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EDITORIAL

Assessing and managing eye injuries

Karin Lecuona
Consultant, Division of Ophthalmology, Groote Schuur Hospital and University of Cape Town, Private Bag, Observatory, 7937, South Africa.

Introduction

Injuries to the eye are common. Many are minor but, if not treated quickly and appropriately, can lead to sight-threatening complications. Other injuries are severe, and even with expert management sight can be lost. Prevention of blindness from eye injuries requires:

- injury prevention (health promotion including advocacy)
- early presentation by the patient (health promotion and health worker training)
- accurate assessment (good primary eye care and first aid)
- prompt referral of serious injuries requiring specialist management.

Taking a history

The history obtained following trauma should be as precise as possible. The history should include details of:

- anything that hit the eye
- what the patient was doing when the eye was injured
- any treatment given.

Particular attention is required if a foreign body is involved or if the injury may have perforated the globe. For example, a history of a blow to the eye by a broomstick suggests blunt trauma, but if the weapon was the tip of a rotten broomstick, one would look for a retained foreign body; if the fist was the weapon but the assailant was wearing a ring, one would look for lacerations to the globe as well as contusion or bruising of the lids and orbit. Human bites, or penetrating injuries caused by dirty or used kitchen utensils, may cause fulminant infection, so the patient should be treated with systemic antibiotics. When metal hits metal (such as hammer and chisel), the velocity of the metal fragment is enough to leave the slightest of marks on the cornea as it tracks through the globe to the vitreous cavity, whereas the grit from a coal engine embeds itself in the corneal epithelium as a corneal foreign body. Intraocular foreign bodies, such as glass, may be inert but the reaction caused by a copper fragment can destroy the retina within days. With chemical injuries it is important to know the type of substance that caused the burn, and how long the substance had contact with the eye. An irritant such as pepper would cause discomfort but no actual damage, alkali and hydrofluoric acid burns are the most dangerous, while acid burns caused by chemicals with a low pH tend to be less severe than alkali burns.

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This man was cutting wood and a splinter went in his eye. *Tengeni Banda*

The girl's eyes were burnt by boiling porridge. *Rabecca Phiri*

The boy kicked a ball in his friend's eye while playing. *Devies Phiri*

Someone poked a stick in this boy's eye. *Thresser Banda*

Drawings by Zambian primary school children during a Draw and Write research exercise supervised by Dr Boeteng Wiafe and Victoria Francis. 1993. See Healthy Eyes Activity Book on page 108

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Community Eye Health Journal
International Centre for Eye Health
London School of Hygiene and Tropical Medicine,
Keppel Street, London WC1E 7HT, UK.
Tel: +44 207 612 7964/72
Fax: +44 207 958 8317
Email: Anita.Shah@Lshtm.ac.uk

Information Service
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Managing eye injuries: outline of management principles

Prophylaxis for tetanus infection is required for a patient with lacerations, particularly if dirty.

Corneal abrasions

Corneal foreign bodies can be removed after adequate topical anaesthesia under magnification with good illumination. A corneal abrasion is often caused by a finger, resulting in an extremely painful eye that can be examined once topical anaesthetic has been instilled. Fluoroscein staining will indicate an epithelial defect (Figure 1). Management is with an antibiotic and eye padding for one day.

Damage to the cornea may occur when welding without protective goggles. Diffuse punctate staining is visible over the whole cornea when stained with fluoroscein, and the symptoms are similar to that of a corneal abrasion, but usually in both eyes. Management is as for abrasion.

Penetrating injury (open injury of the globe)

Any open injury of the globe needs emergency referral to an eye specialist. A shield only should be placed over the injured eye – eye pads must not be used so as to avoid any pressure on the eye. A globe ruptured by blunt trauma (e.g. a blow by a fist) should be treated in the same way as a penetrating injury, even if the rupture injury is sub-conjunctival (Figure 2).

Lid and canalicular lacerations

Simple lacerations can be sutured. Septic lacerations should be cleaned and treated with systemic antibiotics. Delayed primary closure may be advisable. Lacerations involving the lid margins should also be referred to a specialist who is familiar with the technique of opposing the lid margins with fine precision. Medial canthus injuries should be assessed to see if there is a tear of the lower canaliculus (a lacrimal probe can be used). If damaged, the patient should be referred to an eye specialist for canalicular repair (Figure 3).

Haemorrhage

A sub-conjunctival haemorrhage is quite common after trauma and can be managed conservatively (Figure 4). However, occasionally it can be the only sign of a ruptured globe, when it may be associated with a low intraocular pressure (IOP) and an abnormally deep anterior chamber. Blood in the anterior chamber is called hyphaema. It usually follows a blunt injury and results from tearing of the iris. The pupil may be dilated. Most hyphaema clear within five to six days with conservative treatment. The sight-threatening complications of hyphaema are caused by raised IOP, which is managed by oral acetazolamide (Diamox). Surgical washout of a hyphaema is very rarely required and carries particular risks, so should only be resorted to for specific indications. These include:

- corneal staining from persistent hyphaema

Table 1. Definitions of terms used to describe eye injuries

Term	Definition
Abrasion	Defect of the corneal epithelium. Stains with fluorescein. Usually heals within 24 - 48 hours
Contusion	Result of blunt injury, either at site of impact or distant to it
Closed injury	The wall of the globe is intact but structures inside the eye are damaged
Rupture	Jagged open injury due to blunt injury, often away from the site of injury at the weakest points of the globe: concentric to the limbus, just behind the insertion of the extraocular muscles or at the equator
Open injury	A full thickness break in the wall of the eye; can follow either sharp or severe blunt injury
Lamellar laceration	Partial thickness wound caused by a sharp object
Laceration	Full thickness penetration
Penetration	Entry wound only
Perforation	'Through and through' injury; an injury that goes right through the eye, causing both entry and exit wounds

- increased IOP of more than 45 mm Hg for more than four days
- sickle cell disease with failure of the hyphaema to resolve and raised IOP.

The risk of further bleeding into the eye is increased by the use of aspirin, and may be decreased by topical steroids. Patients should be advised to avoid non-steroidal anti-inflammatory drugs for one week after a hyphema. Vitreous haemorrhage is a sign of serious intraocular trauma, and is characterised by the loss of the red reflex compared with the other eye. All cases of vitreous haemorrhage should be referred for further examination to exclude globe rupture or perforation, or other sight-threatening complications such as retinal detachment (Figures 5 & 6).

Lens damage

The lens may be subluxated or even dislocated. The intraocular pressure may increase in the acute phase and a lens extraction may be indicated. Both blunt and perforating injury may cause a cataract requiring extraction, either very soon after injury if it is causing complications, or later when the eye is quiet and recovered from the injury.

Editorial continues on page 104 ➤

'Managing ophthalmic trauma is challenging. Clinical and surgical skills and equipment vary from place to place and country to country so that the management of serious eye injury requires a variety of alternative strategies.'

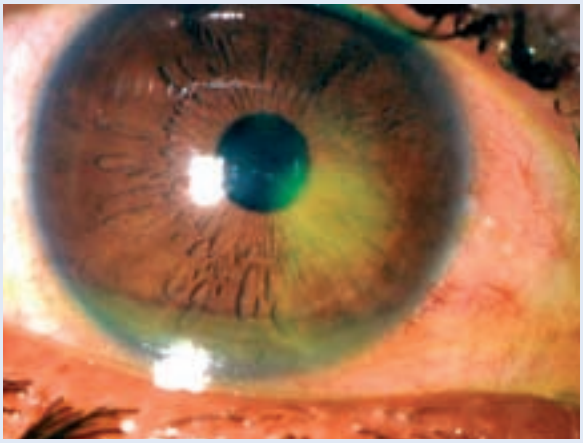

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Fig 1. Corneal abrasion as stained with fluorescein

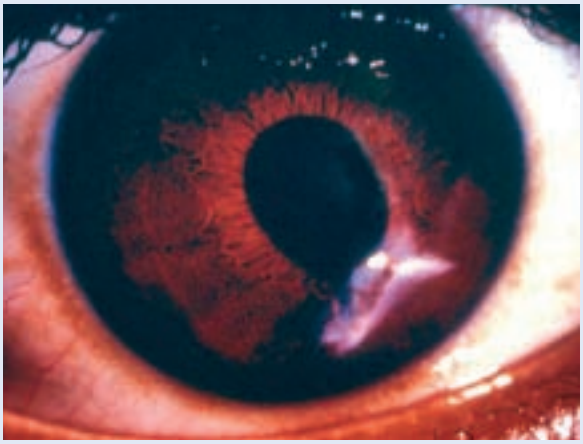

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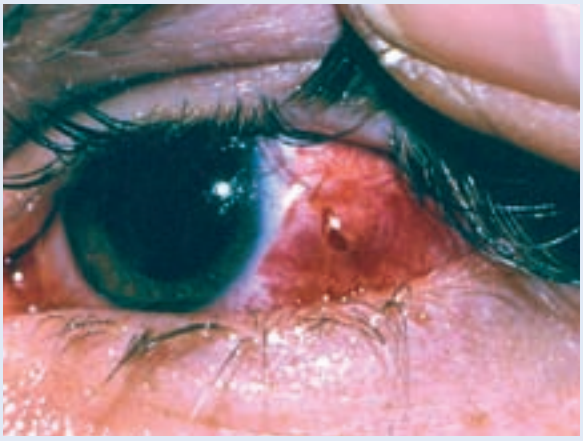
Fig 2. Corneal laceration with a peaked pupil due to iris prolapse

