidance to assess their current performance against evidence-based measures of best practice and identify priorities for improvement. Quality indicators support the implementation of the recommendations through commissioning and the contracting process and can be used to incentivise provider performance by using the indicators in association with incentive payments such as Commissioning for Quality and Innovation (CQUIN).

The central purpose of the guidance is to provide evidence for commissioners to ensure a pathway exists in which the highest risk patients can be seen within an appropriate timeframe. To ensure that emergency conditions can be diagnosed, and treatment initiated, with minimal delay, to maximise clinical outcomes. Providing cohesive networks of care with flow between pathways, with minimal/no barriers for patients to overcome is key to this.

It is crucial that services develop and innovate to use existing resources in the most cost-effective way whilst identifying and ensuring safe care for conditions with a high risk of visual loss. Commissioners, professionals, providers, in partnership with patients, must work together to optimise delivery settings, utilise regional networks and pathways of care within STPs, move from a primarily medical care delivery model to make full use of the multidisciplinary eye care team. Patients should be supported to be actively engaged and self-manage where possible. There are many publications that describe the opportunities for value for commissioners.

However, the quality and safety of care must be to the same fundamental standards no matter which professional delivers it and no matter where that care is delivered. This document outlines standards for safe commissioning for emergency ophthalmic services, and signposts to the important guidelines, quality standards and key performance indicators. This will help commissioners to assess the quality of their current service and support safe

development of new models whilst ensuring the safe effective delivery of care for emergency eye conditions. This is particularly important where ophthalmic care is delivered in different settings, in networks between providers, or by different providers within the same unit, or by a range of healthcare professionals.

A well-designed service should include:

✓	An understanding of the local population eye health needs and current service provision
✓	Whole pathway assessments – audit, cost effectiveness, governance This should be integral to new service design and occur before, during and after any changes are introduced
✓	New pathways and services should be designed by all stakeholders. This should include patients, ophthalmologists, optometrists and commissioners
✓	Ensure the patient is seen at the right place, right time by the right professional. Minimising unnecessary patient visits, creating seamless pathways, working across boundaries, saving costs and enhancing efficiency – improving outcomes and patient experience.
✓	Specialist equipment and training This includes for all relevant hospital and community-based staff assessing these patients
✓	Signposting – clear and unambiguous NHS 111, pharmacists, optometrists and general practitioners should have an up-to-date local directory of services and information for patients identifying how to access the relevant service

Recommendation 1: Commissioners reviewing eye emergency services should work in partnership with a range of stakeholders, including service users and carers, hospital services, non-hospital services including optometrists, general practitioners, health and wellbeing boards, community pharmacy services, established local eye health networks, social care, Eye Clinic Liaison Officers (ECLOs), rehabilitation officers for the visually impaired, voluntary and third sector organisations, and adjacent clinical commissioning groups, for service design and assessment.

Recommendation 2: Provider organisations should use the guidance to assess their current Emergency Eye Care performance against evidence-based measures of best practice and identify priorities for improvement.

Recommendation 3: Commissioners should work to develop Emergency Eye Care pathways of care with a clear risk-stratified approach and efficient flow, to allow ease of access for all patients, especially those who require rapid access to care for better clinical outcomes.

Implementation of the guidance is the responsibility of all local commissioners and providers, in their local context, considering their duties to avoid unlawful discrimination and to have regard to promoting equality of access. Nothing in the guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

Recommendation 4: Commissioners should be mindful of ensuring access for people who have difficulty accessing services, including vulnerable adults and those with multi-sensory impairment.

Recommendation 5: Non-medical eye healthcare professionals delivering Emergency Eye Care should demonstrate acquisition of and continuing professional development in the competencies described for level 3 of the Ophthalmic Common Clinical Competency Framework for Accident and Emergency Care *https://www.rcophth.ac.uk/professional-resources/new-common-clinical-competency-framework-to-standardise-competences-for-ophthalmic-non-medical-healthcare-professionals/*

We are keen to improve Commissioning Guidance for Emergency Eye Care to better meet the needs of commissioners and patients. Please send us your comments and ideas for future revisions.

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5 High Value Care Pathway

Introduction

The high value care pathway for EEC presented in this guidance is based on best available evidence as identified by systematic review of the literature and consensus opinion, including the following:

- The Way Forward Project (The Royal College of Ophthalmologists, 2017)
- Commissioning Better Eye Care (College of Optometrists and The Royal College of Ophthalmologists, 2013)
- The Systems and Assurance Framework for Eye Health SAFE on Emergency and Urgent Care (Clinical Council for Eye Health Commissioning, 2018).

For conditions that would benefit from early specialist input, the pathway should ensure this is accessible for all. Factors to consider include geographic location and mobility of the

individual patient, transport issues including affordable parking and public transport, as well as hours of opening, and alternative provision.

A patient focused, and integrated approach should be maintained as an overarching principle when designing local pathways.

Population to which the care pathway applies

This Commissioning Guidance applies to adults (persons >18 years old) with an emergency eye condition in England. It does not directly apply to children, although the principles may still apply. More specific paediatric commissioning guidance can be found on the website of the Royal College of Paediatrics and Child Health (https://www.rcpch.ac.uk/resources/facing-future-standards-children-young-people-emergency-care-settings).

Scope of guidance

Recommendations regarding the provision of Emergency Eye Care services cannot be undertaken without placing these services in the context of all acute and urgent care services and whole system pathways (Systems and Assurance Framework for Eye Health SAFE on Emergency and Urgent Care, Clinical Council for Eye Health Commissioning, 2018). To cover all eye conditions that fit the definition of an emergency eye condition, is beyond the scope of this guidance. The Guidance Development Group therefore identified the ten most important presentations which best fit its definition of EEC, for which there is recognised benefit (and better ultimate prognosis) if the service designed can rapidly diagnose and treat these conditions:

- Chemical injury
- Penetrating eye injury and lid laceration
- Severe pain or loss of vision within 1 week of surgery / intravitreal injection
- Sudden onset diplopia (double vision)
- Sudden painful loss of vision
- Sudden painless loss of vision
- Painful loss of vision in contact lens wearer
- Painful loss of vision after glaucoma surgery or corneal graft surgery at any time
- Severe lid swelling with pyrexia
- Eye pain keeping patient awake at night (i.e. scleritis).

