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EDITORIAL

Red eye: the role of primary care

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One of the most common eye problems to present to health workers is acute red eye(s). Approximately 40% of all outpatients seen in Bawku, Ghana, and in ten district hospitals in Pakistan, present with red eyes (Figure 1).

While the more serious causes of red eye need prompt recognition and management by an eye specialist, in many cases red eye can be managed at the first point of health care (primary level). If primary health care workers are able to differentiate the various causes of red eye and provide primary level treatment, there are two important advantages:

- Patients are managed quicker and closer to where they live
- Secondary centres will be relieved of treating simple conditions, allowing more time and resources for eye conditions that need the attention of specialists.

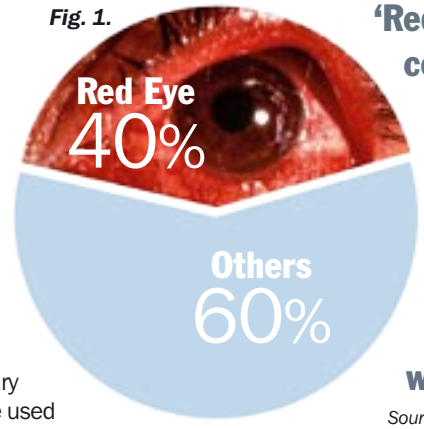
Sue Stevens

Primary health care workers examine a baby. CAMBODIA

This issue of the *Community Eye Health Journal* gives an overview of what the primary level health care worker can do for patients presenting with red eye. We have limited this to non-traumatic causes, as eye injuries will be discussed in a separate issue of the journal later this year.

Isaac Baba's article deals with first aid at the primary level, and Tissa Senaratne and Clare Gilbert provide an overview of conjunctivitis, while Anthony Hall and Bernadetha Shilio give more information about the difficult management of allergic eye disease including practical guidelines on how to recognise and manage vernal keratoconjunctivitis. We also include useful summary diagnostic and management tables and a quiz that can be used for training primary level eye care workers.

Fig. 1.



'Red eye is one of the most common eye problems. In 2004, approximately 40% of all outpatients seen in Bawku Hospital, Ghana, and in ten district hospitals in Pakistan, presented with red eyes'

Source: Bawku Hospital figures: Isaac Baba
Pakistan district hospitals figures: Babar Qureshi

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PRIMARY EYE CARE

The red eye – first aid at the primary level

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The red eye forms a big proportion of the eye problems seen in most eye clinics in developing countries. For example, in the Bawku Hospital eye unit, Ghana, in 2004 a total of 21,391 patients were seen as outpatients, out of which 8,931 were red eyes of one type or another, representing over 40% of the total number of patients screened.

The majority of red eyes are seen at community clinics and health centres, where diagnosis and management are done by community health nurses, primary eye care workers and ophthalmic nurses. It is for this reason that adequate attention should be given to the prevention, early diagnosis and first aid management of these conditions.

The common causes of acute red eye are conjunctivitis and trachoma, corneal ulcer, acute iritis, acute glaucoma and injury (or trauma). Red eye may also be due to the use of harmful traditional medicines for other eye conditions. This article deals mainly with first aid (primary level) management of red eye, which is not due to an injury.

Conjunctivitis

Conjunctivitis affecting all ages

This is the most common cause of red eye. It is usually painless and characterised by pussy or watery discharge. There are different types of conjunctivitis: bacterial conjunctivitis caused by a bacterium e.g. *Staphylococcus* or *Streptococcus*; viral conjunctivitis caused by a virus e.g. herpes simplex; and allergic conjunctivitis caused by allergy e.g. smoke, cosmetics, medicines, etc. The signs vary depending on the cause but include swollen eyelids, red conjunctiva and a watery or pussy discharge. The cornea and pupil are usually normal.

Management

Conjunctivitis normally does not affect vision and is simple to treat. To treat bacterial conjunctivitis, clean the eyes and apply any topical antibiotic. In the absence of any antibiotics, merely cleaning the eyes of discharge regularly will allow the eyes to settle in a few days.

Usually no treatment is required for viral conjunctivitis but an antibiotic ointment can reassure the patient. Viral conjunctivitis may occur in epidemics, affecting many people at the same time. For example, a single school child with this condition could infect half the school in just one day. In cases like this it is better to close down the school for a couple of days to avoid its spread. This condition is popularly known in West Africa as 'Apollo'. The danger is use of harmful traditional medicines, which may make the eye worse.

Allergic conjunctivitis (sometimes called vernal conjunctivitis or vernal keratoconjunctivitis) usually has a long history of intense itching of both eyes. Chronic vernal conjunctivitis gives the child's eyes a dark brown appearance. In very severe cases these children will need topical steroids prescribed by a specialist. Steroid eye preparations can be dangerous and should only be prescribed by an eye specialist.

Conjunctivitis of the newborn

Any eye infection in the first 28 days of life is known as neonatal conjunctivitis or ophthalmia neonatorum. If this is due to *Gonococcus*, it is serious. The eyelids are very swollen and pussy, the conjunctiva is red and may be blood stained, the cornea is usually clear (but a white spot on it could be an ulcer which is serious and needs urgent referral).

Management

Clean the eyes gently with clean water or normal saline and apply tetracycline ointment hourly. If the cornea is involved, refer to an eye centre where the baby will be treated with intensive antibiotic eye drops and, sometimes, systemic antibiotics.

Prevention

All babies should have their eyes cleaned immediately after birth, and tetracycline ointment applied. During antenatal care, all mothers with vaginal infections should be treated. Educate traditional birth attendants, community health workers, and both parents as this is often a sexually transmitted disease.

Corneal ulcer

Corneal ulcers have many causes. They can be caused by infection – bacteria, fungus, virus or acanthamoeba, or malnutrition, as in measles/vitamin A deficiency, which occurs mainly in infants between the ages of six months and two years. Some causes are mainly unilateral whereas others like vitamin A deficiency are often bilateral. The result of a corneal ulcer can be a corneal scar or phthisis bulbi.

A break in the corneal surface is known as a corneal abrasion/erosion/ulcer. For simplicity we will refer to all lesions as ulcers. There are superficial and deep ulcers. The patient will complain of a red painful eye. The eyelids may be swollen, the conjunctiva is red around the cornea, the pupil is normal, and the visual acuity is often reduced. There is often a grey spot or mark on the cornea. The other eye is usually normal. There is a

Continues on page 72 ➤

Differential diagnosis of red eye with no injury

	CONJUNCTIVITIS	CORNEAL ULCER	ACUTE IRITIS	ACUTE GLAUCOMA
Eye	Usually both eyes	Usually one eye	Usually one eye	Usually one eye
Vision	Normal	Usually decreased	Often decreased	Marked decrease
Eye pain	Normal or gritty	Usually painful	Moderate pain, light sensitive	Severe pain (headache and nausea)
Discharge	Sticky or watery	May be sticky	Watering	Watering
Conjunctiva	Generalised (variable) redness	Redness most marked around the cornea	Redness most marked around the cornea	Generalised marked redness
Cornea	Normal	Grey, white spot (fluorescein staining)	Usually clear, (keratitic precipitates may be visible with magnification)	Hazy (due to fluid in the cornea)
Anterior chamber (AC)	Normal	Usually normal (occasionally hypopyon)	Cells will be visible with magnification	Shallow or flat
Pupil size	Normal and round	Normal and round	Small and irregular	Dilated
Pupil response to light	Active	Active	Minimal reaction as already small	Minimal or no reaction
Intraocular pressure (IOP)	Normal (but do not attempt to measure IOP)	Normal (but do not attempt to measure IOP)	Normal	Raised
Useful diagnostic sign / test	Pussy discharge in both eyes	Fluorescein staining of the cornea	Irregular pupil as it dilates with drops	Raised IOP

First aid management of a red eye with no injury

Conjunctivitis

Discharge in both eyes with clear cornea and normal pupil

Treat

Antibiotic ointment x 3/day for 5 days. Advise on hygiene

Corneal ulcer

White spot or mark on the cornea which stains with fluorescein

Refer

Hourly antibiotic drops or ointment

Acute iritis

Small pupil which becomes irregular as it dilates

Refer

Dilate the pupil if possible

Acute glaucoma

Very painful eye with poor vision and dilated pupil

Refer

Oral diamox 500 mg and pilocarpine drops if possible

Both charts: ICEH

special test to identify corneal ulcers: a fluorescein strip is placed just inside the lower eyelid and this will stain and outline any break in the epithelium a green colour. See page 79 for how to do this.

Management

Corneal ulcer is a serious eye problem. Frequent (hourly) antibiotic eye drops should be instilled, an eye pad applied, and the patient referred for help urgently. If the patient is aged one to ten years, Vitamin A 200,000 IU should also be given orally. All corneal ulcers should be managed by an eye specialist as they can easily lead to corneal scarring and blindness.