Erhardt Kidson

Fig 3. Lacerated lid margins should be opposed precisely



Thilly Lecuona

Fig 4. This subconjunctival haemorrhage and small laceration was covering a scleral laceration

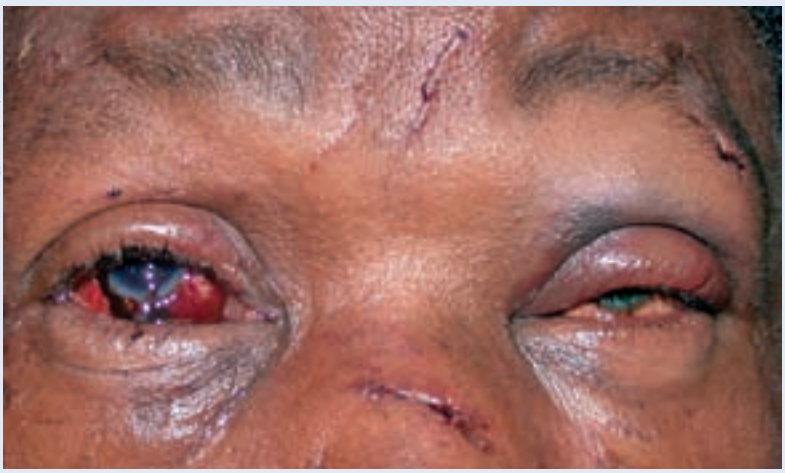


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Fig 5. Numerous skin puncture wounds following assault with a broken glass

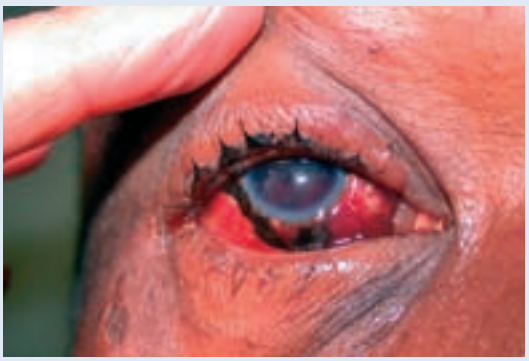

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Fig 6. Scleral laceration. In the same patient as Fig 5, the brown discolouration below the limbus is the iris prolapsing through a scleral laceration just below the limbus. An hyphaema is present, obscuring the view of the pupil

Orbital injuries

Proptosis or diplopia (double vision) suggests serious eye injury for which specialist assessment and management is required.

Burns to the eye

Burns to the eye may affect the eyelids, conjunctiva or cornea. It is important to keep the cornea moist and free from exposure. The first aid management is to apply antibiotic ointment generously all over the conjunctiva, cornea and burned eyelids. An eye pad should not be placed over the eye as this may ulcerate the cornea. The patient may require skin grafting of the eyelids.

Chemicals in the eye

The first aid management of chemicals in the eye is immediate and profuse irrigation with clean water after instilling local anaesthetic drops. The patient should lie flat while water is poured into the eye generously for at least 15 minutes (see page 109). After this time the eye can be examined with fluorescein to see if there is any evidence of corneal ulceration. If there is ulceration, the patient should be given topical antibiotics, and an eye pad and seen daily. Many chemical injuries are caused by acid (e.g. exploding car battery), and these usually have a good prognosis as the acid damages only the superficial layers of the cornea. Alkali burns (e.g. ammonia) are less common, but much more severe. They should be referred to an ophthalmologist, as they will require intensive topical steroids, tetracycline and vitamin C drops.

Eye removal – evisceration or enucleation?

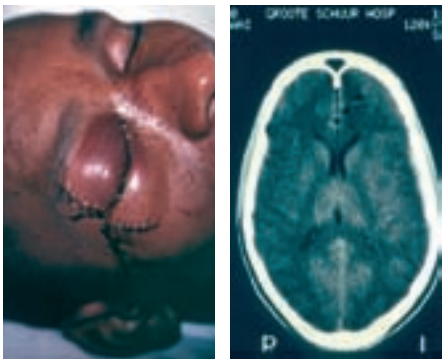
If the eye is blind to light and painful, then removal should be considered. Evisceration is thought to carry a risk of sympathetic ophthalmia, but there is little evidence to support this. Evisceration may be more appropriate (for non-malignant conditions) in developing countries, because the procedure is simpler than enucleation, the results offer better cosmetic results and there is less danger of systemic infection if the eye is infected. It can also be performed under local anaesthesia.

Table 2. Ocular signs and their implications following ocular trauma

Structure	Appearance and associated features	Implication
Lids	Lacerations of lid margins	Will require accurate repair
	Puncture wounds	Check for globe perforation
	Involvement of medial canthus	Check for canalicular damage
Conjunctiva	Sub-conjunctival haemorrhage	Usually harmless, but exclude perforation if the IOP is low
Sclera	Grey or brown discolouration on sclera	Check for scleral perforation or laceration
Cornea	Foreign body	Remove foreign body
	Abrasion	Treat with antibiotic and pad
	Multiple staining areas following arc welding	Treat as for an abrasion
	Laceration with iris prolapse	Will require urgent repair
Anterior chamber	Blood in the anterior chamber – hyphaema	Usually resolves with conservative treatment; if secondary glaucoma, lower IOP with diamox
Pupil	Peaked	Check for laceration with iris prolapse, and refer for abcission repair
	D shaped – Iris dialysis	Manage conservatively but watch for secondary glaucoma
Lens	Iris tremor – probable lens dislocation	Usually requires removal
	White lens	Lens damaged resulting in a cataract
Red reflex	No or poor red reflex	Possible vitreous haemorrhage
Proptosis	Swollen lids and protruding eye	Medial wall blow out fracture with air in the orbit, orbital contusion or sub-periosteal haematoma
Endophthalmos	Eye looks smaller – sunken-in globe	Inferior wall blow-out fracture

Karin Lecuona/Dept. of Ophthalmology University of Cape Town

Fig 7. When a patient complains of a sudden onset scratchy eye, and no corneal foreign body can be found, the lid should be everted to check for foreign bodies



Karin Lecuona/Dept. of Ophthalmology University of Cape Town (2)

Figs 8 & 9. A stab at the lateral margin of the orbit resulted in cranial penetration and a pneumocranium, as seen on CT scan

In summary

Managing ophthalmic trauma is challenging. Clinical and surgical skills and equipment vary from place to place and country to country so that the management of serious eye injury requires a variety of alternative strategies. In principle, if a health care worker can diagnose and treat a condition and recognise the complications, then he or she can manage that case.

Corneal abrasions, conjunctival, tarsal, superficial corneal foreign bodies and small lid lacerations not involving the lid margins, can be managed by ophthalmic nurses and general practitioners. Injuries such as deep corneal foreign bodies and large hyphaemas should be managed in centres where slit lamp examinations can be performed and intraocular pressure (IOP) can be measured. Open globe injuries, lid lacerations involving the lid margin or canaliculi, blow out fractures with diplopia in the primary position and any potential intraocular foreign body should be referred to a well equipped eye care centre.

The commonest pitfalls in dealing with ocular trauma are:

- missed tarsal foreign bodies (Figure 7)
- missed intraocular foreign bodies
- confusing corneal ulcers with abrasions
- missed scleral lacerations and ruptures
- missed cranial injuries in sharp orbital trauma (Figures 8 & 9).

This editorial lays out guidelines on the assessment and management of trauma to the eye. Practitioners may manage patients differently according to the availability of equipment, skills, finances and transport.

Primary level management of eye injuries

Ansumana Sillah
Cataract Surgeon/Health Planner. National Eye Care Programme Manager, Box 950, Medical Headquarters, Banjul, The Gambia.

Bakary Ceesay
Cataract Surgeon. Deputy National Eye Care Programme Manager, The Gambia.

Eye injuries are common and a leading cause of preventable unilateral blindness worldwide. The causes vary, but drawing upon experience from The Gambia and Senegal, trauma is more common during the farming season and among small-scale metal workers working without eye protection. Stick injury is common in children and farmers, sometimes causing a penetrating injury that can result in the affected eye quickly becoming infected. Blunt trauma is common among children, who can be injured with a catapult or stone. The dusty environment is a common cause of corneal, conjunctival and sub-tarsal foreign bodies injuries.

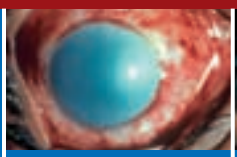
Injuries are often preventable which makes education at the community level important. Village health workers and community-based volunteers (such as 'Nyateros' or 'Friends of the Eye' in The Gambia) are important promoters of good eye health practices.