There is often a paucity of evidence about eye emergency conditions. The Guidance Development Group (GDG) therefore identified several key questions relating to the above list. At each stage, if there was not enough evidence to answer the specific research questions, a different methodology was adopted in line with advice from NICE. This consisted of a member of the GDG performing a literature search on the question as described in each section. Results were discussed amongst the group and consensus opinion was reached. The output underwent critical consultation before finalisation by a selected group including RCOphth lay advisory chair, a CCG chair, clinicians and senior hospital managers.

Compiling the Evidence

Each of the ten presentations below can be caused by several different individual conditions. A list of conditions is given in each relevant subheading. The lists are not exhaustive. Some

conditions can present in different ways, and so may be included in more than one list. All presentations contain at least one emergency eye condition for which there is evidence of improved prognosis if treatment is initiated within 24 hours, and/or result in extremely poor prognosis if missed or not treated within that time.

For the identified emergency conditions, we have addressed the same research question, following the recognised PICO format for evidence-based medicine[18]. Where applicable, existing evidence and guidelines will be cited.

PICO Format	Description
Population	Definition of the condition. The 'population' refers to patients who will develop this condition.
Intervention	Outlines condition-specific resources that, in addition to a specialist opinion, need to be available within 24 hours, without which adequate management would not be possible. This section will not be limited to specialist therapeutic agents (e.g. intravitreal antibiotics), but also describe diagnostic equipment (e.g. neuroimaging), capacity of facilities (e.g. out of hours theatre access, ability to admit to a hospital bed), and other aspects that are specifically beneficial to the management of this condition.
Comparator	For all conditions the comparator is the absence of one or more of the intervention resources described in the above section
Outcome	Describes the specific consequences or complications of not being seen within the required timeframe.

i) Chemical Injury

Population

An ocular chemical injury is any contact with the eye or eyelids with chemicals (solid, liquid or gas) that are harmful to the structure and function of the eye, most importantly the conjunctiva and cornea. A patient is suspected of having retained chemical material and of having current and ongoing damage until ophthalmic examination rules this out.

Intervention

Patients reporting chemical injuries should have the chemical washed out as thoroughly as possible at the point of the accident occurring rather than waiting until arrival at a healthcare facility. EEC facilities must triage patients on arrival such that chemical injuries are seen immediately, with further irrigation and removal of retained particulate material performed after ocular anaesthetic drops have been instilled, unless it is clear this has been already done to an appropriate standard in another setting. The nature of the chemical involved should be ascertained and the pH tested prior to, and at least 15 minutes after, cessation of irrigation. A clinician should then examine the eye with a slit lamp to determine the extent of damage, using accepted severity grading criteria, and instigate appropriate management in accordance with the National Poison Information Service[22]. Onward referral for specialist ophthalmic assessment should be instigated if judged necessary.

Comparator

The lack of:

- Triage for chemical injury patients, test pH and initiate urgent irrigation with anaesthesia, speculum and lid eversion
- A slit lamp and appropriately trained clinician to assess severity and initiate treatment plan
- A clear pathway for admission for intensive administration of medication

Outcome

Heterogeneity of disease presentation, variations in treatments, undefined criteria for treatment success and failure, and non-uniform outcome measures are some of the factors that make search for clear evidence regarding this topic problematic.[23]
Protocols for management were reviewed from various UK departments in which a high level of consensus was noted.

Prompt and copious irrigation with optimal exposure of fornices and pH monitoring is the most important intervention to prevent continued damage. Any risk of delay in irrigation or inadvertently leaving an eye with prolonged exposure to adverse pH with retained chemicals on the ocular surface is unacceptable.

Theoretical arguments exist for the utilisation of irrigating fluids other than saline but, in the absence of direct evidence, the key requirement is the ability to rapidly and meticulously wash out any remaining chemicals with copious fluid.[24]

Protocols incorporate immediate commencement of medication to promote epithelialisation, minimise inflammation, and prevent cicatricial complications with topical preservative free medication including mydriatic, corticosteroid, antibiotic and oral doxycycline and citric acid[25, 26].

ii) Penetrating Eye Injury and lid laceration

Population

A penetrating eye injury is a full thickness injury entering the eye with or without a retained foreign body. This can be caused by sharp or blunt injury. This occurs either after fast velocity contact with a projectile, contact with a sharp object in the eye or severe blunt trauma. Penetration of the eye cannot be excluded until the eye is examined after this type of trauma. A patient with a full thickness eyelid laceration should also be suspected of have a penetrating eye injury until examined.

Intervention

Patients with suspected penetrating eye injury should examined on a slit lamp by a suitably trained clinician as soon as possible and within 24 hours. If the patient is confirmed to have a penetrating eye injury, emergency assessment to plan surgical repair is required by an ophthalmologist. These patients should undergo repair by an ophthalmic surgeon using an operating microscope usually under general anaesthetic within 24 hours. This may also include the need for a vitro-retinal surgeon and posterior vitrectomy in the case of a retained posterior foreign body. Where there is uncertainty about the presence of a foreign body or the extent of associated bony injuries, neuroimaging or ocular ultrasound will need to be accessed prior to surgery. There should also be access to intravitreal, oral and intravenous antibiotics.

Comparator

The lack of:

- A slit lamp
- An ophthalmologist to make an assessment and initiate treatment plan
- An operating surgeon, theatre and anaesthetist
- Availability of neuroimaging or ultrasound to exclude a retained intraocular foreign body
- Appropriate intravitreal, oral and topical antibiotics

Outcome

An open eye may lead to expulsion or partial expulsion of the ocular contents with severe visual consequences[27,28]. Delay in surgery leaves the eye open and more likely to get infection either of the wound or endophthalmitis leading to poorer outcome, including total loss of vision and risk of losing the eye[29-32]and a small risk of sympathetic ophthalmia causing bilateral loss of vision. Delayed removal of a retained intraocular foreign body (FB) is associated with increased risk of intraocular infection, inflammation or chemical damage to the eye and poorer outcome[33]. An open globe injury is painful and distressing for the patient. Delay and poorer outcome are likely to be psychologically damaging.

iii) Severe pain or loss of vision within two weeks of surgery / intravitreal injection

Population

Patients who develop severe pain or loss of vision within two weeks of intraocular surgery or other intraocular procedure (including intravitreal injection). This presentation could be acute endophthalmitis.