The specialist will diagnose the cause and manage appropriately. Bacterial ulcers are treated with topical and sub-conjunctival antibiotics. Fungal ulcers are treated with antifungals e.g. natamycin, but are difficult to treat. Viral ulcers are treated with anti-virals e.g. acyclovir. Nutritional ulcers are usually due to Vitamin A deficiency following measles or malnutrition. Treatment involves giving Vitamin A capsules according to age.

Acute iritis

Acute iritis is often of unknown cause. The patient will complain of a red painful eye. There is no discharge but the visual acuity is reduced. The conjunctiva is red but the cornea is clear. The pupil is usually small and may be irregular in shape – this is more obvious as the pupil dilates with treatment.

Management

This is a serious problem. If you can dilate the pupil with a short-acting mydriatic, such as tropicamide, this should be done and refer the patient quickly for help.

Acute glaucoma

This disease is uncommon in people of African origin but more common in people from Asia. In acute glaucoma, the pressure in the eye goes up very quickly. This causes a red very painful eye, with poor visual acuity. The cornea is hazy due to oedema and the pupil is large and does not become small when a bright light is shone into the eye.

Management

This is a very serious and painful disease. The patient must be referred for help immediately. If you have diamox tablets (250 mg each), give two tablets by mouth and one tablet four times a day and refer the patient. Pilocarpine eye drops can be given (if available) to make the pupil small.

Traditional eye medicine

Traditional medicine is as old as man himself. Traditional healers are highly respected members of each community. Many patients who present at an eye clinic in Africa would have had some form of herbs or concoctions applied in his/her eyes before coming to us. This is especially dangerous in children.

Traditional eye treatments can be classified as harmful or harmless. Harmless eye treatments include incantations by traditional healers and use of salt solution, to name a few. Examples of harmful eye medicines include alcohol, ground cowries, donkey and cow dung, herbal preparations, human sputum, bird and lizard faeces, urine, etc. Eye care workers around the world would probably be able to add to this list from their own experience, and these concoctions differ from one culture to another. The preparations put into the eye can cause corneal ulcers or worsen existing ones and end up as scars or eye perforations leading to blindness.

The primary eye worker has an important role to play in preventing blindness from the use of traditional eye treatments. They are often the first point of contact when something goes wrong with the treatment, and they are also close enough to the community to discourage their use. The first step to preventing blindness from traditional eye medicines is to establish trust and respect between health care providers and patients and communities.

It is important to understand the reasons why people use traditional eye treatments, and not to judge them. There is widespread ignorance about the dangers of self-treatment for eye conditions. Many poor patients are put off seeking help from health clinics because of the negative attitudes of some health workers. Socio-cultural beliefs in evil spirits and witchcraft may lead people to think that the best course of action is with spiritual rather than medical healers; for many patients, prescribed eye medicines are considered very expensive. Furthermore, the distance to health facilities result in patients taking help from the nearest source.

Management

Most patients tend to come to hospital when the eye is already damaged. Treatment is with water irrigation, if the traditional medicine was recently applied, and then topical hourly antibiotic eye drops.

Every opportunity should be used to educate people and discourage the use of traditional eye medicine, for example, health education in communities, schools, women's groups and clinics. Refer all patients with eye complications.

Injury (or trauma)

Traumatic injuries form about 10% of all red eyes. These injuries may cause irreversible damage to the eye leading to blindness. Many of these would need immediate referral to a secondary or tertiary eye care facility. First aid management of red eye with injury at the primary level will be covered in a future issue of the journal, and so is not included here.

Sources

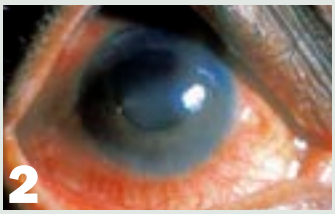
Sutter E, Foster A, and Francis V. Hanyane: A village struggles for eye health, Part 2: Common eye diseases for village health workers. Part 3: Lecture notes on common eye diseases for ophthalmic assistants. London: International Centre for Eye Health. 1989.

Red Eye Picture Quiz

What is wrong with these eyes? What is the management?

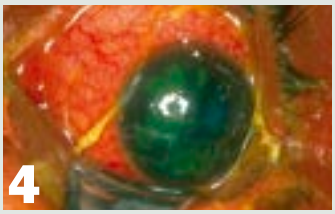
Quiz by David Yorston and Marcia Zondervan

A 14-year-old boy. Complains of itching eyes for three years with sticky clear discharge. VA 6/6.



45-year-old female. Complains of painful eye and discomfort in bright light with watery discharge. VA 6/12.

Five-year-old girl. Severe pain and loss of vision for three days. Used traditional eye medicines one week ago. VA CF.



Six-year-old male. Painful eye for ten days. Had malaria one month ago. Corneal sensation reduced when tested. VA 6/60.

25-year-old woman. No pain or discharge. Complained of red eye since this morning. VA 6/6.

19-year-old male. Complains of gritty foreign body sensation, painful eye for three days with sticky yellowish discharge. VA 6/9.

Answers on page 78

Conjunctivitis

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The conjunctiva is a thin, transparent mucous membrane, which lines the inner surface of the eyelids and covers the sclera (the white part of the eye). The conjunctiva contains glands which produce secretions that help to keep the eyes moist, and antibodies, which reduce infection.

Conjunctivitis means 'inflammation of the conjunctiva', and the commonest cause is infection by viruses or bacteria. Conjunctivitis can also be due to chemical irritants, traditional eye remedies or allergy. It is usual for both eyes to be affected in infectious cases. The patient notices that the eyes are red and uncomfortable, and there is discharge which may make the eyelids stick together in the morning. The vision is usually not affected. On examination the eyelids may be slightly swollen, the eyes are red, and there may be some visible discharge. The cornea should be bright, and the pupils should be round, regular and react to light. Conjunctivitis due to infection occurs at all ages, but some of the less common causes affect particular age groups (Table 1). There is one form of conjunctivitis which can be sight threatening – that due to gonococcal infection.

Table 1. Causes of conjunctivitis, and who is primarily affected

Cause of conjunctivitis	Newborn babies	Children	Adults
Viral infection	Uncommon	Usually affects both eyes	Usually affects both eyes
Bacterial infection	May be severe and sight threatening	May affect one or both eyes. May be severe and sight threatening	May affect one or both eyes. May be severe and sight threatening
Chlamydia	Can cause conjunctivitis of the newborn	Causes trachoma, which usually affects both eyes	Usually affects both eyes
Allergy	Uncommon	Usually affects both eyes	Uncommon
Chemical irritants/ traditional eye remedies	Uncommon	Can affect one or both eyes	Can affect one or both eyes

Viral conjunctivitis

Several different viruses can cause conjunctivitis. Some, such as entero- and adenoviruses, can spread rapidly through communities leading to epidemics of conjunctivitis (e.g. Apollo red eye), while others primarily cause skin infections (molluscum contagiosum, herpes infection), and the eye can be infected if the eyelids are involved.

Entero- or adenoviral conjunctivitis

This is an epidemic form of conjunctivitis which almost always affects both eyes. The patient may complain of a foreign body sensation, with watering, discharge, redness, and swelling of the lids. They may also complain of the eyes being sensitive to light, with blurred vision. The eyes appear red, with discharge, but the cornea and pupil are usually normal. In severe cases there may be small haemorrhages in the conjunctiva. The patient may also complain of upper respiratory tract symptoms and other generalized symptoms (sore throat, fever and headache). The eye infection lasts 7-14 days, and usually gets better on its own. The condition is very contagious: health workers should wash their hands after examining a patient and disinfect the instruments they have used.

Treatment: There is no specific treatment for viral conjunctivitis, and the condition gets better on its own. Antibiotic eye drops prevent secondary infection from bacteria, and tetracycline eye ointment can be soothing. Topical steroid eye drops should never be given for conjunctivitis due to infection.

Health education: The patient should be told that the condition is very infectious, that they should not share face towels, and should wash their hands regularly. In parts of the world where traditional eye remedies are commonly used, the patient should be advised not to use traditional remedies and needs to be told that the infection will get better.

Molluscum contagiosum conjunctivitis

The virus that causes the skin infection known as molluscum contagiosum can also infect the eye, if the molluscum is on the eyelid. The patient (usually a child) presents with a single or multiple eyelid lesions, which are small, round, waxy, whitish, umbilicated nodules on the eyelid. The affected eye will be red, with some discharge. Patients with HIV/AIDS can have multiple lesions (Figure 1).