A network of community ophthalmic nurses can provide appropriate first aid and refer from village level to secondary or tertiary care. This can significantly reduce visual impairment and blindness resulting from injuries. Health facilities should be ready to deal with eye injuries by:

- ensuring that staff know how to assess eye injuries and perform basic first aid procedures appropriate to their level of training
- ensuring a supply of equipment, drugs and consumables required to assess and provide first aid for eye injury
- having a plan of how to refer patients, including nearest referral facilities, and options for transporting patients in an emergency.

The chart below provides an easy reference for community level workers faced with an eye injury in their clinic or community.

First aid management of eye injuries

Cause of injury	 Burns	 Foreign body (FB)	 Blunt injury	 Penetrating injury	 Lid laceration
Variations	Chemical, thermal or radiation	Conjunctival, corneal or sub-tarsal (under the upper eyelid)	Blood in anterior chamber (Hyphaema)	Corneal or scleral perforation	Laceration of lid margin or canaliculus
Pain	Severe	Mild/moderate	Mild/moderate	Severe	Moderate
Vision	Reduced	Vision affected if central cornea involved	Reduced	Reduced	Normal
Torch examination	Red eye and hazy cornea	FB seen on conjunctiva, cornea or under lid	Blood seen in anterior chamber Pupil may be dilated	Cornea hazy and pupil may be distorted with uveal prolapse. Shallow anterior chamber	Laceration visible
Management	**First Aid Refer**	**Remove or Refer**	**Assess Refer**	**Urgent Refer**	**Refer**
	Immediately irrigate thoroughly with clean water with special attention to particles that may be trapped under the eyelid. Apply antibiotic eye ointment and refer to eye unit immediately	Remove with edge of clean cloth. If on cornea, gently use matchstick covered with cotton wool. Refer if embedded	Rest; refer if hyphaema is severe or no improvement with bed rest by day three. Analgesics must not contain aspirin	Refer immediately to an eye unit. Tetanus toxiod 0.5ml immediately	Refer to an eye unit to ensure proper alignment of the lid margin. Tetanus toxoid 0.5ml immediately

Pictures: Helen Keller and ICEH

Preventing blindness from eye injuries through health education

Reggie Seimon
Consultant Ophthalmologist, Suvasevana Hospitals (Pvt) Ltd, 586 Peradeniya Road, Kandy, Sri Lanka.

Eye injuries occur without any warning. One moment a person can have perfectly normal eyes, and the next moment he or she may be blind or at least in severe pain. Therefore we should be eternally vigilant and aware of situations that could lead to injury. Eye injuries may be trivial or serious. All precautions should be taken to avoid injury. Repair of a grave injury is almost impossible, and prevention is most certainly better than cure. The role of health education is to promote awareness amongst the public about how to protect their eyes, and what to do in the case of injury.

Educational opportunities for creating 'safe eyes' awareness

1. Educate all children starting from pre-school age about objects, events and actions that can cause eye injuries.
2. Educate the mother - the first health provider in the home.
3. Create awareness regarding eye injuries at the interpersonal level, for example in one-to-one situations, never missing an opportunity to teach people about potential dangers to the eyes and what to do in case of an injury.
4. Create awareness regarding eye injuries at the group level, for example, amongst groups sharing a common occupation or activity such as welders, football players, cyclists and industrial workers. At group level one might channel messages through community health workers, teachers, sports coaches, volunteers and journalists, who themselves will need to be educated.
5. Create awareness regarding eye injuries amongst the general public through appropriate mass media such as print (e.g. newspapers), electronic media (e.g. radio and TV) and non-electronic media (e.g. street theatre, puppet shows).
6. Advocate amongst leaders and policy makers to introduce and enforce policies which will help prevent blindness from injuries, for example, legislation for health and safety at work, the wearing of car seat belts, the banning of explosive fire crackers, etc.
7. Advocate on a global level on issues such as banning anti-personnel mines.

From the educational point of view, we analyse the types of human situations or activities that put people at risk of blindness from eye injury. The list can be extensive and will vary from place to place. As a first step, it is useful to think through risks of different types of injuries in your own context.

Foreign bodies

Risk situations

Foreign body flying at high speed, for example:
- harvesting
- processing grain
- particles from a high speed grinder.

Particles splintering off, for example:
- when using a hammer on a cold chisel.

Travelling at high speed in an open vehicle, for example:
- motor cycle
- push cycle
- speed boat.

Key message for preventing eye injuries from foreign bodies

- Wear protective eyewear in all the above situations.
- Children should not stick their heads out of the window of a moving vehicle.

Multiple foreign bodies

Risk situations

- festive seasons which are often celebrated by lighting explosive firecrackers
- blasting of rock with explosives or associated with acts of terrorism
- shootings resulting in multiple shrapnel injuries.

Key message for preventing eye injuries from mulitple foreign bodies

- Discourage the purchase and use of firecrackers in the home.
- Dispose of firecrackers by soaking them in water and then putting them in the rubbish bin.
- Don't let children or teenagers light explosive firecrackers.
- Protective clothing for those working with explosives.

Penetrating injuries

Risk situations

Hazards in the home and the garden, for example:
- playing with sharp objects, sticks, sharp pencils, pens, toys, scissors, metal dividers and compasses

Sri Lanka Eye Foundation

- playing with kittens close to the face
- playing with small injured birds can lead to a serious bird peck injury with iris prolapse
- leaving an infant supine on a mat in the front yard or garden exposes the baby to the risk of being pecked by the household fowl. The bright cornea attracts the bird
- playing with bow and arrows, for example, when imitating television heroes.

Travel
- road traffic accidents.

Assault
- sharp weapons
- gunshot wounds
- violent explosion.

Work place and agricultural accidents
- plucking fruits using a knife tied to a long pole/stick
- injuries from industrial machinery.

Key message for preventing eye injuries from penetrating eye injuries

- Parents and children should avoid situations that might lead to sharp objects damaging the eyes.
- Don't let children play with sharp objects.
- Manufacturers of toys should ensure that toys are as safe as possible.
- Employers should ensure at-risk workers are informed and provided with appropriate eye protection.
- Do not remove anything that is stuck in the eye; cover with a paper cup or other clean object and get help.

Burns or scalds

Risk situations

Hot substances left within reach of children, for example:

- hot soups
- boiling water
- irons.

Key messages for preventing burn eye injuries

- Keep hot liquids out of the reach of children.
- Don't leave boiling saucepans on reachable surfaces.
- Switch off irons or leave on a wall-mounted cradle out of reach of children.

Chemical burns

These often burn both eyes and parts of the face. Burnt eyelid skin scars, contracts and leads to severe exposure keratitis and loss of the eye.

Risk situations

Dangerous substances left within reach of children, for example:

- many household cleaning substances containing acids and alkalis, fungicides, weed killers and pesticides.

Accidents caused by careless use of dangerous substances

- alkali burns caused by a spray of calcium oxide/hydroxide (lime)
- acid burns occur while tampering with wet cell batteries (car batteries)
- using acids in factories.

Violent assault

- acid thrown at a face by an assailant.

Key messages for preventing chemical burn eye injuries

- Keep all weed killers, pesticides, fungicides, acids and alcohol under lock and key.
- Wear protective eyewear and clothing in high-risk industrial situations.
- Create and enforce laws to punish acid throwers.
- If a chemical splashes in the eye, immediately irrigate the eye with water and get help (page 109 for instuctions on how to irrigate the eye).

Ultra violet light burns

High-risk situations

Severe burn of the cornea and face can occur with prolonged exposure to ultra violet light. Ultra violet light being at the shorter end of the spectrum cannot penetrate the cornea. Maximum damage is to the corneal epithelium. The epithelium peels off causing severe pain but re-epithelializes. For example:

- welding arc burn
- long term skiing
- gazing at UV light sources.

Key message for preventing burns from ultra violet light

- All welders to wear protective shields.
- Wear dark glasses with UV filters when exposed to bright UV light.

Solar eclipse macular burns

A self-induced cause of blindness is an eclipse burn.

Key message for preventing solar eclipse macular burns

- Solar eclipses should not be watched. However, if one needs to watch it, use special eclipse viewers or exposed camera film. If not, the most central areas of the eyes, the maculae, would be burnt by the sun.

Blunt trauma

Risk situations

Situations where an object can hit the eye, for example:

- sports of any nature but especially boxing and squash
- removing a champagne cork without adequate care
- assault.

Key message for preventing blunt eye injuries

- Teach children to be careful in the way they play with balls.
- Warn children about the dangers of rough games.
- Encourage sports men and women to wear protective eyewear when playing high-risk sports such as squash.

Lid lacerations and tears

Risk situations

Sharp nails at eye level

- longish nails and hooks fixed to doorposts
- lamp hooks hung from a rafter would tear off the entire upper lid when children in a group run around the house.