Acute post-operative endophthalmitis is defined as a purulent inflammation of the intraocular fluids (vitreous and aqueous) due to infection, following any intraocular procedure. The common causative bacteria have a rapid doubling time of less than 30 minutes[34]. Without swift appropriate intervention, this condition is rapidly progressive and results in irreversible blindness. Visual outcome depends on the virulence of the causative organism, the visual acuity at time of presentation and the speed with which treatment is initiated.

Intervention

Patients with suspected endophthalmitis should be examined on a slit lamp by an ophthalmologist as soon as possible from onset of symptoms, and within four hours of first contact with healthcare services. Eyes with acute postoperative endophthalmitis must undergo immediate sampling of intraocular fluids and intravitreal injection of antibiotics[35]. Subsequent management requires close monitoring by a specialist retinal team (medical retina and vitreo-retinal), as repeat intravitreal injections or vitrectomy surgery may be required. There should also be access to oral and topical antibiotics.

Comparator

The lack of:

- A slit lamp
- An ophthalmologist to make an assessment and initiate treatment
- Appropriate tissue sampling equipment
- Appropriate intravitreal, oral and topical antibiotics

Outcome

Delay in identification and intervention leads to poorer outcome, including blindness.

Recommendation 6: Any provider of intraocular surgery or injection services within either the NHS or independent sector should be able to ensure fast identification and treatment of patients with post-operative endophthalmitis. This requirement should be incorporated at the point of commissioning for this service to ensure safety and continuity of care. There should be clear arrangements if needed for transfer for further specialist treatment.

iv) Sudden onset diplopia (double vision)

Population

Diplopia has many causes but, if sudden onset, it may be a sign of important intracranial pathology including aneurysm, tumour and stroke. If there is delay to the identification of these conditions, it can result in significant morbidity and death.

Intervention

All these patients should be examined by an appropriately trained practitioner as soon as possible and within 24 hours, ideally with availability of orthoptists.
For patients suspected of having active intracranial pathology, rapid access to neuroimaging is vital for diagnosis allowing initiation of appropriate management. For those with suspected stroke, a diagnosis should be sought rapidly using validated tools and initial management should ideally occur at initial assessment[36].

Comparator

The lack of:

- Appropriate trained personnel to make an initial assessment
- Targeted treatments and investigations, including, but not limited to:
    - Urgent neuroimaging
    - Appropriately expedited care to neurologist, interventional radiologist, stroke physician or neurosurgeons
    - Availability of inpatient care

Outcome

The poorest prognosis for the more serious diagnoses in this category is associated with a significant risk of death or life-changing morbidity.

v) Sudden painful loss of vision

Population

Sudden painful loss of vision may be caused by the following sight-threatening conditions: acute angle closure glaucoma, acute anterior uveitis, infective keratitis* or giant cell arteritis.

*[*for more details on infective keratitis, see clinical presentation vii]*

Intervention

All these patients should be examined on a slit lamp by an ophthalmologist as soon as possible and within 24 hours. Vision loss can be profound. For acute angle closure glaucoma and giant cell arteritis, this can be rapid and irreversible. For those with uveitis, it can be a sign of serious underlying systemic pathology.

For patients diagnosed with acute angle closure glaucoma, rapid control of intraocular pressure and inflammation is required with topical, oral and intravenous medications. Earlier treatment is more effective[37]. Medications do not resolve the cause of the attack for which urgent laser treatment or surgery will be required.

For patients whose assessing clinician suspects a diagnosis of giant cell arteritis, further diagnostic tests are required, including blood test and often surgical sampling of the superficial temporal artery. This should not delay the treatment which involves high dose steroids, often intravenous, with appropriate cover for common and serious steroid associated side effects[38]. Most patients can be treated on an outpatient basis, but treatment may necessitate hospital admission.

For patients diagnosed with acute uveitis, a thorough slit lamp assessment and dilated fundus examination by a suitably trained practitioner are essential prior to initiation of any treatment, to assess for any posterior involvement. Anterior uveitis is managed most commonly as an outpatient with topical medications which should be initiated promptly and within 24 hours[39,40.] Occasionally subconjunctival injections are required. If posterior eye involvement is detected, patients often benefit from systemic steroid which sometimes require initiation as an inpatient.

Comparator

The lack of a slit lamp or ophthalmologist to make an initial assessment. The unavailability of targeted treatments and investigations, including, but not limited to:

- topical, oral and intravenous ocular anti-hypertensives
- topical, oral, intravenous and intravitreal/orbital floor steroid
- ‘YAG’ laser machine
- an operating surgeon and suitably sterile environment for a temporal artery biopsy
- availability of serological testing equipment and laboratory investigation
- availability of inpatient care

Outcome
Acute angle closure glaucoma and giant cell arteritis are known to blind within a short timeframe. For giant cell arteritis, if treatment is not initiated rapidly it can affect the other eye within hours/days. Patient transfer should never delay treatment.

Delay to uveitis treatment can also be associated with extremely poor visual outcome and can be associated with significant systemic morbidity/mortality.

vi) Sudden painless loss of vision

Population
Sudden painless loss of vision may be caused by giant cell arteritis, retinal detachment, retinal vascular occlusion or stroke.
*[*for more details on giant cell arteritis, see clinical presentation v for more details on stroke, see clinical presentation iv]*

Intervention
Most of these patients should be examined on a slit lamp by an ophthalmologist as soon as possible within 24 hours. The only exception is patients who have examination findings consistent with stroke at the point of their initial assessment. These should be 'fast-tracked' to the relevant local stroke service. Depending on the local service, imaging may be recommended at the point of initial assessment or on route to the relevant stroke service. For all these conditions vision loss can be profound, and irreversible.

Comparator
The lack of appropriately trained clinician to make an initial assessment. The unavailability of targeted treatments and investigations, including, but not limited to:

- topical, oral and intravenous ocular antihypertensives
- oral and intravenous steroid
- an operating surgeon and suitably sterile environment for a temporal artery biopsy
- availability of serological testing equipment and laboratory investigation
- rapid access to neuroimaging
- availability of inpatient care

Outcome
Giant cell arteritis can blind both eyes within hours/days if treatment is not initiated rapidly. Patient transfer should never delay treatment. Stroke is associated with significant mortality and life-changing morbidity.