Continues over page ➤

Ben Naafs

Fig 1. **Patients with HIV/AIDS can have multiple lesions caused by molluscum contagiosum**

Treatment: This condition does not get better on its own, and the treatment consists of removing the lid lesion, with a curette or other blunt instrument.
Health education: Mothers and adult patients can be shown how to remove the skin lesions.

Herpes simplex blepharo-conjunctivitis

Again, this condition is more common in children. The child presents with fluid filled vesicles on the skin around one eye, and a red, sore eye which may be sensitive to light. The treatment is topical antiviral eye drops or ointment (e.g. idoxuridine, acyclovir).
Health education: Steroid eye drops should never be used as they make the infection much worse.

Bacterial conjunctivitis

Acute conjunctivitis

Conjunctivitis due to bacteria differs from infection due to viruses, as it is more likely to affect only one eye, and the amount of discharge and lid swelling is usually greater. The patient complains of irritation, a foreign body sensation, and the eyelids are stuck together in the mornings.
Treatment: Broad-spectrum topical antibiotic such as tetracycline eye ointment.

Conjunctivitis due to Gonococcus

Certain groups of individuals are at risk of a very severe form of bacterial conjunctivitis due to the *Gonococcus* organism (which causes gonorrhea): i) newborn babies, who acquire the infection during delivery; ii) adults, who acquire the infection during sexual activity; and iii) individuals of any age who have used urine infected with *Gonococcus* as a traditional remedy. Taking a history is, therefore, very important.

Infection with *Gonococcus* should be suspected in any age group (including babies) if the eyelids are very swollen, if the discharge is thick and profuse, and if the cornea is ulcerated or perforated (Figure 2).

Pak Sang Lee

Fig. 2. **Baby suffering from conjuntivitis due to *Gonococcus***

Treatment of babies: Clean the eyelids, and show the mother how to do this. Gently open the eyes, and instill tetracycline eye ointment, or other antibiotic eye ointment, showing the mother how to do this. Make sure she can instill the ointment, give her a tube of tetracycline (or other antibiotic), and tell her to put it in both eyes every hour. Tell the mother that this is a very serious infection, and that she and her baby should go urgently to an eye department as she and her baby need an injection of antibiotic.
Treatment of adults: Prescribe antibiotic eye drops or ointment, and tell the patient to use the treatment hourly. They should be told that the infection is serious, and that they should go to an eye department.
Health education: If a newborn baby has conjunctivitis and *Gonococcus* is suspected, the mother should take her baby to an eye clinic immediately for treatment. She should also should be treated as well as her husband/partner. Communities should be warned of the potential dangers of traditional eye remedies, particularly urine, which may have come from someone with gonorrhea.

Chronic bacterial conjunctivitis

Bacterial infection of the eyelid margins can lead to chronic conjunctivitis. The patient complains of sore eyelids and sore eyes with little discharge. On examination, the eyelid margins are thickened, slightly inflamed and crusty. The eyes themselves may look normal or slightly red.
Treatment: As the source of the conjunctivitis is infection of the eyelids, treatment is aimed at the eyelids and consists of tetracycline eye ointment applied to the lid margins three times a day, after cleaning the lid margins to remove the crusts.

Chlamydial conjunctivitis

Chlamydia are organisms which have some characteristics of viruses and some of bacteria. They can cause conjunctivitis in three groups of individuals: i) newborn babies, who acquire the infection during delivery; ii) children, who develop trachoma; and iii) young adults, who acquire the infection during sexual activity.

Neonatal chlamydial conjunctivitis

The infection starts a few days after birth, and the mother notices that the eyelids are swollen and there is discharge. The baby may also have chlamydial infection of the lungs, ears and nose.
Treatment: Clean the eyelids, and instill tetracycline eye ointment. Show the mother how to do this and tell her to instill the ointment four times a day. The baby should also have a course of oral erythromycin to clear the infection from other parts of the body.

Trachoma

Trachoma infection principally affects children. The child may not complain of symptoms or may have some discomfort and discharge. On examination, the upper eyelids may be slightly swollen and drooping, and the eyes will be slightly red, with some discharge. The diagnosis is confirmed by everting the upper eyelid and examining the conjunctiva over the tarsal plate. Evert the lid by i) ask the child to look down; ii) get hold of the lashes of the upper eyelid; iii) place a narrow object, such as a matchstick 2-3 mm above the lid margin, holding it parallel to the lid margin; iv) fold the eyelid upwards, against the matchstick. The eyelid will then evert.

Active infection causes two eye signs: trachoma with follicles 'TF' (Figure 3), and trachoma with intense inflammation 'TI' (Figure 4).

ICEH

Fig 3. Trachoma TF. **There are at least five follicles (small, whitish spots) on the everted eye lid, which are at least 1 mm across**

ICEH

Fig 4. Trachoma TI. **Very active infection when at least half of the blood vessels of the conjunctiva on the upper eyelid cannot be seen because the conjunctiva is so thickened and inflamed**

Treatment: The child should be treated either with topical tetracycline eye ointment, three times a day for six weeks, or they should be given a dose of azithromycin 20 mg per kg body weight.
Health education: Trachoma is a community disease which affects disadvantaged households. Seeing a child with trachoma almost certainly means that there are other children from the same community who are infected, and there are likely to be adults requiring lid surgery. Health education should focus on the SAFE strategy (see *Community Eye Health Journal* Issue 52, 2004).

Allergic conjunctivitis

There are two forms: an acute form and a chronic form.

Acute allergic conjunctivitis

The adult or child develops sudden and severe itching of the eyes and eyelids as a result of coming into contact with something the person is allergic to (e.g. pollen, cats). The eyelids and conjunctiva become markedly swollen and there is profuse watering of the eyes, which usually do not become red. The condition gets better on its own very quickly.
Health education: The person needs to try and find out what led to the reaction (e.g. eating certain food; sitting under a particular tree) and try to avoid this in the future. They should be told not to rub their eyes, as this makes the condition worse.

Chronic allergic conjunctivitis (vernal keratoconjunctivitis)

The cause of vernal keratoconjunctivitis is not known, but it is often associated with asthma or eczema and is probably due to a longstanding allergic reaction. The condition usually starts between the ages of three and 25 years, and the patient complains of chronic itching, a thick, clear, stringy discharge, light sensitivity, blurred vision and discoloration of the eyes. The diagnosis is made by everting the eyelids when large, flat 'papillae' become visible (Figure 5).
Treatment: Treatment is not easy at the primary level, and if the symptoms are severe, or the cornea looks hazy, the management is referral to an eye department (see pages 76-78).

Tissa Senaratne

Fig 5. **Eversion of the upper tarsus shows marked conjunctival papillae in vernal keratoconjunctivitis**

Chemical conjunctivitis

Many different substances put in the eyes can cause chemical reactions (e.g. traditional remedies, reaction to the preservatives in eye drops). The findings are similar to that seen in viral conjunctivitis, and so the history is important.
Treatment: The person should be told to stop instilling the substance that has caused the reaction. Tetracycline eye ointment can be soothing and will prevent secondary bacterial infection.
Health education: People should not instill anything in their eyes that has not been prescribed for them, and they should throw away eye drops after the bottle has been open for one month or more.

'Conjunctivitis is common, but is only rarely sight threatening'

Equipment needed at the primary level to diagnose and manage conjunctivitis

- Visual acuity chart
- Torch
- Clean swabs for cleaning eyes
- Tetracycline eye ointment
- Povidone iodine eye drops

Summary

Conjunctivitis is common but is only rarely sight threatening. However, accurate diagnosis and prompt treatment at the primary level is very important as it instills confidence in the community, and reduces the risk that people may first try traditional remedies, which can, and do, lead to blindness.

Table 2. Clinical features of conjunctivitis, by cause

Cause of conjunctivitis	Unilateral (U) or bilateral (B)	Discharge	Redness	Other symptoms or signs	Treatment
Viral, epidemic form	B	Watery	+++, +/- conj. haemorrhage	Fever, sore throat	Tetracycline eye ointment; povidone iodine eye drops
Viral – herpes	U	Watery	+/-	Vesicles on the eyelid	Topical antiviral
Viral – molluscum	U	Watery	+/-	Molluscum on lid	Remove molluscum
Bacterial – non-gonococcal	U or B	Purulent ++	+++	None	Tetracycline eye ointment or other antibiotic
Bacterial – gonococcal	B	Purulent +++++	++++	Marked lid swelling. May have corneal ulcer	Frequent antibiotic REFER
Chlamydia – babies	B	Purulent ++	++	Lid swelling	Tetracycline eye ointment
Chlamydia – trachoma	B	Purulent +	+	Signs on everted upper lid	Tetracycline eye ointment, or azithromyin
Chlamydia – adults	U or B	Purulent +	+	None	Tetracycline eye ointment
Allergy – acute	B	Watery ++++	Minimal	Marked swelling of lids and conjunctiva	None – reassure
Allergy – chronic	B	Thick and stringy	+	Signs on everted upper lid. Discoloration of eye	Tetracycline eye ointment to eye lids – REFER
Chemical	U or B	Watery / purulent	Varies	May be lid reactions	Tetracycline eye ointment

Vernal keratoconjunctivitis


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Why is allergic eye disease a problem for eye workers?