Attacks by animals

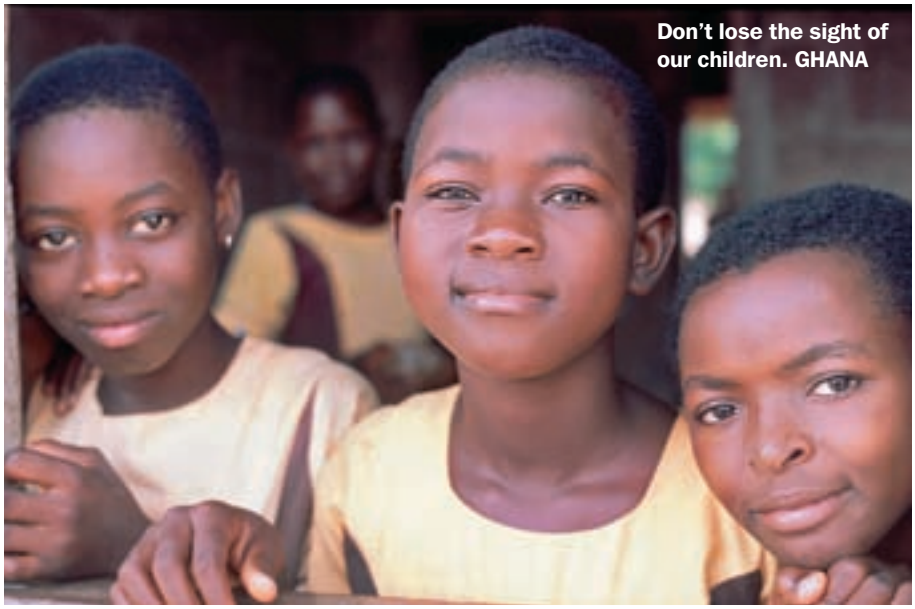
- avulsion or lacerations of the eyelids occur when children are mauled by cats or dogs
- adults suffer similar injuries when mauled by a bear or are gored by a bull.

Key message for preventing lid lacerations and tears

- Adults should take adequate care to see that no hooks and nails are left fixed at a low level.
- Supervise children when they are playing with animals.

Don't lose the sight of our children!

Eye injuries are largely preventable and occur mostly in the younger age groups. The key intervention for preventing blindness from injuries is through health promotion. Eye care workers need to collaborate with teachers, media professionals and health educators to inform the public. They also need to influence policy makers and leaders to minimise the public's exposure to risks: potentially dangerous household and industrial products should be appropriately packaged and labelled; the wearing of protective eyewear should be promoted in hazardous situations and legally enforced if necessary; and children's toys and environments should be scrutinised for potential dangers to their eyes. Since accidents will happen, education should include the message that eye injuries should be treated as a medical emergency and patients should seek help immediately. First aid at home should only be attempted if chemicals have splashed in the eye, but in all other cases, health education should warn people of the dangers of trying to treat eye injuries themselves.



Don't lose the sight of our children. GHANA

Jenny Matthews/Sight Savers International

CASE STUDY

Reducing eye injuries in Sri Lanka

Sri Lanka Eye Foundation

Reggie Seimon

The Sri Lanka Eye Foundation has been working to prevent ocular injuries since 1982. At this time, over 400 ocular injuries were seen around the festival times of Sinhala and Tamil New Year (mid April) and Christmas. All were due to firecracker injuries. To address this problem, an eight-minute drama was produced and aired on primetime national radio. A slot on post-primetime national TV used the format of a panel discussion between two members of our organisation and the interviewer, based on a screening of slides of injuries from the previous year. Additionally, cartoon posters were painted on aluminium sheets 4ft by 2ft and riveted on the back and side of long distance intercity coaches. The same posters are still being printed on paper in print runs of 1,000 each year. The set of seven posters are distributed free to schools, displayed in public places, and issued to every primary health care worker trained (Sri Lanka has approximately 6,000 PHC workers), trainee volunteers, journalists, factory workers and teachers.

Firecracker poster. SRI LANKA

Another target for health promotion was to prevent eye injuries from lime burns. In Sri Lanka, a mixture of calcium oxide and hydroxide (slaked lime) is packaged in a small polythene bag. The package is about two inches by one inch. Children play with these packets, blowing into them and causing the lime to enter the eye. The eye appears almost normal just after the accident but progressively blood vessels invade the cornea. Health promotion interventions to win the battle against calcium burns included advising the public not to purchase the lime pack or, if they did purchase it, to cut open one entire side and squeeze the lime onto a container such as a saucer or betel leaf. Attempts to address the problem at source were less successful: dealers did not follow advice to avoid packing the mixture in polythene bags, and a request to the Department of Small Industries to ban the small packet was not supported. However, thanks to sustained health education efforts, we hardly see children with lime burns nowadays.

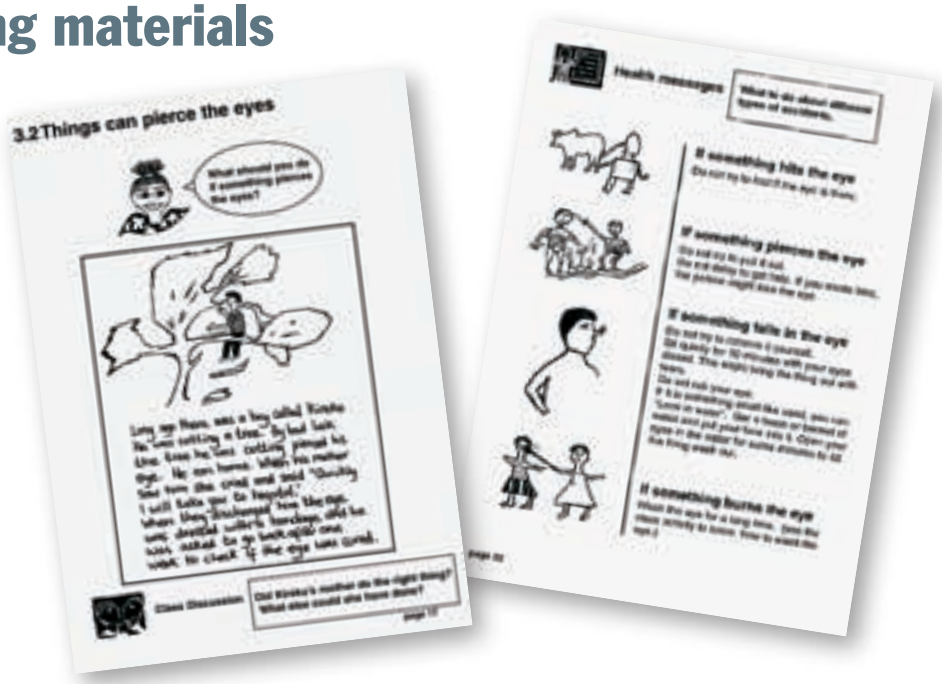
Lime burn poster. SRI LANKA

CASE STUDY

Involving children in understanding eye injuries and developing teaching materials

Victoria Francis and **Boeteng Wiafe**

The Healthy Eyes Activity Book (see useful resources page 116) was based on research conducted with rural school children in three African countries using the Draw and Write technique, whereby children's views and experiences are solicited. Many of the children cited accidents as a cause of eye problems and a selection of the illustrated stories were used to develop this health education book. The idea was to make an activity book which would tell stories in the children's own words, and then encourage the readers to think about the potential dangers which may occur in their own activities and environments. Each story is followed by information on what to do about different types of eye injuries.



HOW TO...

Ophthalmic practice

Sue Stevens
Ophthalmic Resource Coordinator/Nurse Advisor, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

Remember – wash your hands before and after performing all procedures!

How to irrigate the eye

Indications

- To wash the eye thoroughly following alkali or acid burns
- To prevent corneal and conjunctival scarring
- To remove multiple foreign bodies from the eye.

This is an emergency situation – prompt and thorough action is vital.

Do not delay to check visual acuity – proceed to irrigation immediately.

Alkali and acid solutions in the eye may cause serious damage to vision.

You will need

- pH indicator strips or litmus paper, if available
- Local anaesthetic eye drops
- Towel
- Waterproof sheet
- Cotton buds
- Lid retractors
- Kidney dish
- Gauze swabs
- Small forceps
- Undine or any small receptacle with pouring spout, e.g., feeding cup
- Irrigating fluid – Universal Buffer Solution, if available. Otherwise, clean water at room temperature should be used.

Preparation

- If available, use pH indicator strips or litmus paper to assess the acidity / alkalinity of the tears caused by the injury
- Take two small strips and, with these, gently touch the inside of each lower eyelid
- Compare the colour result with the scale on the container or note the colour change of the litmus paper and record in the patient's documentation.