Recent macula-off retinal detachments (defined as central visual loss less than four days), should no longer been assumed to be non-urgent and should be assessed for treatment as soon as is logistically possible[58, 59].

vii) Painful loss of vision in contact lens wearer

Population

Contact lens wearers who develop painful loss of vision may have contact-lens related microbial keratitis. Microbial keratitis is a serious progressive infection of the cornea. If not treated promptly it can lead to corneal perforation, scarring, and permanent loss of vision[40].

Intervention

Patients with suspected contact lens related microbial keratitis should be examined on a slit lamp as soon as possible from onset of symptoms and within 24 hours. Once a clinical diagnosis of likely microbial keratitis has been made, tissue sampling (corneal scrape) is carried out to identify the causative organism and drug sensitivities. Hourly topical bactericidal therapy should be initiated immediately. Anti-fungal or anti-amoeba agents should be available if needed. Subsequent management may require close monitoring by a specialist corneal team and may require hospital admission. There should also be access to oral antibiotics.

Comparator

The lack of:

- A slit lamp
- An ophthalmologist to make an assessment and initiate treatment
- Appropriate tissue sampling equipment
- Appropriate oral and topical anti-infective agents

Outcome

Delay in identification and intervention leads to poorer outcome, including corneal perforation, the need for emergency corneal surgery, visually significant corneal scarring and blindness.

viii) Painful loss of vision after glaucoma surgery or corneal graft surgery at any time

Population

This presentation could be representative of bleb-related endophthalmitis or corneal graft rejection.

Bleb-related endophthalmitis is defined as a serious intraocular infection following glaucoma filtration surgery.

The term corneal graft rejection refers to a specific immunologic response of the host to the donor corneal tissue, leading to clouding of the cornea and graft failure.

Both conditions can occur at any time in the years following the surgery, not just in the initial post-operative period. They are serious complications that can lead to permanent visual impairment and have a worse prognosis if not identified and treated early.

Intervention

Patients with suspected late complications following glaucoma surgery should examined on a slit lamp by an ophthalmologist as soon as possible from onset of symptoms and within 24 hours[42]. If a clinical diagnosis of bleb-related endophthalmitis has been made, patients should undergo immediate diagnostic tissue sampling (aqueous and vitreous) and initial intravitreal injection of antibiotics[43]. Subsequent management requires close monitoring by a specialist glaucoma and retinal teams, as repeat intravitreal injections or vitrectomy surgery may be required. There should also be access to oral and topical antibiotics.

Patients with suspected corneal graft rejection should examined on a slit lamp by an ophthalmologist as soon as possible from onset of symptoms and within 24 hours. Intensive topical steroid therapy should be initiated immediately[44]. Subsequent management requires close monitoring by a specialist corneal team and may require hospital admission.

Comparator

The lack of:

- A slit lamp
- An ophthalmologist to make an assessment and initiate treatment
- Appropriate tissue sampling equipment (for bleb-related endophthalmitis)
- Appropriate medications

Outcome

Delay in identification and intervention leads to poorer outcome, increased need for additional surgery and blindness.

ix) Severe lid swelling with pyrexia

Population

Orbital cellulitis is an infection within the orbital soft tissues that causes dysfunction of the optic nerve and eye movements and is associated with pyrexia. Organisms enter the orbit either directly from disruption of the normal skin barrier or through the sinuses or venous channels. If it progresses, it may lead to a variety of serious pathology, with resultant vision loss, central nervous system complications, and death[45]. Available evidence points to the importance of prompt referral to an ophthalmologist with suspected orbital cellulitis.[45]

Intervention

Patients with suspected orbital cellulitis should be examined by an ophthalmologist as soon as possible from onset of symptoms, and within 24 hours of first contact with healthcare services. Due to the varied manifestation and cross-system involvement, patients often access care and are directed towards different specialties (e.g. ENT, general medicine). If this is the case, there must be a pathway to refer for timely assessment by the specialist ophthalmology team. Care is then normally shared across these specialties but there must be a lead team so care decisions are not delayed.

Access to urgent neuroimaging is a necessity (usually CT). Not all cases require this, as it is a balance of clinical need and radiation exposure, and the decision on necessity of imaging evolves alongside the clinical picture, which can rapidly change.

Empiric antibiotic therapy can be lifesaving and should therefore be initiated immediately, prior to any further investigation or imaging.

The treatment of orbital cellulitis varies in individual cases but may require multidisciplinary input. If there is evidence of sinusitis, ENT consult should be obtained for sinus drainage. Sub-periosteal orbital abscess, an orbital complication of sinusitis, often requires surgical drainage for resolution. Many surgeons prefer 24 to 48 hours of intravenous antibiotics before deciding on surgical intervention unless there is visual compromise[47,48].

Comparator

The lack of:

- A suitable initial assessor, who will make initial decisions on empiric treatment and need for imaging. This is a clinician of appropriate seniority within the specialties of ENT, general medicine, or ophthalmology.
- Access to neuroimaging
- Regardless of the role of the initial assessor, an ophthalmologist to make an assessment and offer opinion on imaging and treatment (including access to surgical treatment)
- A slit lamp and equipment for examination of the back of the eye
- Appropriate intravenous and oral antibiotics
- Access to operating theatre for orbital or ENT surgeon

Outcome

Delay in identification and intervention leads to poorer outcome, including blindness, central nervous system complications and death.

x) Eye pain keeping the patient awake at night

Population

The symptom of eye pain which is severe enough to keep them awake at night may be a presentation of scleritis.

Scleritis is a serious inflammatory condition of the white outer coating of the eye, known as the sclera. It can result in rapid and permanent loss of vision due destruction of ocular tissues[49]. The ocular findings can be indicative of potentially lethal systemic disorders, including rheumatoid arthritis, granulomatosis with polyangiitis, systemic lupus erythematosus, inflammatory bowel disease, sarcoidosis, and infections such as syphilis and tuberculosis. Ocular and systemic morbidity is reduced by timely treatment with immunosuppressant medications[50].

Intervention

Patients with suspected scleritis should be examined on a slit lamp by an ophthalmologist as soon as possible and within 24 hours[49]. Ultrasound examination of the eye may assist diagnosis. Once a diagnosis of scleritis has been made, prompt treatment with systemic NSAIDs or topical and systemic steroid needs to be initiated. Early assessment for potentially life-threatening inflammatory conditions is required, often in collaboration with rheumatologists or other specialist medical teams. Subsequent management may require treatment with steroid-sparing immunosuppressive agents.