Why is allergic eye disease, and vernal keratoconjunctivitis (VKC) in particular, a problem for eye workers and patients in hot climates?

A large number of children are affected
Over a quarter of 2,250 children seen at a tertiary referral paediatric eye clinic in East Africa had vernal keratoconjunctivitis. Even more came flocking to screening clinics complaining of itchy eyes.

This is time consuming and frustrating
Typically a child seen with VKC is given one bottle of a mast cell stabiliser and is seen again a few months later apparently no better. Alternatively steroids are used, without a mast cell stabiliser and no counselling about the disease. Quite often children move from one clinic to another picking up another bottle of steroids when the symptoms become unbearable. Both patient and clinicians are frustrated. Over 50% of patients may still have symptoms after five years.[1]

Patients may be blinded by the disease (Figure 4)
Up to 10% of patients develop corneal ulcers, which may lead to visual loss due to corneal changes. The figure may be higher in hotter climates. Other patients will have visual impairment due to glaucoma and cataract[2] or extensive cornea pannus (Figure 2 and Figure 6).

How can this frustrating situation be improved?

1 By recognising the features of the disease, particularly potentially blinding complications.
2 Ensuring that these patients get adequate continuous treatment through good patient education and regular, long-term follow-up.

Recognising the disease: clinical features

VKC is a bilateral chronic inflammation of the conjunctiva. It is more common in young boys. The disease affects children between three to 16 years of age though it may appear earlier than that and continue into adulthood (Figure 1). In the majority of cases, symptoms resolve at puberty. Although the name vernal suggests a seasonal spring time occurrence, frequently the disease persists throughout the year.

Symptoms
Symptoms include intense itching, irritation, photophobia (sensitivity to light) and burning. The itching is worse with exposure to wind, dust, bright light and hot weather. Some patients complain of a sticky, stringy mucous discharge. Corneal involvement leads to complaints of reduced vision.

Signs
In order to elicit the signs, patients should be examined using a slit lamp or magnifying loupes. The use of fluorescein will help to identify sight threatening corneal involvement. The disease is characterised by giant papillae. In the palpebral form, giant, flat-topped papillae of the upper tarsal conjunctiva lead to a clinical picture of 'cobblestones'. Corneal involvement has been reported in as many as 50% of the patients with the palpebral type of the disease. Corneal involvement may range from superficial punctate keratopathy to shield-like ulcers.[2] These may heal leaving a vascularised scar.

The limbal form is more common in dark-skinned races and females. It is characterised by conjunctival hyperaemia and papillae at the corneal-scleral (limbal) border and Trantas' dots. The latter are aggregates of epithelial cells and eosinophils. A gelatinous pannus may


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Fig.1. Adult with long standing severe vernal keratoconjunctivitis (VKC)

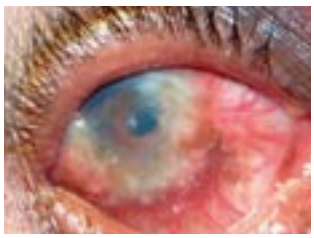
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Fig.2. Right eye of patient in figure 1
Note the dilated, injected conjunctival vessels, Trantas' dots, and corneal scarring and vascularisation. The white tissue in the nasal portion of the pupil is posterior capsule opacification, following cataract surgery.

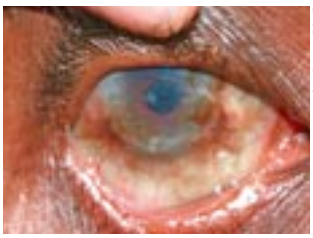
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Fig.3. Right eye of patient in figure 1
One week after supratarsal triamcinalone injection: the eye is quiet and comfortable with resolution of all signs of inflammation.

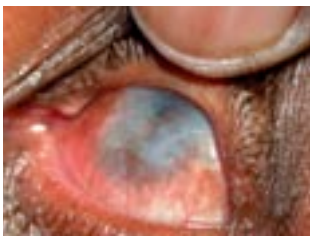
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Fig.4. Left eye of patient in figure 1
Blinding VKC corneal scarring and vascularisation.

invade the cornea (Figure 6). Neovascularisation of the cornea may follow (Figure 4). Conjunctival changes include hyperpigmentation (Figure 2), subconjunctival fibrosis, keratinisation and symblepharon.

Visual impairment is more pronounced in cases with shield ulcers and corneal plaques. The clinician also needs to be constantly on the lookout for the other major complications of cataract and glaucoma especially with prolonged steroid use.

Providing adequate continuous treatment

Counselling

Once the severity of the disease has been characterised, a treatment plan is devised.

We examine and counsel the many children coming to the free district eye clinics in groups. Those with no signs of allergic eye disease are given advice on frequent face washing and cold compresses. They should not be given a bottle of steroid or chromoglycate drops, tempting as this might be. Unnecessary drops can make the situation worse (Figure 7).

Children with signs of allergic eye disease and those presenting to the tertiary referral centre who tend to have more severe disease are examined in more detail and counselled individually. Individual counselling, backed up by patient information leaflets, is critical in breaking the cycle of inadequate treatment and resulting frustration.

Counselling stresses the chronic nature of the disease, that sodium chromoglycate drops take time to work and need to be continued once the child feels better. Children getting steroid drops are told to use these frequently initially. The need to use these for only a short period of time in order to avoid complications is explained. The majority of children and parents respond well to this counselling. As a result, many patients return for review before drops have run out and the symptoms and signs worsened. The use of a dedicated counsellor will save the busy clinician valuable time.

Drug treatment

Treatment is symptomatic and tailored to the severity of the disease.

Those with milder symptoms and no corneal involvement may be given mast cell stabilisers such as sodium chromoglycate or newer agents such as alomide and nedocromil. (If you have access to a low-cost drop manufacturer you can ask for 4% sodium chromoglycate for more severe cases). Topical antihistamines are effective as well.

The mast cell stabilisers must be used regularly three to four times daily, even when there are no symptoms in order to stabilise the mast cells and prevent the release of histamine. They are of no value when used only when symptoms occur because their effect is not immediate. If well used, they can limit or stop the use of steroid drops. They do not have any of the side effects of steroids and can therefore be used for a prolonged period.

Those presenting with corneal involvement and more severe disease should be managed at secondary and tertiary level where they may be given topical steroid drops (e.g. prednisolone, dexamethasone), the most effective available topical medication for severe vernal keratoconjunctivitis. A mast cell stabiliser should be started when the steroids are started. Steroids should be used frequently initially and then tapered to a stop once the acute stage of the disease is stabilised (usually a few weeks). Their use requires monitoring because of the possible effect on intraocular pressure.

Those not responding to conventional treatment may be given supratarsal injection of steroids[4] by an eye specialist (Figure 5). Both long-acting steroids such as triamcinalone and shorter-acting steroids (dexamethasone) have been found to be effective in bringing about resolution of the eye signs. Some studies suggest that the recurrence rate of the disease is lower following the use of longer-acting steroids like triamcinolone. Theoretically there is an increased risk of persistent elevation of intraocular pressure with the longer acting steroids. In children, these injections often need to be administered under general anaesthesia. However, with good use of local anaesthesia and careful counselling, children as young as 12 may be safely injected without recourse to general anaesthesia (Figures 8 - 10).

Cyclosporine A drops (0.5-2%) in olive oil or castor oil four times a day are an effective alternative to steroids in severe VKC, if available.[5]

Cryotherapy of the palpebral conjunctiva may produce additional inflammation with little benefit.[2]

Debridement of early mucus plaques may speed repair of the persistent epithelial defects. Bandage contact lenses are helpful in the treatment of these defects.

Supportive therapy like artificial tears, cold compresses and sunglasses often help and are commonly overlooked.

Drug allergies

Allergic reaction in the conjunctiva can be provoked by a drug or its preservative. Common drugs include neomycin and gentamicin. These are common in postoperative drops. When examined, the conjunctiva and the lower eyelids will be swollen. The skin may be excoriated. The first measure in the management is to stop using the allergen. Topical steroids may also be used to relieve the symptoms. Far too often the offending drug has been given for a minor symptom because the patient expects drops. This often does more harm than good (Figure 7).

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Fig.5. Technique of supratarsal injection
Note the needle is parallel to the superior tarsal border – entering from the temporal side.