This is repeated after the procedure and will determine if sufficient irrigation has been done

Sue Stevens

Method

- Instil local anaesthetic eye drops
- With the patient sitting or lying down, protect the neck and shoulders with the waterproof sheet and towel
- Place the kidney dish against the cheek, on the affected side, with the head tilted sideways towards it
- Fill the undine or feeding cup with the irrigating fluid and test it for temperature by pouring a small amount against the patient's cheek
- Ask the patient to fix his/her gaze ahead
- Spread open the eyelids, if necessary **gently** using eyelid retractors
- Pour the fluid slowly and steadily, from a distance of no more than 5 centimetres, onto the front surface of the eye, and importantly, inside the lower eyelid and under the upper eyelid
- Evert the upper eyelid to access all of the upper conjunctival fornix
- Ask the patient to move the eye continuously in all directions while the irrigation is maintained for **at least** 15 minutes, 30 minutes is better
- Remove any residual foreign bodies with moist cotton buds or forceps
- Check the pH again and, if this is unchanged or not yet normal, continue the irrigation
- Check and record the visual acuity when the procedure is finished.

Refer the patient for urgent medical assessment

Murray McGavin

Murray McGavin

How to evert the upper eyelid and remove a sub-tarsal foreign body

Indications
- To examine the upper tarsal conjunctiva
- To remove a foreign body (FB) and so relieve pain
- To prevent a corneal abrasion and limit further damage.

Never evert the upper eye lid if a penetrating injury or corneal thinning (e.g., due to ulceration) is suspected.

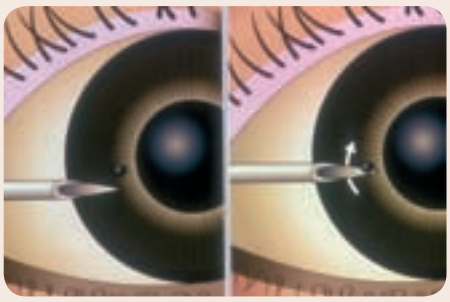
You will need
- Cotton buds, paper clip or small blunt object, e.g., pen top
- Magnification
- Sterile needle
- Local anaesthetic drops
- Fluorescein strips
- Saline or cooled boiled water
- Prescribed antibiotic eye drops or ointment
- Tape, two eye pads and bandage.

Preparation
- Explain the procedure, advising the patient that he/she may experience a brief increase in discomfort but that it is important to relax and keep still
- Reassure and encourage him/her by stressing that relief should be felt immediately after the FB is removed.

Method
- Instil a drop of local anaesthetic and fluorescein dye
- Ask the patient to **look down**
- With one hand, hold the eyelashes of the upper eyelid between thumb and index finger
- With the other hand, place a cotton bud (or paper clip or other small blunt object) midway from the eyelid margin
- Turn the eyelid against steady and gentle pressure on the upper eyelid (picture 1)
- The eyelid will evert to reveal the upper tarsal conjunctiva. The FB may be large enough to be seen easily (picture 2)
- With a gentle upward movement, remove the FB using a moistened cotton bud. It may be necessary to use a needle if it has embedded
- If the FB cannot be seen, examine the eye again using a torch and magnification to ensure it is not missed
- On completion of the sub-tarsal examination and removal of FB, ask the patient to look up and the eyelid will return to its normal position
- Examine the rest of the eye for further particles
- If a corneal abrasion has resulted, instil antibiotic eye drops or ointment and apply a firm eye dressing, using two pads (a bandage may be added), for 24 hours (pictures 3 and 4).

Review the eye after 24 hours or earlier if pain persists.

Finally
- Wipe needle with a swab to confirm removal of FB and show it to the patient – this will reassure him/her it has been removed
- Dispose of needle carefully in an appropriate container.



Pak Sang Lee

Cactus design and illustration Ltd.

How to remove a corneal foreign body

Indication
- To remove superficial material from the surface of the cornea, e.g., metal fragment.

You will need
- Slit lamp or magnification and torch
- Fluorescein strips
- Local anaesthetic drops
- Sterile No.21 gauge needle
- Sterile cotton buds
- Prescribed antibiotic eye drops or ointment
- Tape, two eye pads and bandage.

Preparation
- Position the patient comfortably with head supported – at the slit lamp, sitting in a chair or lying down

Method
- Instil local anaesthetic drops and fluorescein dye
- Ask the patient to look straight ahead, fix gaze and keep perfectly still
- With one hand, **gently** control the patient's eyelids
- With the other hand, support the sterile needle with two fingers and the thumb
- Approach the cornea slowly with the bevel of the needle uppermost and horizontally 'flat on' to the cornea
- Gently lift off the foreign body (FB) from the corneal surface. ***Sometimes this is possible simply using a moist cotton bud and is safer practice in less skilled hands***
- Check the patient's eye, carefully everting the upper eyelid to ensure no FB's remain – a corneal abrasion may be seen
- Instil antibiotic ointment and apply a firm eye dressing, using two pads and a bandage, for 24 hours.

If there is any resistance and the FB does not come off easily do not persist! The FB may be deeply embedded and this situation should be referred for further medical attention.

Finally
- Wipe needle with a swab to confirm removal of FB and show it to the patient – this will reassure him/her it has been removed
- Dispose of needle carefully in an appropriate container.

Establishing the evidence-base for the prevention and management of ocular injuries

Richard Wormald
Co-ordinating Editor, Cochrane Eyes and Vision Group (CEVG), International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

The International Cochrane Collaboration is organised into collaborative review groups that focus on clinical topic areas varying from the broad (such as skin disease or eyes and vision), to the specific (such as schizophrenia or multiple sclerosis). There are also groups focusing on areas of clinical activity that cross specialities such as infectious diseases, which deals with many tropical diseases, and the Cochrane Injuries Group, which tackles the prevention and management of acute injury. The latter group is based with us at the London School of Hygiene and Tropical Medicine and we are fortunate to share expertise with them through our Trials Search Coordinator, an experienced information scientist. The important question of how to prevent and manage ocular injuries has not so far been addressed by either group. On being invited to write on this topic for the *Community Eye Health Journal*, we have been provoked into exploring a collaborative effort between our two groups to fill this gap.

The first step is to think about the most important questions and how to divide up this large topic area. A single review on the prevention and management of ocular injuries would be unmanageable. In terms of establishing the evidence-base for prevention, we need to decide on the focus. Ocular injuries occur in the work place (both industry and agriculture), home and in sport. Should we do separate reviews for separate environments, or focus on the intervention – protective goggles, seat belts in motor vehicles, warnings and information? This is an interesting stage in the development of a Cochrane review.

We need to think carefully about the question that we are trying to answer in terms of its relevance and we need to pose the question in a way that it can be answered meaningfully. The acronym, *Pico*, serves to remind us of the key components of the question:

- Population (who are the targets of the intervention)
- Intervention (e.g. seat belts or goggles)
- Comparison (e.g. goggles vs nothing or information)
- Outcome (how will the impact of the intervention be measured (incidence of severe injury or just compliance).

The next stage of the process is to register the title. This is done by email – the forms are available on the internet at www.cochraneeyes.org. The purpose of title registration is to prevent unnecessary duplication. Doing a Cochrane review is a substantial effort and it is a great shame if such an effort is wasted. Registering the title indicates a commitment to complete the review in a reasonable time frame. The reviewer is asked for an estimated date for completion of the draft, and while this is not rigidly enforced, failure to meet deadlines will lead to the title being withdrawn and made available for others.

ICEH

'A single review on the prevention and management of ocular injuries would be unmanageable'

Following registration of the title, the next step is completion of the protocol setting out how the Review will be done. This goes through peer review for context and methodology and is then published on the Cochrane Library. This is so that the review is explicitly protocol-driven and can, and should, be available for comment and suggestions through the online comments and criticism process. This is an interactive feature of the Cochrane Library which can be accessed via our website. The review is then conducted per protocol, peer reviewed again and finally published. It is then possible to publish alternative versions of the review in other journals. But the critical quality of the electronically published Cochrane review is the commitment to update it at least every two years and whenever any important new and relevant trial is published.

Cochrane reviews include only the best quality evidence. There is no point in summarising and disseminating evidence that is unreliable or likely to be biased. For most health care interventions, this means including only well conducted randomised controlled trials that are evaluated according to clear criteria for the control of bias and confounding. But for studies on prevention of injuries, it is often difficult to design prospective trials, and reviews done by the Cochrane Injuries Group will sometimes include observational studies. For example, the effect of cycle helmets in reducing the risk of severe head injury cannot easily be studied in a prospective randomised trial. We shall have to consider these issues in a review on the effectiveness of preventing eye injury.

Reviews on ocular injuries currently underway

Some reviews on the management of ocular injuries are already underway (Table 1). Some of these are nearing completion. The review on patching for corneal abrasion is interesting. It appears that there is no evidence that this traditional treatment for abrasion helps.

Anyone wishing to contribute to review activity should contact the Review Group Coordinator at cevg@Lshtm.ac.uk

Table 1. Management of ocular injury reviews currently underway

Topic	Stage in the review process
Interventions for recurrent corneal erosions	Protocol
Medical interventions for traumatic hyphaema	Protocol
Patching for corneal abrasion	Protocol
Surgery for traumatic optic neuropathy	Protocol
Steroids for traumatic optic neuropathy	Title
Steroids for traumatic optic neuropathy	Registered title

EXCHANGE

Thoughts on establishing mid-level ophthalmic personnel for VISION 2020 in India

Noela Marie Prasad
Consultant Ophthalmologist. Lotus Eye Care Hospital, Coimbatore -14, India.