Comparator

The lack of:

- A slit lamp
- Ophthalmologist to assess and initiate treatment
- Ocular ultrasound
- Anti-inflammatory and immunosuppressive agents (topical, oral and intravenous)
- Access to equipment for taking and testing serological samples

Outcome

Delay in identification and intervention leads to poorer outcome, with risk of scleral melting, the need for further surgery and blindness. Additionally, delay in treatment of underlying systemic inflammatory condition can be fatal.

5 Service Design

Patient safety is paramount when commissioning new emergency eye care services because serious sight and life-threatening conditions may present through this pathway. However, innovations in service design and provision are required to respond to the increasing demand, directing patients to the correct pathway based on the acuity of their condition.

CCGs must consider the needs of the local population to ensure both emergency and non-emergency acute eye care are commissioned within a reasonable distance for the patient based on risk, access and travel time. Clear signposting and information need to be available to enable patients to understand the correct pathway for their symptoms.

It should be highlighted that as well as providing care to those who require it most, when CCGs are deciding on new options to commission, avoidance of inappropriate admissions and emergency department attendances must be a priority.

Models of care commissioners may wish to consider for the delivery of eye emergency services:

- Emergency Department
    - There should be appropriate triage systems in place to reduce unnecessary hospital attendances and signpost to alternative pathways.
    - Where patients are seen in a hospital setting, they may be suitable to be seen on a nurse practitioner pathway or by other allied health professionals (covered by OCCCF)
- Rapid access pathways to hospital care
    - These have been developed in subspecialty areas such as medical retina, vitreoretinal and corneal and can reduce the burden on the hospital emergency eye services and save unnecessary visits for the patient by directing to the correct subspecialty for definitive diagnosis and treatment (e.g. Suspect Wet AMD urgent referral pathway. Referral to be received by the HES the following day and treatment within 14 days https://www.nice.org.uk/guidance/qs180)

Alternative models of care that commissioners may wish to consider for low risk and less severe acute eye conditions include:

- Local Pharmacist
    - Pharmacists offer advice and guidance on over the counter medications to patients with minor ailments (such as infective or allergic conjunctivitis). They should be made aware of local services to advise patients who need to access further healthcare.
- GP
    - GPs may provide treatment for conjunctivitis, dry eye and allergic conditions
    - GPs with special interest in ophthalmology can provide a useful alternative care pathway
    - Commissioners can ensure ophthalmology education is maintained for all GPs in the area

- Primary Care Optometrists
    - The training and use of specialist equipment that optometrists have, can offer rapid insight into the severity and urgency of the problem. The clinical skills required fall within the core competencies of practitioners, but commissioners may seek evidence of continuing professional development and revalidation of skills for quality assurance purposes (including independent prescribing competencies where appropriate in community eye services).
    - Direct electronic referral has been shown to reduce onward hospital referral but requires a standardised minimum equipment inventory prior to initiation[52]
- Primary Eye Care Services allow optometrists to assess and manage patients with minor eye conditions of recent onset
    - These schemes can provide a useful care pathway. Where these schemes are commissioned, close attention must be paid to appropriate governance, audit, communication and feedback. This is to ensure a high-quality care is maintained and that these schemes deliver value for money.
- Virtual pathways
    - These can be used to facilitate the link between community optometry and the HES with a role in referral, triage and streaming to appropriate pathways
- Advice and guidance schemes
    - These commissioned schemes can be used to facilitate streaming patients into the appropriate pathway and avoid unnecessary attendances. These schemes need to be carefully introduced to ensure they do not become oversaturated with non-urgent queries.

To ensure true emergencies are seen and treated within 24 hours by an ophthalmic specialist, care needs to be taken in designing new pathways to minimise the potential of avoidable delays for emergency conditions.

Triage and Streaming

Triage systems are used widely to identify and treat the patients with highest clinical need. For the purposes of emergency eye care commissioning, triage in primary eye and community care can ensure:

- Those with the highest clinical risk are seen most urgently and/or in a hospital setting
- Those with lower clinical risk are streamed to be seen in a more appropriate setting and timing of assessment

Consistent triage tools accessible to all providers and referrers are very helpful in ensuring services are used appropriately using the pathways.

Examples of EEC specific triage tools can be found in the appendices.

6 Commissioning and costing tools

Commissioning and cost tools have not been published so far by NICE or other national bodies to assist commissioners in developing and delivering EEC. Patients meeting the definition of a true eye emergency will require rapidly accessible services which are available only in the HES. Patients with problems less associated with a threat to sight may be seen wholly in primary care.

In the absence of costing tools, commissioners need to carefully evaluate the impact of any new schemes on the whole system, including workload, impact on existing services, and any increased clinical activity resulting from availability of new options for patients (see section Cost-benefits of Commissioning the Service above).

7 Levers for implementation

Quality indicators

Quality indicators are tools and measures for commissioners and providers to aid implementation of high value care pathways.

Standard	Description	Link
RCOphth Commissioning Standards	Outlines standards for safe commissioning for ophthalmic services, and signposts to the important guidelines, quality standards and key performance indicators. This will help commissioners to assess the quality of their current service and support safe development of new models across the whole pathway	https://www.rcophth.ac.uk/standards-publications-research/commissioning-in-ophthalmology/
RCOphth Quality Standard for A&E/Urgent Care Services	The standards in this document apply to urgent and emergency secondary ophthalmic care and how that links up to community and primary care, to ensure safe care and adherence to national guidelines.	https://www.rcophth.ac.uk/standards-publications-research/quality-and-safety/quality-standards/
NICE Stroke Quality Standards Statement 1	Adults presenting at an accident and emergency (A&E) department with suspected stroke are admitted to a specialist acute stroke unit within 4 hours of arrival.	https://www.nice.org.uk/guidance/qs2
NICE Emergency	This quality standard covers the	https://www.nice.org.uk/g

Care Quality Standard	organisation and delivery of emergency and acute medical care in the community and in hospital for adults (16 and over). It describes high-quality care in priority areas for improvement.	uidance/qs174
RCOphth Emergency eye care in hospital eye units and secondary care	Provides information on good practice for urgent and emergency secondary emergency ophthalmic care.	https://www.rcophth.ac.uk/standards-publications-research/ophthalmic-services-guidance-2/

Audit measures

'Clinical audit is a quality improvement cycle that involves measurement of the effectiveness of healthcare against agreed and proven standards for high quality and taking action to bring practice in line with these standards to improve the quality of care and health outcomes' (Healthcare Quality Improvement Partnership, 2011). Commissioners should evaluate the costs associated with auditing the quality of the services they commission.