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Fig.6. Child with severe limbal VKC
Note the marked conjunctival hyperaemia, Trantas' dots and invasion of cornea by thickened gelatinous pannus.

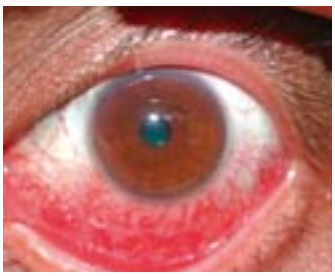

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Fig. 7. Drug induced allergic conjunctivitis
This man was seen at a health centre complaining of itchy dry eyes. He was given gentamicin and prednisolone drops which he used continuously for three weeks. He came to us complaining that the eyes were now red and sore and felt worse when the drops were put in. Note the conjunctival hyperaeminia in the lower half of the eye. The upper half is white and quiet.

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Before

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Fig. 8.

After

Anthony Hall

Fig. 9.

Anthony Hall

Fig. 10.

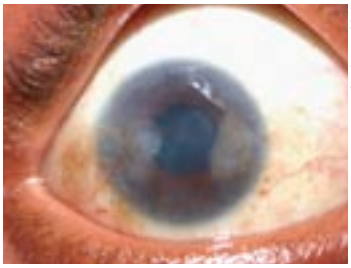

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Fig. 11.

Fig. 8.
13 year old girl with predominantly unilateral severe limbal vernal keratoconjunctivitis. Note the lid swelling, increased skin pigmentation around the lid and the injected conjunctiva. The eye is watering and she looks uncomfortable. The other eye appears by to be relatively normal by comparison.

Fig. 9.
This is the same girl as in Figure 8 one month after supratarsal subconjunctival triamcinalone under local anaesthetic drops. She is happy and relaxed. The lid swelling has gone. She can now open her eye which is white and quiet. Her left eye which appeared to be relatively normal before, evidently has moderate vernal keratoconjuctivitis too. The lids are a little swollen and the limbal conjunctiva is injected and thickened. She is so pleased with the response in her right eye she is requesting an injection for her left eye.

Fig. 10.
Child with severe limbal VKC. This is a close up of the right eye of the girl in Figure 8. Note the marked conjunctival hyperaemia, Trantas' dots and invasion of cornea by thickened gelatinous pannus.

Fig. 11.
Right eye of child in Figures 8 and 9 one month after supratarsal subconjunctival triamcinalone under local anaesthetic drops. Note that the conjunctiva hyperaemia has gone. The thickened vascularised gelatinous pannus has resolved leaving a mildly pigmented flat scar. The vascular pannus accompanying the pannus has resolved apart from the one larger nasal feeder vessel. Visual acuity had improved from 6/18 to 6/6.

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Acknowledgments

The authors are grateful to Dr Amos Kibata for helpful comments on a draft of this manuscript. Dr Debbie Carmichael set up the protocols for effective management of VKC at KCMC and prepared a patient information leaflet.

Red Eye Picture Quiz *From page 72*

ANSWERS

A 14-year-old boy. Complains of itching eyes for three years with sticky clear discharge. VA 6/6.

Vernal keratoconjunctivitis (Vernal catarrh)
The lumpy appearance of the conjunctiva is caused by swelling of the conjunctiva due to the chronic inflammation. In most cases allergic conjunctivitis will improve in adulthood and does not require intensive treatment. Topical steroids should only be used during acute attacks if there is evidence of corneal damage.

45-year-old female. Complains of painful eye and discomfort in bright light with watery discharge. VA 6/12.

Acute anterior uveitis
Photophobia is typical in these patients as the pupil's constriction in the response to light causes pain. The redness is maximum near the limbus (ciliary injection) and the pupil is irregular where it is stuck to the front of the lens. Acute anterior uveitis should be managed with atropine to keep the pupil dilated. Topical steroids may be useful in severe cases.

Five-year-old girl. Severe pain and loss of vision for three days. Used traditional eye medicines one week ago. VA CF.

Suppurative keratitis
The eye is very red and the iris cannot be seen clearly which suggests the cornea is cloudy. This eye requires hourly topical antibiotics. If facilities are available then a cornea scraping and gram stain should be performed before starting topical treatment. In some regions fungi are a common case of corneal ulcer and anti-fungal treatment will be required. The white line inferiorly is a hypopyon caused by pus formation in the anterior chamber. It indicates severe inflammation. Traditional eye medicines are not sterile and may cause severe infections.

Six-year-old male. Painful eye for ten days. Had malaria one month ago. Corneal sensation reduced when tested. VA 6/60.

Herpes simplex keratitis
Not all cases of herpetic simplex keratitis present with a typical dendritic/geographic ulcer. A useful sign of herpes is reduced sensitivity of the cornea. This is thought to be due to damage to the sensory nerves. Herpes keratitis is sometimes associated with febrile illness. Herpes keratitis is managed with a topical antiviral such as acyclovir or trifluorothymidine.

25-year-old woman. No pain or discharge complained of red eye since this morning. VA 6/6.

Sub-conjunctival haemorrhage
The lack of pain and discharge imply that there is no inflammation. The very sharply defined edge is typical of a sub-conjunctival haemorrhage. No treatment is required and redness will clear over a course of 2 weeks.

19-year-old male. Complains of gritty foreign body sensation, painful eye for three days with sticky yellowish discharge, VA 6/9.

Bacterial conjunctivitis
The entire conjunctiva is red and eye is discharging pus on the lower lid and on the eyelashes. This should be treated with intensive topical antibiotics for one week. In very severe cases, particularly in young men, you should consider doing a gram stain to look for *Gonococcus*, and you should ask specifically about symptoms of urethritis.

HOW TO...

Ophthalmic practice

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Eye health workers carry out many basic routine procedures. Sometimes bad practice develops and this, in turn, may lead to new members of staff learning unsafe methods. *Community Eye Health Journal* plans to run a series on practical procedures, when applicable, relating to the theme.

How to instil eye drops

Indications
- To aid examination – e.g., dilating the pupil
- To aid diagnosis – e.g., staining the cornea
- To treat eye conditions – e.g., antibiotic drops.

You will need
- Clean swab or paper tissue
- Prescribed eye drops – these are available in several types of container.

Preparation
- Check that the drops are not date–expired
- Check the patient's name and eye drops label against the prescription.

Method
- Remove the cap from the bottle (or the pipette from the bottle)
  If the fluid is discoloured, do not use!
- Ask the patient to look up
- With the index finger of one hand take a folded swab or paper tissue to **gently** hold down the lower eyelid
  Do not make the eyelid turn out too much as instilled drops may fall out on to the cheek.
- With the bottle or pipette held in the other hand, between thumb and index finger, rest the side of the hand against the patient's forehead above the affected eye
- With the dropper about five centimetres above the eye, squeeze the bottle or pipette rubber and allow one or two drops to fall inside the central part of the lower eyelid
  Do not allow the drop to fall on to the cornea as this can be painful and may alarm the patient and cause loss of confidence.

  Do not allow the bottle or pipette to touch the eyelid skin or eye lashes as it will cease to be sterile and need to be discarded.
- Ask the patient to close the eye and wipe away any surplus fluid.

Finally
- Secure the bottle top.

Pak Sang Lee

How to apply eye ointment

Indications
- To treat a superficial corneal injury with antibiotic
- To deliver longer acting topical medication e.g.
  – in the case of a child
  – overnight, following medication by drop instillation during daytime
  – when an eye needs to be padded for long periods.

You will need
- Clean swab or paper tissue
- Prescribed eye ointment – produced in varying sizes and colours of tube.

Preparation
- Check that the ointment is not date–expired
  This is not always easy to read on the actual tube so be careful to take time to do this. Some tubes also come in a box where the expiry date is easier to read.
- Check the patient's name and eye ointment against the prescription
- Remove cap from nozzle
- Ask the patient to look up.

Method
- With the index finger of one hand take a folded swab or tissue to gently hold down the lower eyelid
- With the other hand take the tube of ointment and direct the nozzle towards the inner canthus
- Squeeze tube slowly to allow about one centimetre to emerge in a thin line along the inside of the lower eyelid. (Rather like putting toothpaste on a toothbrush!)
  Do not touch the eye with the tube nozzle!

  Do not touch the eyelid skin or eyelashes with the tube nozzle – it will cease to be sterile and need to be discarded.
- Wipe away any surplus ointment which may emerge when the patient closes the eye.

Finally
- Secure the nozzle cap.

Pak Sang Lee

How to stain the cornea

Indications
- To assess corneal epithelial damage, following trauma or in patients with 'dry eye' problems, using diagnostic drops, e.g., Fluorescein 2% or Rose Bengal 1%.