Mid-level ophthalmic personnel (MLOP) are dedicated ophthalmic paramedics and nurses in ophthalmic departments. In 1980, a WHO Task Force on training such auxiliaries identified three levels of workers in India, with varying levels of training. MLOP might be hospital-based (nurses, refractionists, ophthalmic technicians/assistants, theatre personnel etc.), or community-based personnel.

One of the targets recommended at the National Conference on Primary Eye Care to support VISION 2020 (Coimbatore, April 2002) was to post one MLOP per 50,000 population throughout the country by 2020. In 2003, the National Working Group on VISION 2020 recommended a ratio of three to four MLOP per ophthalmologist in hospitals.

There is no recent data on the number of MLOP working in this capacity, or of their distribution across the country. In 2003, an estimated 6,000 community ophthalmic assistants and 18,000 hospital ophthalmic paramedics had been trained. These numbers were projected to increase to 10,000 and 30,000 respectively by the year 2005.

Training of MLOP

Training courses are conducted by the government and the private non-governmental sector. There is no standardised duration, curriculum, accreditation status or intake. Few training centres have data on the work their graduates go on to do.

Available information identifies 50 training institutions across the country for MLOP, with an annual output of 1,200 community ophthalmic assistants, and 1,500 hospital ophthalmic paramedics.

Concerns

A number of concerns arise from the present situation:

- non-standardised training, with no accreditation requirements, results in the need for retraining personnel who change jobs
- no guarantee of a job (except in the governmental sector) results in attrition of trainees and of trained personnel
- no clear career structure, and very little continuing education, results in demotivation
- ophthalmologists, trainee ophthalmologists and optometrists spend a significant proportion of their time doing jobs that could be done by an MLOP. Job satisfaction is often low, consequent to an inappropriate job-skills match.

Proposed solutions

1. A national meeting of experts from training centres is planned for early 2006 to create a curriculum. If planned in a modular format, this curriculum could be relevant to training MLOP in specific roles.
2. The career aspirations of experienced MLOP should be taken into account while formulating a career path for these cadres of staff. The modular curriculum will help the worker in deciding which path to opt for.
3. Standardised training will help create a common platform for employment, and encourage new entrants into the field.
4. Continuing education and updates should be planned.
5. Services can be made efficient and the morale of staff improved if personnel perform the highly skilled tasks for which they are trained.
6. True decentralization of the National Programme for Control of Blindness will occur if MLOP who show initiative are included in planning for the district through the District Blindness Control Society (DBCS). This will provide a career path option for MLOP, as well as improving the functioning of the DBCS.

Submissions to the *Community Eye Health Journal*

Community Eye Health Journal is published quarterly. It addresses the problem of avoidable blindness and focuses on countries where the burden of preventable blindness is greatest. Articles combine clinical issues with public health approaches, which include disease control, research, planning and management, appropriate technology, human resource development, advocacy, social sciences and health communication. Attention is also paid to programmes for people who are blind or living with low vision. The principle aim of the journal is educational, to ensure that up-to-date and relevant information reaches eye care and general health workers of all levels in a reader-friendly format that can easily be adapted for training. The journal is also published on-line and on CD-ROM. Selected articles are published in special French and Chinese editions. The Indian edition includes a four page supplement containing articles relevant to Indian readers and managed by the Indian Supplement Editorial Board.

Contributions are considered in two broad categories:

1 Thematic commissioned articles

Each issue is based on a theme for which all articles are commissioned. The editorial committee maintains a database of authors who are specialists in their field and able to provide a synthesis of relevant research and best practice, with reference to the realities of work in countries where most preventable blindness occurs. Invited authors are provided with a detailed brief for their article in a commissioning letter, and work closely with the Editor on the format and appropriate graphics to ensure that each issue is presented as a high quality reference source.

2 Unsolicited articles: the EXCHANGE section

Non-commissioned articles are considered for publication in the EXCHANGE section. Authors are invited to submit brief reports, research abstracts or letters (no more than 500 words) on topics related to community eye health and prevention of blindness. Figures, tables and other graphic material are also considered for the EXCHANGE section.

Authors are expected to have obtained necessary ethical permissions for the use of photographs and agreement from publishers of previously published work. Submissions should preferably be made in digital format, but hard copy is also accepted. Full name of authors, qualifications, affiliation and address must be provided, as well as credits for any photographs or illustrations.

Email: Victoria.Francis@Lshtm.ac.uk
Anita.Shah@Lshtm.ac.uk

Post: EXCHANGE section, Community Eye Health Journal, ICEH, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

For more details on author guidelines, please see our website www.jceh.co.uk or email Anita.Shah@Lshtm.ac.uk or write to Anita Shah at the address above.

Penetrating eye injuries in South African children: aetiology and visual outcome

Grieshaber MC, Stegmann R.

PURPOSE: To assess the aetiology, prognosis, and visual outcome of penetrating eye injuries in South African children. METHODS: In all, 100 consecutive patients, aged 16 years and under, with penetrating ocular injuries undergoing surgery between January 2001 and November 2002 were prospectively evaluated. RESULTS: Most children (66%) were injured during play. In all, 55% of penetrating eye injuries occurred at home, and all injuries to children under the age of 6 years occurred there. Most injuries occurred in the absence of a caregiver (85%). Sticks, wire, and glass caused half of all injuries (48%). The most common mechanism of injury was impact with a sharp object (46%). Only 25% of injured presented to the hospital within 24 hours of injury; the more severe the sustained injury and the younger the patient, the earlier was attendance at the clinic. Most patients (71%) regained best-corrected visual acuity (Snellen equivalent) of 20/200 or better, and 51% regained 20/40 or better. Patient age and delay of presentation were not of prognostic value. Indicators of poor visual outcome were identified as wound size greater than 11 mm in length, mixed corneoscleral type wounding, and involvement of the lens and posterior segment in the injury. CONCLUSIONS: Penetrating eye injuries in African children, reviewed here, generally occur when children are at play in a domestic setting. Effective prevention should stress parental awareness, careful supervision, greater home safety, safe toys, and avoidance of hazardous games.

Reprinted courtesy of:
Eye. 2005 Jul 1; [Epub ahead of print]

Effectiveness of community health workers for promoting use of safety eyewear by Latino farm workers

Forst L, Lacey S, Chen HY, Jimenez R, Bauer S, Skinner S, Alvarado R, Nickels L, Zanoni J, Petrea R, Conroy L.

BACKGROUND: To evaluate The Community Health Worker "promotor de salud" (CHW) model is evaluated as a tool for reducing eye injuries in Latino farm workers. METHODS: In 2001, 786 workers on 34 farms were divided into three intervention blocks: (A) CHWs provided protective eyewear and training to farm workers; (B) CHWs provided eyewear but no training to farm workers; (C) eyewear was distributed to farm workers with no CHW present and no training. RESULTS: Pre- and post-intervention questionnaires demonstrated greater self-reported use of eyewear in all blocks after the intervention ($P < 0.0001$), with Block A showing the greatest change compared to B ($P < 0.0001$) and C ($P = 0.03$); this was supported by field observations. Block A showed the greatest improvement in knowledge on questions related to training content. CONCLUSION: CHWs were an effective tool to train farm workers in eye health and safety, improving the use of personal protective equipment and knowledge.

Reprinted courtesy of:
Am J Ind Med. 2004 Dec;46(6):607-13.

Ocular trauma in a rural south Indian population: the Aravind Comprehensive Eye Survey

Nirmalan PK, Katz J, Tielsch JM, Robin AL, Thulasiraj RD, Krishnadas R, Ramakrishnan R.

PURPOSE: To determine the rate of ocular trauma in a rural population of southern India and its impact on vision impairment and blindness. METHODS: A population-based cross-sectional study of 5,150 persons 40 years or older in a randomly chosen rural population of three districts of southern India. Prospective information on trauma, type and agent of injury, setting of injury, and details of treatment sought for the last episode was recorded with questionnaires after face-to-face interviews. All interviewed subjects underwent a comprehensive ocular examination, including vision estimations, slit-lamp biomicroscopy examinations, and dilated posterior segment examinations. RESULTS: We elicited a history of ocular trauma in either eye from 229 (4.5%) persons, including 21 (0.4%) persons with bilateral ocular trauma. Blunt injuries (n = 124; 54.9%) were the major cause for trauma reported in this population. The most common setting where the ocular trauma occurred was during agricultural labour (n = 107; 46.9%). Nearly three quarters (n = 170; 74.2%) of those reporting ocular trauma sought treatment from an eye specialist (n = 104; 57.8%) and one fifth (n = 37; 20.6%) from a traditional healer. The age-adjusted (adjusted to the population estimates for India for the year 2000) prevalence for blindness in any eye caused by trauma was 0.8% (95% confidence interval [CI], 0.4-1.1). The odds ratios (OR) for trauma were higher for males (OR, 2.2; 95% CI, 1.6-3.0) and labourers (OR, 1.7; 95% CI, 1.2-2.4) and lower for literates (OR, 0.7; 95% CI, 0.5- 0.9). Seeking treatment from a traditional eye healer for trauma was not associated with vision impairment (OR, 1.0; 95% CI, 0.3-3.2) or with blindness (OR, 3.4; 95% CI, 0.2-56.5). CONCLUSIONS: Eye care programs may need to consider ocular trauma as a priority in this population, because the lifetime prevalence of ocular trauma is higher than that reported for glaucoma, age-related macular degeneration, or diabetic retinopathy from this population. Simple measures such as education regarding the use of protective eyewear could possibly significantly decrease this preventable cause of visual disability.