Suggested audit metrics include:

- Measures of patient satisfaction e.g. FFT
- Time to initial assessment
- Time to treatment
- Number of attendances in different settings for the same condition prior to definitive care
- Re-attendance rate
- Number of unnecessary repeat attendances
- Availability and use of agreed triage tool in each setting
- Compliance with RCOphth commissioning standards
- Condition specific standards met e.g. TIA/CVA seen in nationally agreed time frames
- Percentage of patients correctly discharged at first visit
- Percentage of patients diagnosed and managed accurately (retrospective case note audit)
- Percentage of patients leaving department before being seen
- Journey time of ED attendance
- Patients signposted to more appropriate care setting

Peer Review is a quality assurance programme for health services. The programme may involve both self-assessment by provider teams and external reviews of teams conducted by professional peers, against nationally agreed "quality measures". Peer Review aims to improve care for people and their families by:

- Ensuring services are as safe as possible
- Improving the quality and effectiveness of care
- Improving the patient and carer experience
- Undertaking independent, fair reviews of services

- Providing development and learning for all involved
- Encouraging the dissemination of good practice

(Adapted from National Cancer Action Team, 2012)

Recommendation 7: There are no specific quality indicators for emergency eye care. However, commissioners could adapt NICE Quality Standards (https://www.nice.org.uk/guidance/qs174) or the Clinical Council for Eye Health Commissioning SAFE Emergency and Urgent Care Framework. This can be audited and used by providers to demonstrate the quality of their services.

Quality Specification/CQUIN

"The Commissioning for Quality and Innovation (CQUIN) payment framework enables commissioners to reward excellence by linking a proportion of providers' income to the achievement of local quality improvement goals."

"The framework has been developed with those working in the NHS, to help produce a system which actively encourages organisations to focus on quality improvement and innovation in commissioning discussions and so to stretch themselves, improve quality for patients and innovate." (Department of Health, 2008)

To evaluate the cost effectiveness of such schemes, data would be required on numbers of patients presenting for eye problems, both acute and non-acute, to GP, A&E/MIU/WIC and secondary care EEC services as well as current utilisation of GOS sight tests by patients whose primary driver is their acute problem rather than their annual sight test being due. It would also be important to assess rates of false positives, false negatives and those patients where the scheme ends up requiring more attendances per patient than previously. Shifts in these metrics will indicate of which patients have migrated into the newly commissioned schemes and how well the scheme is able to provide one stop or definitive care and avoid unnecessary HES attendances. They would also permit ascertainment of the extent to which the scheme awakens currently unmet need, bringing patients who are currently self-managing or being seen by community pharmacists into the scheme.

Recommendation 8: Commissioners should develop local CQUINs in discussion with providers. The CQUIN may contain goals related to staged implementation of a new process as well as goals related to performance. Achievement and non-achievement outcomes and rewards for the various stages should be jointly discussed and agreed.

Use of an up to date CQUIN Scheme Template (NHS England) may aid the development of a locally successful CQUIN[54,55].

7 Directory

Links to patient information

Name	Published	Link
Royal National Institute of Blind People	RNIB	https://www.rnib.org.uk/eye-health/eye-conditions
NHS Choices conditions information	NHS	https://www.nhs.uk/conditions/eye-injuries/
Moorfields patient information	Moorfields Eye Hospital NHS Foundation Trust	https://www.moorfields.nhs.uk/content/patient-leaflets

Recommendation 9: Patient information must be produced in formats compatible with the Accessible Information Standard https://www.england.nhs.uk/ourwork/accessibleinfo/.

Links to clinical information

Links to clinical guidelines, decision support tools

Name	Published	Link
The Way Forward for Emergency Eye Care	The Royal College of Ophthalmologists	https://www.rcophth.ac.uk/standards-publications-research/the-way-forward/
NICE Emergency Care Quality Standard	NICE	https://www.nice.org.uk/guidance/qs174
RCOphth Emergency eye care in hospital eye units and secondary care	The Royal College of Ophthalmologists	https://www.rcophth.ac.uk/standards-publications-research/ophthalmic-services-guidance-2/
RCOphth Quality Standard for A&E/Urgent Care Services	The Royal College of Ophthalmologists	https://www.rcophth.ac.uk/standards-publications-research/quality-and-safety/quality-standards/
NICE Stroke in Adults Quality Standard	NICE	https://www.nice.org.uk/guidance/qs2
SAFE - Systems and Assurance Framework for Eye health	Clinical Council for Eye Health Commissioning	https://www.college-optometrists.org/the-college/ccehc/safe-systems-assurance-framework-for-eye-health.html

Case Studies for Emergency Eye Care

Links to examples of good practice e.g. NICE, NHS Evidence, The Way Forward

Name	Published	Link
Clinical safety of a minor eye conditions scheme in England delivered by community optometrists.)	British Journal of Ophthalmology	https://bmjophth.bmj.com/content/3/1/e000125
The Way Forward for Emergency Eye Care	The Royal College of Ophthalmologists	https://www.rcophth.ac.uk/standards-publications-research/the-way-forward/

8 Further Recommendations and Information for research

Recommendation 10: There is a pressing national need for accurate data to inform commissioners around what represents best-value pathway for emergency eye care service provision. This may vary by locality.

Recommendation 11: Any changes in commissioned services (e.g. MECS scheme or move from a walk-in eye casualty to a booked emergency referral service a) must be accompanied by data collection to permit evaluation of the impact on numbers of eye-related attendances at:

- GP practices
- Optometry practices (outside commissioned scheme)
- General A&E
- Secondary care acute ophthalmology services (both eye casualty/acute referrals and out of hours/on-call attendances)

This data collection, coupled with historic local comparators to map secular trends, permits evaluation of the amount of unmet need awakened by any new service or pathway re-design. Disinvestment in services – such as decommissioning an eye casualty or MECS scheme or transition from walk-in to bookable only service, provides a similar opportunity to identify what costs and savings are on offer by disinvestment which is equally important.