You will need
- Fluorescein 2% or Rose Bengal 1% – diagnostic drops or impregnated paper strips
- Normal saline drops
- Local anaesthetic drops
- Clean cotton wool or gauze swabs
- Torch or slit lamp (depending on availability/skill level) for illumination.

Preparation
- Explain to the patient that he/she will experience a cold stinging sensation when the drops are instilled.

Method

- Ask the patient to look up
- Instil the diagnostic Fluorescein or Rose Bengal drops or use the paper strips.
  When using the strips, moisten with a small amount of normal saline or anaesthetic drop, taking care not to touch the end of the strip (impregnated with the dye) with the dropper.
- Ask the patient to look up and gently touch the inside of the lower eyelid with the moistened strip, taking care not to touch the cornea
- Ask the patient to close the eye, gently wipe away any surplus fluid and wait about 30 seconds
- Using a torch or slit lamp with the appropriate colour light (blue light, if using Fluorescein, and white light, if using Rose Bengal), examine the corneal surface, note any staining and record in patient's documentation.

Fluorescein stains **green** indicating corneal epithelial loss.

Rose Bengal stains **red** indicating dead tissue and mucus filaments.

Murray McGavin (2)

Barriers to the uptake of cataract surgery for women in urban Cape Town

Aditi Shah
University of Birmingham Medical School, UK.

Groote Schuur Hospital (GSH) is a mainly state-funded hospital in the southern suburbs of Cape Town, South Africa. The majority of patients presenting to the Department of Ophthalmology cannot afford private medical care.

According to the most recent WHO data on blindness, women are 1.5 to 2.2 times more likely to be blind than men (WHO Bulletin Nov 2004). In 2004, a qualitative study was conducted in the Department of Ophthalmology to identify and understand the barriers that women face in accessing cataract surgery in and around Cape Town. Eighteen female cataract patients (14 pre-operative and four post-operative) were interviewed. Two focus groups were conducted, one with doctors and the other with nurses. Interviews with healthcare professionals and paramedical staff were also performed.

The study identified ten major barriers (Figure 1). Whilst the barriers were applicable to both men and women, they were often exacerbated for women.

Transport was identified as a major problem by both health care professionals and women. Whilst the State paid for cataract surgery, the socio-economic costs of surgery such as taking time off work and leaving daily responsibilities, acted as important barriers for women as well as their carers.

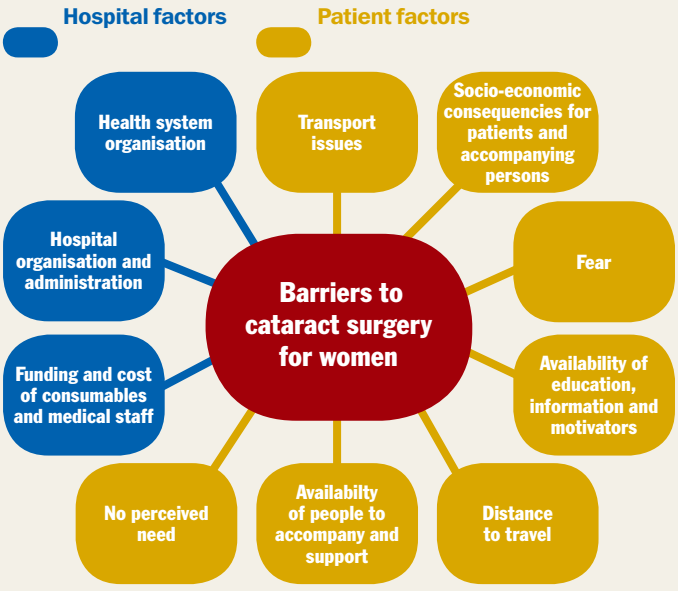
Stated barriers for women at the individual level included fear and lack of education. However healthcare professionals felt that barriers at the institutional and organisational level were more significant. These included availability of funding and the cost of consumables, medical staff and equipment, hospital organisation and administration (waiting times in the day hospitals, patient pathway at GSH, waiting lists for surgery) and health system organisation (lack of resources to conduct cataract surgery at the secondary district level hospitals so the tertiary level was saturated with cataract patients).

Strategies needed to overcome the barriers include:

- Community education
- Increasing the capacity for cataract surgery
- Fast-tracking patients to reduce waiting lists
- Decentralisation of ophthalmic care
- Increased Government and NGO funding for staff and resources
- Intersectoral collaboration (government, NGOs and corporate organisations).

Before these strategies can be implemented, increased resources and funding for the hospital and health-system are needed to increase the capacity for cataract surgery.

Fig. 1. Barriers preventing women from accessing cataract surgery in Urban Cape Town, South Africa



Enhancing the SAFE strategy through collaboration, participation, accountability and sustainability

William Astle, Boateng Wiafe, April Ingram, Mike Mwanga, Colin Glassco
Alberta Children's Hospital, Canada in collaboration with Lusaka Eye Hospital, Zambia.

The purpose of our project was to determine the prevalence of trachoma, and to measure the impact of implementing the SAFE strategy for controlling trachoma in the Gwembe District of southern Zambia. Implementation of the strategy was enhanced by ensuring local input and cooperation at every stage of development. Direct involvement at the village, community and government levels strengthened the commitment to the project, thereby promoting accountability and responsibility for its success.

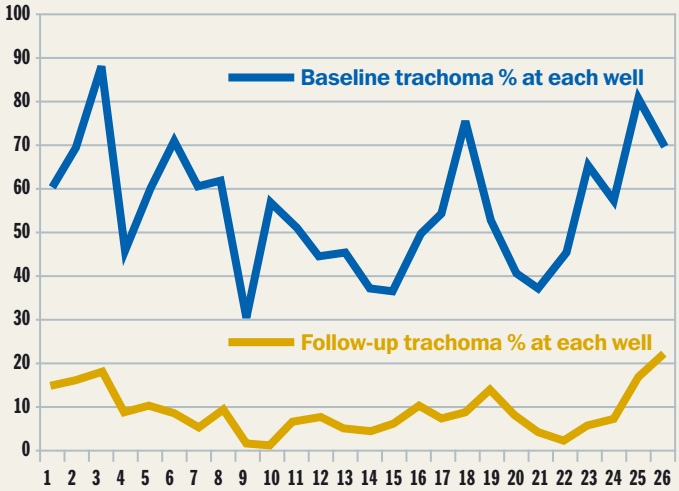
New, clean water wells were drilled under local supervision for each identified village. All levels of government were aware of the project and approved each well and drilling location. All people living near the wells were screened for trachoma, and then treated with antibiotic if required. Education on personal and environmental hygiene was provided by trained volunteers. Patients affected by significant trichiasis and corneal scarring received surgery, locally if possible. Attempts were made to control fly populations by cleaning villages, penning livestock and digging latrines; this was done in consultation with local villagers and government officials. Data was collected on all variables normally associated with trachoma as well as variables relating to demographics, water quality, environment and hygiene.

In total, 26 wells throughout the valley were drilled. While the total population of the valley area is approximately 60,000 people in an area of 3,600 km^2, the total sample population totalled 3,892 people, with 54% under 16 years of age. The overall prevalence of trachoma in the area was 45% in 2001; however, prevalence was 52% within the subset of children under 16 years. Two years of intervention has reduced the overall prevalence of trachoma to 6.5%, representing 9% in the child subset, and 3.8% among adults. The drop in prevalence is likely to be due to the interventions but there could also be other explanations.

Problems identified from baseline were: lack of water wells close to the communities; poor personal and environmental hygiene; and lack of awareness of the potential dangers of trachoma infection. It is common in trachoma projects to encounter a high number of patients who do not return for follow-up, yet we had only 4% lost to follow-up in our study, due to the diligence of our staff. This loss percentage is considered quite low in studies of this magnitude.

Continued monitoring will be required for long-term sustainability of our trachoma control project in this area of Zambia. While it is possible to control trachoma if the appropriate risk factors are addressed, an approach including collaboration and active participation at both local and federal levels will increase the long-term success of such a project.