Reprinted courtesy of:
Ophthalmology. 2004 Sep;111(9):1778-81.

The epidemiology of ocular trauma in rural Nepal

Khatry SK, Lewis AE, Schein OD, Thapa MD, Pradhan EK, Katz J.

AIMS: To estimate the incidence of ocular injury in rural Nepal and identify details about these injuries that predict poor visual outcome. METHODS: Reports of ocular trauma were collected from 1995 through 2000 from patients presenting to the only eye care clinic in Sarlahi district, Nepal. Patients were given a standard free eye examination and interviewed about the context of their injury. Follow up examination was performed 2-4 months after the initial injury. RESULTS: 525 cases of incident ocular injury were reported, with a mean age of 28 years. Using census data, the incidence was 0.65 per 1,000 males per year, and 0.38 per 1,000 females per year. The most common types of injury were lacerating and blunt, with the majority occurring at home or in the fields. Upon presentation to the clinic, 26.4% of patients had a best-corrected visual acuity worse than 20/60 in the injured eye, while 9.6% had visual acuity worse than 20/400. 82% were examined at follow up: 11.2% of patients had visual acuity worse than 20/60 and 4.6% had vision worse than 20/400. A poor visual outcome was associated with increased age, care sought at a site other than the eye clinic, and severe injury. 3% of patients were referred for further care at an eye hospital at the initial visit; 7% had sought additional care in the interim between visits, with this subset representing a more severe spectrum of injuries. CONCLUSIONS: The detrimental effects of delayed care or care outside of the specialty eye clinic may reflect geographic or economic barriers to care. For optimal visual outcomes, patients who are injured in a rural setting should recognise the injury and seek early care at a specialty eye care facility. Findings from our study suggest that trained non-ophthalmologists may be able to clinically manage many eye injuries encountered in a rural setting in the "developing" world, reducing the demand for acute services of ophthalmologists in remote locations of this highly agricultural country.

Reprinted courtesy of:
Br J Ophthalmol. 2004 Apr;88(4):456-60.

Abstracts continue on page 114 ➤

Welding related occupational eye injuries: a narrative analysis

Lombardi DA, Pannala R, Sorock GS, Wellman H, Courtney TK, Verma S, Smith GS.

OBJECTIVE: To determine the activities and circumstances proximal to a welding related occupational eye injury, a hybrid narrative coding approach derived from two well developed classification systems was developed to categorize and describe the activity, initiating process, mechanism of injury, object and/or substance, and the use of protective eyewear from the narrative text data reported for each injury. METHODS: Routinely collected workers' compensation claims over a one year period (2000) were analyzed from a large US insurance provider. An index term search algorithm of occupation, incident, and injury description fields identified 2209 potential welding related eye injury claims. After detailed review of these claims, 1353 welders and 822 non-welders were analyzed. RESULTS: During 2000, eye(s) as the primary injured body part accounted for 5% (n = 26 413) of all compensation claims. Eye injuries accounted for 25% of all claims for welders. Subjects were mainly male (97.1%) and from manufacturing (70.4%), service (11.8%), or construction (8.4%) related industries. Most injuries were foreign body (71.7%) or burn (22.2%) and 17.6% were bilateral. Common activities include welding (31.9%) and/or grinding (22.5%). Being struck by an airborne object occurred in 56.3% of cases. Non-welders showed similar patterns except that burns (43.8%) were more frequent and more often initiated by another worker (13.9%). CONCLUSIONS: Narrative injury text provides valuable data to supplement traditional epidemiologic analyses. Workers performing welding tasks or working nearby welders should be trained to recognize potential hazards and the effective use of proper safety equipment to prevent ocular injury.

Reprinted courtesy of:
Inj Prev. 2005 Jun;11(3):174-9.

Serious eye and adnexal injuries from fireworks in Northern Ireland before and after lifting of the firework ban – an ophthalmology unit's experience

Chan WC, Knox FA, McGinnity FG, Sharkey JA.

BACKGROUND/AIMS: To report serious fireworks-related eye and adnexal injuries presenting to the Department of Ophthalmology in the Royal Victoria Hospital, Belfast. To assess the effect of lifting of the legislative ban on fireworks in Northern Ireland in 1996. METHOD: Twelve year retrospective review from 1990 to 2001 inclusive of all ocular and adnexal injuries from fireworks requiring hospitalisation to the ophthalmology department. RESULTS: Twenty three patients with 23 injured eyes were reported. Six were female. The mean age was 18 years (+/- 13 SD). Six patients presented between the years 1990 and 1995. The remaining 17 patients presented between 1996 and 2001. Nearly half of the patients required ophthalmic surgical procedures. Thirty-six percent of patients had a final visual acuity of 6/60 or less. Superficial trauma not requiring hospitalisation was not included. CONCLUSION: Removal of the legislative ban on fireworks in 1996 has had a significant effect on the incidence of eye injuries. These injuries are potentially preventable with stricter control on the availability of fireworks and a greater awareness of the ocular risks they pose.

Reprinted courtesy of:
Int Ophthalmol. 2004 May;25(3):167-9.

Courses and conferences

Bridging Communities and Eye Care Providers to Achieve VISION 2020 in Africa

Date: December 5-10, 2005
Venue: Moshi, Tanzania.
Course objectives: To address the challenge of developing and implementing strategies for bridging communities and hospitals. This course will provide eye care programme managers with the skills necessary to develop, implement, and monitor strategies for increasing utilisation of services (primarily cataract, refractive error and trichiasis but also including childhood cataract and other conditions) by the population in need.
Target audience: Eye care programme managers (MoH, NGDO, service groups), trainers, and key decision makers of national prevention of blindness programmes.
Further details: For information and admission procedures please visit the KCCO website (**www.kcco.net**) or contact: Dr Paul Courtright (**pcourtright@kcco.net**) KCCO, PO Box 2254, Moshi, Tanzania.

International Ophthalmic Nurses Association, Golden Jubilee Conference – 50 years of IONA

A Celebration of Ophthalmic Nursing.
Date: April 7 & 8, 2006
Venue: London, UK.
Call for papers: Please submit an abstract of 500 words.
Application forms for IONA membership and for the conference are available from: Carol Bullock, 3 Montgomery Close, Beeston, Nottingham, NG9 6NF. UK. to whom abstracts should also be sent.
Email: **john.bullock@unisonfree.net**

World Ophthalmology Congress

(Previously called 'International Congress of Ophthalmology ICO').
Date: February 19-24, 2006
Venue: Sao Paulo, 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 website **www.ophthalmology2006.com.br**
or email: **info@ophthalmology2006.com.br**

19th International Society for Geographical & Epidemiological Ophthalmology Congress

The 19th ISGEO congress will be held in Sao Paulo, Brazil on 18-19 February 2006, prior to the World Ophthalmology Congress. Abstract submission and registration forms can be obtained by emailing Dr. Paul Courtright (**pcourtright@kcco.net**) or by accessing the ISGEO website at **www.kcco.net/isgeo**

British Council for Prevention of Blindness (BCPB) Fellowship Programme

Closing date for receipt of applications: 25th November 2005.
Aims of the Fellowships: To fund research and training in prevention of blindness for high calibre clinicians and scientists from the UK and overseas. Projects must further the goals of VISION 2020: The Right to Sight, for the elimination of avoidable blindness.

In 2006, BCPB seeks to fund one Fellow from the UK and one Fellow from a low-income country to undertake projects that focus on Africa. The Fellowships will be worth up to £60,000 per year for two or three years. Applications must be submitted jointly by the Fellowship candidate and the supervisor at the host institution in the UK.
Further details: For full information and an application form, contact Jackie Webber at BCPB, 29b Montague Street, London WC1 5BW or by email: **info@bcpb.org**
Website: **www.bcpb.org** Registered charity number 270941.

Scholarships for training in small incision cataract surgery: the *Seeing is Believing* Programme

In 2003, issue number 48, there was a major feature on manual small incision cataract surgery (SICS). This is still available from **www.jceh.co.uk/download/ceh_16_48_049.pdf** or, for those without Adobe Acrobat Reader, from **www.jceh.co.uk/journal/48.asp**

The *Seeing is Believing** SICS training programme is helping contribute to one million sight restorations. The advantages of the SICS technique are clear:

From the patient's perspective:
- faster recovery of good vision
- faster return to normal activities
- good vision in a matter of days instead of weeks or even months
- return home within hours of the procedure
- reduced cost of consumables
- reduced number of outpatient visits needed.