Dissemination of the results of such evaluations by publication in peer reviewed journals would be of great benefit to the wider commissioning community and should be planned for in the initial commissioning of the service.

Recommendation 12: Further research into the effectiveness of MECS schemes should be undertaken. This should look at evaluation several MECS schemes using the same criteria rather than individual case studies.

9 Guideline Development Group for Emergency Eye Care Commissioning

A commissioning guidance development group was established to review and advise on the content of this commissioning guide. This group met quarterly, with additional interaction taking place via email.

Name	Job title	Role/representing
Dilani Siriwardena (Chair)	Consultant Ophthalmologist, Moorfields Eye Hospitals NHS Foundation Trust	The Royal College of Ophthalmologists and the British Emergency Eye Care Society
David Lunt	Specialty Trainee	The Royal College of Ophthalmologists and the British Emergency Eye Care Society
Sarah Anderson	Consultant Ophthalmologist, York Teaching Hospitals NHS Foundation Trust	The Royal College of Ophthalmologists and the British Emergency Eye Care Society
Beth Barnes	Head of Professional Support	The Royal College of Ophthalmologists
John Buchan	Consultant Ophthalmologist, Leeds Teaching Hospitals NHS Trust	The Royal College of Ophthalmologists and the British Emergency Eye Care Society
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Sara Fletcher	Senior Commissioning Manager	NHS Central Manchester Clinical Commissioning Group
Lawrie Frere	General Practitioner	GP with an interest in commissioning
Melanie Hingorani	Consultant Ophthalmologist, Moorfields Eye Hospitals NHS Foundation Trust and Chair of the RCOphth Professional Standards Committee	The Royal College of Ophthalmologists
Sally Jones	Consultant Emergency	The Royal College of

	Medicine, Aneurin Bevan University Health Board	Emergency Medicine
Martin Keats	Volunteer	Patient/lay representative
Elizabeth Lynam	Volunteer	The Royal College of Ophthalmologists' Lay Advisory Group
Catherine Marsh	Consultant Ophthalmologist, The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	The Royal College of Ophthalmologists British Emergency Eye Care Society
Mary-Ann Sherratt	Optometrist and Immediate Past President of The College of Optometrists	The College of Optometrists
Katrina Venerus	Clinical Director	Local Optical Committee Support Unit (at time of drafting – until end of September 2018)
Seema Verma	Consultant Ophthalmologist, Guys and St Thomas' NHS Foundation Trust	The Royal College of Ophthalmologists and President of the British Emergency Eye Care Society
Helen Wilson	Optometrist, Manchester University NHS Foundation Trust	The British Emergency Eye Care Society
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Richard Wormald	Consultant Ophthalmologist, Moorfields Eye Hospitals NHS Foundation Trust and Coordinating Editor of the Cochrane Eyes and Vision Group	Cochrane Eyes and Vision Group

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- The Royal College of Ophthalmologists

Conflict of interest statement

Individuals involved in the development and formal peer review of commissioning guidance were asked to complete a conflict of interest declaration. It is noted that declaring a conflict of interest does not imply that the individual has been influenced by his or her interest, It is intended to ensure interests (financial or otherwise) are transparent and to allow others to have knowledge of the interest.

The following interests have been declared by the Group:

- Katrina Venerus – Local Optical Committee Support Unit provides advice on services to primary care providers and commissioners

10 Appendices: Triage Tools

Below are several examples of triage tools currently in use in different types of secondary care units throughout the UK that may be useful. The RCOphth recommends that clear, consistent and transparent tools are used across emergency and urgent care pathways reflecting the different care settings.

The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust

Created by Emma Barret

	SAME SESSION	SAME DAY	WITHIN 24 HOURS	WITHIN 3 DAYS	NURSE LED CLINIC	NOT APPROPRIATE (SEE OPTICIAN/GP OR, GRADE TO CLINIC)
TRAUMA	*Chemical Injury (alkaline) *Penetrating injury	*Lid laceration *Blunt trauma	*Blunt trauma >1/52 <2/52		*Corneal abrasions *Corneal FB	
VISION	*Sudden complete loss of vision <6 hours	*Sudden loss of vision <12 hours (resolved/unresolved) *New flashing lights/floaters with prev history or risk factors (myopia, prev tear or RD, family hx) *Post op <2/52 - loss of vision	*Sudden loss of vision >12 hours but <1week (resolved/unresolved) *Increased floaters *Diplopia (New, sudden or worse) with orthoptists if binocular *Post op <2/52 blurred vision	*Sudden change in vision <2 weeks *Single floater with no flashing lights	*Mild blurring *Watery	*Visual distortion <1 week – fast track macular clinic *Gradual loss of vision >2 weeks – OO *No sudden change in vision (as above) *Bilateral visual disturbance <2 hours +/- headache – Advice – GP *Mild blurring, watery, GP
EYE PAIN SCALE 1-5	*4-5 Score *No relief from oral analgesia *With nausea/ vomiting	*3-4 Score *Keeping pt awake at night	*Relief with oral analgesia *Photophobia *Post-op <2/52		*FB sensation <2/52	*Irritation with discharge – see GP or advise lubricants *Gritty – see GP or advise lubricants *FB sensation – no hx of FB - GP
HEADACHE	*4-5 Score with ocular symptoms	*Painful scalp *Brow Pain *Painful temples (all with ocular				*Tender temples – NO visual symptoms D/W