Trachoma prevalence in southern Zambia



Corneal ulcer in a Cambodian eye hospital

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Traumatic corneal ulcer is an important cause of bilateral and monocular blindness in the developing world, with estimates of 5% of all blindness being trauma related. Cambodia is likely the poorest country in South East Asia with no national survey of blindness aetiology, although surveys were carried out in the provinces Kandal (1996) and Battambang (1997). Most Cambodians are rice farmers and agricultural work-related corneal trauma is a neglected area of research. This retrospective case-series study in Takeo Eye Hospital in southern Cambodia looked at sex, age, history, surgery and comparative visual acuity of affected eyes between presentation and discharge of 130 patients with a corneal ulcer diagnosis between 21 May and 31 December 2001. Whilst the study cannot shed light on, for example, corneal ulcer aetiology or the relative efficacy of different treatments, it can describe patterns in this particular patient population that may prove useful and indicate areas for further research. **Results:** 55% patients were male, 45% female, aged 1-88 yrs. Most were of working age. Of 121 cases, 51% recorded trauma. There were 99 cases with a recorded acuity; 75 presented blind (defined here <3/60); 15 had normal vision (defined here 6/6-6/18). There were 14 fewer blind eyes and 9 more with normal vision at discharge. About a quarter improved in WHO category of visual loss (including 6 from blind to normal), half stayed the same (12 maintained as normal and 58 remained blind); 4 eyes out of 99 deteriorated. 23 of the 24 eyes removed were blind on presentation. **Conclusions:** With a rough quarter of the sample showing an improvement of one or more grades and deterioration in only 4%, patients are benefiting as a whole (some individuals dramatically) from their treatment in Takeo Eye Hospital. However, most are arriving with a blind eye and there is need for more research into how to prevent this. There is also a need to discover the extent of under-reporting of corneal ulcer and of monocular blindness with a prospective population-based study. The vast majority of patients were of working age (there were surprisingly few children given the economic environment). Do they present because they need to work but cannot see (most present blind) and not present because they need to work and can still see? Their disability impacts the economy. This study cannot reveal aetiology but it is worth noting that half the patients reported trauma. Trauma and corneal ulceration is largely a cause of monocular blindness although it is an important cause of bilateral blindness as well. Added to a complex aetiology this makes it a difficult area to tackle. It is sad but unsurprising that it is developing countries that suffer most from this silent epidemic.

Table 1. Comparison by visual acuity grading of affected eyes at presentation and at discharge

Visual Acuity	At presentation	At discharge
6/6 - 6/18	15	24
< 6/18 - 6/60	7	12
< 6/60 - 3/60	2	2
< 3/60	75	61
Total	**99**	**99**

Table 2. Difference in grade between presentation and discharge as a percentage of sample.

% Improved	23.2
% Same	49.5
% Deteriorated	4.0
% Removed	23.2

Community Eye Health MSc dissertation summaries from the Pakistan Institute of Community Ophthalmology Peshawar, Pakistan

Introduced by Muhammad Babar Qureshi
Director, Academics and Research, PICO, Peshawar, Pakistan.

The Community Eye Health Masters Programme at the Pakistan Institute of Community Ophthalmology (PICO) equips doctors for a career in eye care management.

Eight weeks in the academic year are dedicated to fieldwork leading to a dissertation, a requirement for the Masters degree from the University of Peshawar. A topic is chosen in collaboration with the Institute from which the candidate comes, the provincial coordinator for Prevention of Blindness in Pakistan (if the student is from Pakistan), and the supervisor at the Pakistan Institute of Community Ophthalmology.

The candidate presents a synopsis to the research and ethical committee for approval prior to conducting the fieldwork, analyzing the data and writing the dissertation. The dissertation is defended at the end-of-course examination.

The dissertations have provided the students, their institutions, their provinces and their countries with some very valuable information which has been used for planning and implementing eye care projects within a defined unit of population in the students' local setting. The students are encouraged to publish their original piece of work in national and international journals. Below are three summaries of the MSc Community Eye Health 2004 batch.

Qualitative study of the barriers to the uptake of cataract surgery in Sharda Patwar Circle, Upper Neelum Valley District, Muzaffarabad, Azad Kashmir

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Objectives: To determine awareness about cataract blindness, assess treatment-seeking behaviour of cataract blind and elicit the reasons for not opting for cataract surgery.
Methods: We conducted twelve semi-structured interviews with cataract blind persons, followed by an informal discussion with concerned families and interviews with key informants. The records were summarised into case studies of the individual subjects, families and key-informants and analysed for recurrent themes.
Results: Cost (both direct and indirect) emerged consistently as the main barrier to acceptance of cataract surgery. There was also fear of poor visual outcome of surgery and post-operative discomfort. Most subjects had sought treatment at some stage during the blinding process but their concern was to obtain glasses or eye drops. Eleven out of 12 subjects were well aware of their blinding condition as they expressed in their local language as "Pholla or Poh" (cataract). One subject made a rational decision in terms of the cost and perceived benefits of the cataract operation (cost of the operation and visual outcome). Negative attitudes to cataract surgical services included distrust of ways of treatment, need not felt, lack of company, belief that blindness is a natural process or the will of God, and loss of self esteem.
Conclusions: Cost and fear are major barriers to the uptake of cataract surgical services. The negative effect of poor visual outcome due to unsuccessful surgeries outweighs the impact of the successful ones. In the community studied, cataract surgery needs to be made available, affordable and acceptable and visual results need to be closely monitored and evaluated.

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Perceptions amongst primary school teachers of visual problems affecting their pupils

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Objectives:
- To determine the ability of primary school teachers to recognise visual problems in their pupils
- To determine the knowledge among primary school teachers about the nature of visual problems (including refractive errors) among their pupils
- To estimate the need for training of primary school teachers in detecting visual problems (refractive error and types of visual problems).

Methods: The study was conducted during July to August 2004. Sixteen interviews and 16 questions for teachers (including school principals and headmistresses) were conducted followed by four focus group discussions with other teachers of primary section in two government and two private schools.

Qualitative research methods used were individual interviews, questionnaires and focus group discussions. The information collected from the three sources was used to triangulate the data, thereby strengthening its trustworthiness.

Results: The main findings of this study were that teachers perceive that:
- The eye is a blessing of God
- Eyesight is an important sense
- Discoloration of eyes is a sign of eye diseases
- Pupils' behaviour can show visual problems
- Children with eye pain and decreased vision should be referred to a hospital
- Weak eyesight leads to headache and inability to recognise words and objects
- Hot dusty weather and pollution is bad for the environment and also eyes
- Good knowledge and balanced diet are essential for health
- Poverty leads to blindness
- Iodine deficiency may lead to eye problems
- Both eyes always have different vision
- Un-equal eyes create future problems
- Every one needs bright light but some need dark light
- Addition of spectacles looks interesting
- Teachers are always thirsty for knowledge
- Experiences, newspapers, magazines, journals and clippings are the best source of eye knowledge for teachers
- Medical professors or eye doctors can select good training courses for primary school teachers.

Conclusion: The knowledge of teachers was based on hearsay, personal experiences, layman talk, journals, and magazine and newspaper clippings.

They can detect the visual problems through the pupils' behaviour in class but have no idea how to refer them to secondary/tertiary eye care health services. There is lack of any training about primary health care/primary eye care teaching in the syllabus of primary teachers. The teachers were enthusiastic to work for the betterment of school children if they were given proper training and the chance to serve. Poverty came out as a major problem and the purchase of spectacles is out of the reach of many needy children. The importance of the eyes was universally accepted. Many of the teachers mentioned shyness as a social problem, which causes pupils to abandon the use of glasses. The teachers were found to be quite able to identify children with visual problems.

Prevalence of diabetic retinopathy at a diabetic clinic, Mayo Hospital, Lahore

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Aim: To estimate the prevalence of diabetic retinopathy among diabetics of all ages presenting at the diabetic clinic, Mayo Hospital Lahore.

Introduction: Diabetes mellitus (DM) is a common condition and its frequency is increasing all over the world. Some 3.2 million people died in the year 2000 because of complications of DM. This compares with 3 million deaths from AIDS. In the year 2000, 171 million people had diabetes globally and by the year 2030, this figure is expected to be more than double and reach a total of 366 million. More than 75% of people with diabetes will reside in developing countries. In Pakistan, there will be 14.5 million diabetics in the year 2025. Six deaths can be attributed to diabetes or related conditions somewhere in the world every minute.

With increasing incidence of diabetes, the incidence of diabetic retinopathy, one of the serious complications of diabetes, will increase. Some studies suggest that prevalence of diabetic retinopathy in Pakistan ranges from 21%-82% depending upon glycaemic control and duration of DM. This problem remains largely unrecognised.

Methods: A screening programme/cross sectional/observational study was undertaken from the first week of July till the end of August 2004. All diabetic patients coming to the diabetic clinic during this period were included in the study. Those patients having known glaucoma, dense cataract or corneal opacity were excluded.

After taking consent from the patient, demographic information was taken and entered in the proforma. Random blood sugar done routinely amongst these patients was recorded. Blood pressure using mercury sphygmomanometer and visual acuity using Snellen test chart were measured.

The anterior segment was examined using a torch and gross pathology was noted. Pupils were dilated with 1% tropicamide. After full pupillary dilation, the posterior segment was examined with a direct ophthalmoscope. Finally all the posterior segment findings were verified by an ophthalmologist using an indirect ophthalmoscope (Gold Standard). All those patients who needed surgery, follow-up or laser treatment (where indicated) for diabetic retinopathy were referred and sent to the eye department for appropriate management. Data entry and analysis were done in EPI-INFO-6.