From the providers perspective:
- reduced chances of surgically induced astigmatism or ruptured sutures
- quick; which means more operations can be undertaken per list
- lower cost for consumables (no suture required)
- fewer outpatient follow up visits, as less astigmatism, and no sutures to remove
- better wound stability.

Seeing is Believing is a four year programme supported by Standard Chartered Bank, which aims to restore sight to one million people in ten countries by World Sight Day, 2007. One component of the programme entails offering scholarships to ophthalmologists in India, Pakistan, Bangladesh and Kenya in SICS. The SICS scholarship scheme offers partial funding up to a maximum of $500. Training has already started in India and Pakistan. Bangladesh and Kenya are developing availability. Application for this training is open to public/NGO sector surgeons (as opposed to private) with good microsurgical skills and who already do approximately 1,000 ECCE/IOL surgeries per year. Some candidates may be accepted at lower rates of output. In India the focus is on NGO/charity sector surgeons as other grants from the MoH may be available for government surgeons. The *Seeing is Believing* scholarship has an application process that identifies those surgeons who will best contribute to the objectives of the *Seeing is Believing* programme.

If your work specifically makes cataract surgery available for needy people, you have a history of high output and high quality ECCE/IOL surgery, and you would like to undertake this training, please send for further details. You should email Sight Savers International (SSI) for an application form and more details, depending on your country of residence, as follows:

India: Ranjish Kattady at **rkattady@sightsavers.org**
Pakistan: Niazullah Khan at **nkhan@sightsavers.org.pk**
Bangladesh: Dr Enamul Kabir at **ekabir@netezen.net**
Kenya: Nancy Thuo at **nthuo@sightsavers.org.ke**

No other subsidiary correspondence will be entered into. The final choice of candidates rests with SSI Head Office in the UK.

* "*Seeing is Believing*" is a corporate social responsibility programme of Standard Chartered Bank who are working in collaboration with Sight Savers International (SSI). It is a ten-country international initiative, with SSI as lead agency, delivered through partners of SSI, Christoffel Blindenmission (CBM), The Fred Hollows Foundation, Helen Keller International and ORBIS. It features service delivery, infrastructure development, equipment supply, medicines & consumables, and training. Training for SICS is also being developed in Sri Lanka and Thailand, but are outside the scholarship scheme. The primary objective of "Seeing is Believing" is a joint effort to contribute towards one million sight restorations by World Sight Day in October 2007.

Peter Renew. Sight Savers International. UK. **prenew@sightsavers.org**

New resources from ICEH

Four posters
Stevens S. Control of Infection in Ophthalmic Practice
Stevens S & Cox I. Care of Ophthalmic Surgical Instruments
Stevens S & Cox I. Sterilization and Disinfection
Stevens S. Assisting the Blind and Visually Impaired
Available from ICEH (address on page 102)
Price: £5 per single poster, £12 for a set of any three posters, £15 for a set of any four posters. All above prices include post and packing.
Email: **Sue.Stevens@Lshtm.ac.uk**

Slide set with booklet – full colour
Stevens S. Practical Ophthalmic Procedures – Volume 4
Available from ICEH (address on page 102) Price: £15 to developing countries (£20 elsewhere) plus £5 post and packing.
Email: **Sue.Stevens@Lshtm.ac.uk**

A new comprehensive ophthalmic nursing textbook
Marsden J, editor. Ophthalmic Care
Available from ICEH (address on page 102) Discount price: £26 plus post and packing.
Email: **Sue.Stevens@Lshtm.ac.uk**

Standard List for a VISION 2020 Eye Care Service Unit
Medicines, equipment, instruments, optical supplies and educational resources 2006/07
The updated VISION 2020 Standard List 2006/7 will be available on-line from World Sight Day, 13 October 2005, at **www.v2020.org** and **www.iceh.org.uk**. In December, printed copies of the Standard List will be available free of charge from the International Centre for Eye Health. Please contact Sue Stevens at the ICEH address on page 102 or email **Sue.Stevens@Lshtm.ac.uk** to receive a paper copy of the Standard List.

Other new resources

Ophthalmic instruments and equipment – their care and maintenance
Aravind Eye Hospital, 2005 – DVD or VHS video format
Ophthalmic staff use a range of delicate, complex, and expensive equipment which needs to be kept in good order. Many of them work in hospitals far from easy access to dedicated maintenance and repair facilities. The Instruments Maintenance Department of Aravind Eye Hospital in India, with funding from Sight Savers International, has produced a CD and video which combines text, graphics, and video to create a comprehensive visual guidebook to the maintenance and repair of direct ophthalmoscope, streak retinoscope, indirect ophthalmoscope, slit lamp, operating microscope, keratometer, phaco machine, A Scan, Schiotz tonometer, optics cleaning, blood pressure apparatus and surgical instruments. This resource will be available in various formats, including DVD and VHS video, from October 2005 and will cost Indian Rs500 or UK £7.

Those resident in India wishing to purchase the CD should apply to: Manager (Stores), Aravind Eye Hospital, Madurai 625020, Tel: +91 (0) 452 535 6100 Ext 192, Fax: +91 (0) 452 253 0984, Email: **aravind@aravind.org**
Those residing outside India should contact: ICEH (address on page 102) Email: **Sue.Stevens@Lshtm.ac.uk**

Solomon AW et al. Trachoma control: a guide for programme managers
(WHO/PBD/GET/04.6) Available from the World Health Organization (WHO) Email: **pbd@who.int**

Useful resources Eye injuries

Books/Booklets

Varvinski AM & Eltringham R. Anaesthesia for ophthalmic surgery
Part 1: Regional Techniques. In: Walters F. and Wilson IH, ed. Update in Anaesthesia volumes 6-12 compendium. WFSA, 2000. A low-cost edition is available to workers in developing countries for £6. Teaching Aids at Low Cost (TALC) PO Box 49, St Albans, Hertfordshire, AL1 5TX, UK.
Email: info@talcuk.org
Website: www.talcuk.org
Fax: 44 1727 846852.
Published online in Update in Anaesthesia: Issue 6 (1996) Article 3. World Anaesthesia Online.
www.nda.ox.ac.uk/wfsa/html/u06/u06_012.htm
(accessed 28 July 2005).
Note: World Anaesthesia Online is an educational journal aimed at providing practical advice for those working in isolated or difficult environments.

Nicol A and Steyn E: Handbook on trauma for Southern Africa
Oxford University Press 2004.

***Community Eye Health Journal* issues on eye injuries**
Antipersonnel mines: why ban? Vol 10 no 23 1997.
Magnitude of eye injuries worldwide. Vol 10 no 24 1997.
Website: www.jceh.co.uk

Francis V, Wiafe B. The healthy eyes activity book. Part 3 Prevent blindness from accidents
Available in English from ICEH (address on page 102). Price: £3.00 includes post and packing. Email: Sue.Stevens@Lshtm.ac.uk
Available free online at www.iceh.org.uk/files/heab/english/heab144all.pdf

French version available from Task Force Sight and Life, BP 2116, 4002, Basel Switzerland. Email:sight.life@dsm.com

French, Tamil, Sinhalese, Chinese (Mandarin), Tibetan and Gujarati translations available from the Task Force Sight and Life website: www.sightandlife.org/booksAll/Heab.html

Videos

Diwali: Precautions for everyone
A six-minute patient information video about precaution when handling fireworks. Available from LVPEI, Central Audio-Visual Unit, LV Prasad Marg, Hyderabad – 500 034, Andhra Pradesh, India
Email: mshoba@lvpei.org

Calling all budding authors!

Article writing competition for the *Community Eye Health Journal*
Readers are invited to submit original articles (not previously published) on a theme relevant to implementing VISION 2020. Four winning articles will be published in the *Community Eye Health Journal*. Articles should be innovative, based on VISION 2020 priorities, and of interest and relevance to our readers. Our readers are mostly in developing countries and work in community eye care as general nurses, ophthalmic nurses/assistants, refractionists/optometrists, public health specialists and ophthalmologists. Winning articles will be selected by the Editorial Committee.

Length: 1,500 words maximum.

Deadline: Extended to 28th February 2006.

Photographs and graphics: Photographs, diagrams and tables can be submitted to illustrate the article. If photographs of patients are included, they should be accompanied by evidence of the patient's (or guardian's) written consent to use the photograph for educational purposes.

Format: Articles can be handwritten, typed or in electronic format.

How to send articles
By post
Article Competition, The Editor, Community Eye Health Journal, ICEH, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

By email
Put 'Article Competition' as the subject and send to: Victoria.Francis@Lshtm.ac.uk and Anita.Shah@Lshtm.ac.uk

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Sight Savers International
Dark & Light Blind Care
Conrad N. Hilton Foundation
Tijssen Foundation
ORBIS
The Fulmer Charitable Trust

Journal design by Lance Bellers

Next issue

Adrienne Burrough

The next issue of the *Community Eye Health Journal* will be on the theme **managing people**. It will also include summaries of ICEH MSc dissertations.