		symptoms)				ARC Dr – referral to medics *NO ocular symptoms – GP or OO
LIDS/FACIAL		*New droopy lid/ptosis *Acute Swollen lids (with pyrexia, +/- diplopia, distorted vision) *Pain on ocular movement *III nerve palsy	*Swollen lids (normal vision, apyrexial)		*Puffy lids and red eye <2/52 *Normal vision *Watery <2/52	*Chalazion – Advise steam and see GP *Blepharitis – follow guidelines – self treat or GP. *Allergic (sudden onset) – cold compress
CORNEA/ CONJUNCTIVA	*Cloudy *Red+++ (with pain)	*Hazy *Red++	*Clear cornea *Red around limbus	*Localised redness (not sub-conjunctival haemorrage)	*Red mild to + *Lost contact lens	*>2/52 – advise *Bacterial conjunctivitis – advice first *Sub-conj haem – GP for BP check
OTHER	*Acutely unwell adult with ocular symptoms, swollen lids, pyrexia – SEE IMMEDIATELY	*Feverish Adult *Profuse bleeding post minor- op				*Any patient with symptoms longer than 2 weeks should be referred to OPD unless agreed by consultant or in the urgent/ same session category.
PAEDIATRIC	*Unwell, pyrexial, swollen lids – D/W Dr in ARC - ?Referral to PGH	*Swollen lids - not unwell, apyrexial.				*Any child >1 month dependant on symptoms *?Absent red reflex – GP / refer to OPD
OPTOM REFERRAL		*Hypopyon *Hyphaema *IOP >40mmHg *Papilloedema	*Abnormal pupil with visual symptoms			*IOP up to 40mmHg asymptomatic OPD referral *IOP 30-40 – with symptoms urgent OPD referral *Unequal pupil size No ptosis, No visual loss *Gradual loss

						of vision >2 weeks – OO if OO or GP - Grade *No sudden change in vision (as above) *Asymptomatic pt refer to OPD
POST OP	*Painful ++ *Loss of vision *Profuse bleeding *SEE ABOVE IMMEDIATELY					Post op <6/12 refer to consultant sec. >6/12 GP to refer OPD pt drop query – med secs

Courtesy of Sarah Anderson

	Immediate (including OOH)	Same day (within social hours)	Within 1-2 days	Within 3-7 days	Outpatients/other specialty	MECS or other service as alternative
PAEDIATRICS	• Orbital Cellulitis	Suspected NAI (contact paed oph if not normal exam, on call to see in situ)			Any child with symptoms for >1/12 (dependent on symptoms)	
TRAUMA/ SURGICAL	• Chemical injury • Penetrating injury • Endophthalmitis • Post op (within 3 weeks) reduced vision and pain	• Hyphaema • Hypopyon • Lid laceration • Corneal abrasion (if at all) • Corneal FB				Corneal abrasion
MEDICAL RETINA	CRAO – Central retinal artery occlusion **(WITHIN 8 HOURS)**			• Retinal haemorrhage (with symptom) • CSR (Central Serous Retinopathy)	• Dot haemorrhage • Macular oedema (urgent macular) • New retinal vessels (urgent diabetic eye clinic) • CRVO – Central retinal vein occlusion • BRVO – Branch retinal vein occlusion • Wet AMD (urgent slot) • Occlusion	
OCULO-	• Orbital	• New			• Ectropian	

PLASTICS	cellulitis (ADULTS)	sudden onset ptosis • Lid laceration			• Entropian • Lumps • Ingrowing lashes	
GLAUCOMA	• Acute angle closure glaucoma	• Iris rubeosis • IOP >35 (symptomatic)	• IOP >35 not symptomatic	• IOP 30-35 on Goldman test	• Reaction to glaucoma drops (contact prescribing doctor) • IOP <30	• Ocular pain • Field defect with NO other symptoms
CORNEA/ ANTERIOR SEGMENT	• Corneal graft problems	• Corneal ulcer • Iritis/ Uveitis • AAU • Corneal abrasion (if at all) • Dendric ulcer • Corneal FB	• Marginal ulcer/ keratitis • Shingles **WITH** redness/ pain/ photophobia	• Non-resolving conjunctivitis		• Blepharitis • Ocular pain • Dry eyes • Watery eyes • Red eyes (with **NO** other specific symptoms)
VITREO-RETINAL	• Retinal detachment (macular on)	• Vitreous haemorrhage • Retinal detachment (macular off)	• Retinal hole **WITH** symptoms	• PVD	• Macular hole • Retinal hole (no symptoms) • Flashes and floaters for >1/12	• Flashes and floaters with **NO** field defect
NEURO-LOGICAL	• GCA **AND** vision affected	• Papilloedema • Diplopia (new/ sudden) **AND** visual disturbance • Bell's palsy **WITH** red eye			• Unequael pupils (no ptosis, no visual loss) • Hemianopia – suggest stroke service	• Ocular mograne (e.g. bilateral zigzag lines for 20 min) – suggest primary care • Amaurosis fugax – suggest TIA clinic • Possible GCD no eye symptoms (ambulatory care will do biopsy under acute physicians)

Eye casualty triage (based on patient symptoms e.g. during self-referral)
Adapted by Sarah Anderton 2017, original tool from Wye Valley NHS Trust, Hereford.

	Immediate (including antisocial hours)	Same day (within social hours)	Within 1-2 days	Within 3-7 days	Outpatients/ other service	MECS
PAEDS	• <16-year-old **AND** Pyrexia **AND** swollen lids	• <16-year-old **AND** any symptoms <1/12			• Any child with symptoms or <1/12 (dependent on symptoms)	
TRAUMA	• Chemical injury • Penetrating/ high velocity injury	• Blunt force trauma • Lid laceration • Visible hyphaema • Corneal FB/ Abrasion (if at all)				• Minor eye injury e.g. finger in the eye
VISION	• Sudden complete unilateral visual loss **WITHIN** ,8 hours • Post-op (<2/52) reduced vision & pain	• Flashes and Floaters **WITH** field defects/ curain • Dipoloia (new/sudden) **WITH** headache • Sudden loss of vision (for >12 hrs but < 1 week)	• Visual distortion • Diplopia (new/ sudden)	• Flashers and Floaters >1 week • Increased floaters >1 week	• Gradual loss of vision greater than 4 weeks (see by optician)	• Visual field defects with **NO** other symptoms • Gradual loss of vision >4 weeks
LIDS/ FACIAL		• New/ sudden onset ptosis • Acute swollen lids with decreased vision or pyrexia	• Discharge not clearing after antibiotic drops • Lost contact lens • Periorbital rash with eye pain/ redness/ photophobia		• Inverted/ Everted eye lids • Problems with glaucoma drops (discuss with prescribing team) • Lumps on lids • In growing eyelashes	• Discharge • Lost contact lens
CORNEA/ CONJUNTIVA	• Previous corneal graft **AND** reduced vision/ redness/ pain	• Corneal ulcer • Contact lens wearer and red eye	• Clear cornea **AND** limbal redness		• Watery eyes • Intermittent red eyes	• Intermittent red eyes • Dry eyes

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