Results: Total patients examined were 1,054. Their mean age was 47.2 (the climax of working age). Out of 1,054, 343 (32.5%) were males, while 711 (67.5%) were females. 536 (50.9%) out of the total had diabetic retinopathy. Among males, 186 (54.2%), and among females 350 (49.2%), had diabetic retinopathy.

Among patients with diabetic retinopathy, 82.1% had normal vision, 17.5% had low vision and 0.4% were blind. Out of 536, 431 (80.4%) had mild to moderate non-proliferative diabetic retinopathy, 81 (15.1%) had severe non-proliferative diabetic retinopathy and 19 (3.5%) had proliferative diabetic retinopathy and 5 (0.9%) had advanced diabetic eye disease.

It was found that diabetic retinopathy increases with age and hence with duration. Housewives and jobless patients had more prevalence of diabetic retinopathy than employed (self employed or government employees). As far as risk factors are concerned, hypertension and smoking had an association but, amazingly, pregnancy (age group<45 years) had not. Total number of diabetics having diabetic macular oedema was 182 (17.2%). Among these, 45 (4.3%) had unilateral while 137 (13.0%) had bilateral diabetic macular oedema.

Conclusions: The burden of diabetic retinopathy (50.9%) among patients with diabetes mellitus is a public health problem. Awareness creation, a team work approach about diabetes and diabetic eye disease and its screening, along with provision of good laser services, are needed to address these newly emerging challenges of blindness. The gravity of the problem also demands that it be seriously considered for inclusion in the VISION 2020 priorities.

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Courses and conferences

Royal College of Nursing – Ophthalmic Nursing Forum

Annual Conference and Exhibition, "Ophthalmic Nursing: Dimensions of care – to boldly go..."

June 24 - 26, 2005 **Venue:** Thistle Hotel, Bristol, UK
For information, email: ophthalmic@rcn.org.uk

VISION 2020

One-week course

4 - 8 July 2005 **Venue:** London School of Hygiene and Tropical Medicine, London **Cost:** £600
The course is for ophthalmologists and eye health programme managers involved in the drive to eliminate avoidable blindness by the year 2020. **For more information, email:** Adrienne.Burrough@lshtm.ac.uk

World Ophthalmology Congress

(Previously called "International Congress of Ophthalmology ICO")

February 19 - 24, 2006 **Venue:** Brazil
The World Ophthalmology Congress will be held in conjunction with the XXVI Pan-American Congress of Ophthalmology and the XVII Brazilian Congress on Blindness Prevention.

Information on the congress and on the committees, scientific programme and coordinators of different areas are available at the congress web site: **www.ophthalmology2006.com.br**

New resources from ICEH

Santé Oculaire Communautaire – French edition of *Community Eye Health Journal*

Copies of the first French-language edition are now available free of charge. If you would like copies for your institution or colleagues, please contact ICEH at the address on page 70.

Chinese edition of the Journal

The Chinese edition of the *Community Eye Health Journal* is now available from the Amity Foundation, 71 Han Kou Road, Nanjing, 210008 China. Email: amitybp@amityfoundation.org.cn

Monitoring cataract surgical outcomes CD-ROM

Contains different packages to monitor the visual outcome of cataract surgery as well as instruction guides and supporting documents:

- Manual tally sheet system – instructions and formats
- Installation files for computer software to monitor visual outcome of cataract surgery
- Instruction manuals for the computer software
- Cataract surgery record forms in four different measuring systems
- Training materials, with presentation and text
- Further reading on monitoring cataract surgical outcome.

Author: Hans Limburg. Copies of this CD-ROM are available free of charge from the International Centre for Eye Health. See contact details on page 70.

Obituary

Sister Ishikande Ndossi

It is with great regret that we report the death of Sister Ishikande Ndossi. A former student at the International Centre for Eye Health, Sister Ndossi, completed the Diploma in Community Eye Health in 1995, generously supported by the Department for International Development (DFID) - then the Overseas Development Administration (ODA) - and also the British Council for the Prevention of Blindness (BCPB).

She first qualified as a registered general nurse and continued to work at Mvumi Hospital, Dodoma, Tanzania specialising in ophthalmic nursing. In 1988 Sister Ndossi began work with the Christoffel Blindenmission(CBM) on the Prevention of Blindness Programme, based at Afgooye, Somalia where her main responsibility was coordinating in-patient care. She later worked as Field Assistant with the Rombo Trachoma Research Project in Rombo District, Tanzania and most recently as Patient Counsellor at the Kilimanjaro Centre for Community Ophthalmology, Moshi.

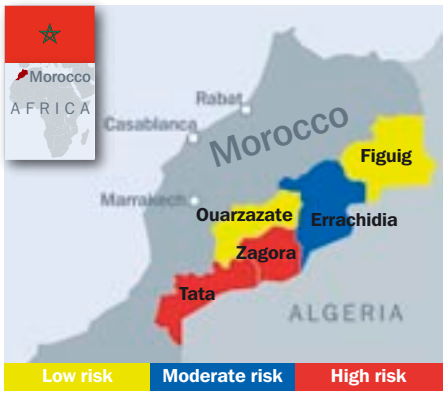
Sister Ndossi, a wonderful human being who loved her family deeply, a dedicated ophthalmic nurse, respected by her colleagues and patients alike, and a faithful friend to many people, passed way on November 15, 2004 following a long illness which she bore so very bravely.

We remember her with much affection and convey our deepest sympathy to her parents, family and everyone whose lives she touched and who are saddened by her untimely death.

Sue Stevens

Correction

In the article titled Lessons from the Moroccan National Trachoma Control Programme (*CEHJ 2005 Issue 52*), there was an error in the map showing provinces targetted for trachoma control. The correct map is shown below. The journal apologises for this error.



Useful resources

Books

Sutter E, Foster A, Francis V. Hanyane – A village struggles for eye health. Available in English and French from ICEH (address on page 70). Price: £5 plus £5 airmail post and packing. Email: sue.stevens@lshtm.ac.uk
For Indian language editions, contact ICARE Resource Centre, Post Bag No. 1 Kismatpur BO, Hyderabad 500 030, India.
Email: icareresourcecentre@yahoo.com

Francis V, Wiafe B. The healthy eyes activity book (for use in primary schools). Available in English from ICEH (address on page 70).
Price: £3 includes post and packing.
Email: sue.stevens@lshtm.ac.uk
French version available from Task Force Sight and Life, BP 2116, 4002, Basel, Switzerland.
Email: sight.life@dsm.com

Participatory approaches for community health worker training in primary eye care. Available from Project Orbis International, 520 8th Avenue, 11th Floor, New York, NY 10018, USA. Email: dcharles@nyorbis.org

An outline of basic ophthalmology. Available in English and French from CBM, Nibelungenstrasse 124, 64625 Bensheim, Germany.
Email: overseas@cbm-i.org

Basic eye care (for community eye health workers).
Simple eye care (for those with minimal formal eye care training). Available from Helen Keller International, 352 Park Avenue South, Suite 1200, New York, NY 10010, USA.
Email: snienabler@hki.org

Primary eye care. Available from Raja Mumtaz Regional Learning Resource Centre, PICO, P O Box 125, Hayatabad Complex – Phase 4, Hayaytabad, Peshawar, Pakistan.
Email: rlrc@pico.org.pk

Videos

Epidemic conjunctivitis (5-minute public education video). Available in English and Telugu from ICARE (contact details above).

Slide Sets

Stevens S. Practical ophthalmic procedures – Volumes 1, 2, 3, 4. Available from ICEH (address on page 70). Price: £15 per volume to developing countries (£20 elsewhere) plus £5 post and packing.
Email: sue.stevens@lshtm.ac.uk

Posters in Chinese and Tibetan

Prevent blindness through primary eye care. Available in Chinese and Tibetan from Kunde Foundation, Health Bureau, Gesang Road 30, Zedang, Shannan Prefecture, Tibet 856000, China.
Email: kunde@securenym.net
Public awareness posters on general eye care are also available in Tibetan.

Materials available in Portuguese

Folheto informativo – Conjunctivite
Folheto infromativo – Proteja seus olhos
Atenção primária ocular – Ações básicas-oms
Manual de saúde ocular em nível de atenção primária
Informações básicas sobre saúde ocular
Available from Servico De Oftalmologica Sanitária, Avenida Dr. Arnaldo, 351 – 6 Andar, Cerqueira Cesar, Sao Paolo, SP CEP 01246 – 902, Brazil. Email: nhm2@ig.com.br

Next issue

The next issue of the *Community Eye Health Journal* will be on the theme **VISION 2020 at the district level.**

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