School eye health – going beyond refractive errors


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Visual health is linked to school achievement. PAKISTAN

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Health, including visual health, is inextricably linked to school achievement, quality of life, and economic productivity.[1] Introducing health education in schools is essential as knowledge and good habits acquired at an early age are likely to persist.

Globally, 19 million children are living with vision impairment[2] and approximately 12 million children have a significant, uncorrected refractive error. Of particular concern is the rapid increase in myopia, particularly in East Asia, where 78% of children in China are affected.[3]

School eye health programmes, when integrated into broader school health education and backed up by eye and child health services, can reach a large number of children and their families.

School eye health can encompass the following:

- **Health promotion and prevention** to increase awareness among children and teachers and to promote a healthy school environment. This can reduce the impact of local endemic eye diseases such as trachoma.
- **Primary eye care** to detect and treat common eye conditions (e.g. infections), refer people with conditions such as cataract, and to manage refractive errors with high quality, appealing and affordable spectacles.

Activities may include:

- Training children to spread eye health messages and conduct simple vision screening among peers and family members (the child-to-child approach).
- Showing children and adults how to help and interact with those who are blind or have irreversible low vision.

Children should be offered general vision screening when they enter and leave primary school, and when they leave secondary school/high school. Any child with visible eye conditions (squint, white pupil, red eyes) and associated symptoms (abnormal head/face turn, inability to copy from the blackboard, complaints of chronic headaches), should also be screened and provided with, or referred to, the appropriate services.

The ideal is to conduct eye health screening for children and teachers in school, and refer those who need further management to the eye unit for examination, refraction and dispensing of spectacles. Another option is to screen and refract the children in the school and allow them to choose a frame they like. The local eye unit can cut lenses, fit them and deliver the spectacles to the school.

Factors that contribute to a successful school eye health programme include:

- The support and engagement of the local education authorities.
- The involvement of parents/carers.
- The enforcement of policies and guidelines to prevent unnecessary prescribing (see below).
- Financial support for optical correction from the government (child health services/insurance schemes).
- Qualified personnel to fit affordable and good quality spectacles.

Spectacles should **not** be prescribed to children with minimal refractive error. Children will not notice a significant improvement in their vision and will therefore simply not wear them! This is a waste of resources.

The guidelines for correction are:

- myopia ≥-0.50D
- hypermetropia ≥+2.00D
- astigmatism ≥ 0.75D

To increase follow-up and referral, the following must be systematically recorded.

- Uptake of referrals (to ensure services are accessed, including low vision care).
- Spectacle wearing after 3–4 months and any reasons for non-wear.
- Any educational adjustments made for children identified with irreversible vision impairment (by consulting with teachers).
- New and/or progressed myopia cases and replacement of broken/missing spectacles (by repeating screening of 11–15 year-old children).

In order to increase coverage, members of school health programmes can work with school nurses and teachers after consultation with educational authorities.

In order to make informed decisions, research (which can be multi-disciplinary) plays a pivotal role in providing evidence, which might be needed for:

- Planning – needs assessment based on prevalence data, reviews of existing resources and analysis of policy.
- Improving implementation – operational research to identify gaps and challenges could improve the efficiency, effectiveness and quality of programmes.
- Assessing impact – in terms of satisfaction, academic achievement, quality of life, etc.

Eye health is an essential part of a school health programme and should be comprehensive and respond to the locally relevant eye conditions and diseases. Correction of refractive errors is critical but should not be the only focus of a school eye health programme.

Figure 1 describes a systematic approach to school eye health.

Figure 1. A systematic approach to school eye health

In the school

As part of the curriculum [using the *Healthy Eyes Activity Book*]

- Education on how to keep eyes healthy
- Personal hygiene education, which includes face washing
- Children encouraged to take these health messages home
- Primary eye care provided by a trained school nurse or teacher

Visit by the eye care team

- Screen teachers and alert them to eye conditions/low vision
- Train teachers to screen visual acuity at 6/12 level

After visit by the team

- Teachers screen children and list those who fail

Second visit by the eye care team

- Refract and dispense spectacles to children with significant RE

Refer children with complex refractive error and other eye conditions

In the eye unit

- Refract and dispense spectacles to children with complex prescriptions
- Diagnose and manage other eye conditions
- Low vision assessment. Prescribe low vision devices if required, and provide training in their use

In the school

Post-service

- Encourage children to wear their spectacles in class
- Support children with low vision

Compliance monitoring by eye care team

- Ensure children wear their spectacles

References

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Electrosurgical units – how they work and how to use them safely

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Electrosurgery is used routinely in eye surgery to cut, coagulate, dissect, fulgurate, ablate and shrink tissue. High frequency (100 kilohertz to 5 megahertz), alternating electric current at various voltages (200–10,000 Volts) is passed through tissue to generate heat. An electrosurgical unit (ESU) consists of a generator and a handpiece with one or more electrodes. The device is controlled using a switch on the handpiece or a foot switch.

Electrosurgical generators can produce a variety of electrical waveforms. As these waveforms change, so do the corresponding tissue effects.

In **bipolar electrosurgery** (Figure 1), both the active electrode and return electrode functions are performed at the site of surgery. The two tips of the forceps perform the active and return electrode functions. Only the tissue grasped in the forceps is included in the electrical circuit. Because the return function is performed by one tip of the forceps, no patient return electrode is needed. Bipolar electrosurgery operates regardless of the medium in which it is used, permitting coagulation in a fluid environment – a great advantage when attempting to coagulate in a wet field. As a result, bipolar electrosurgery is often referred to as 'wet field' cautery.

In **monopolar electrosurgery** (Figure 2), the active electrode is placed at the surgical site. The patient return electrode (also known as a 'dispersive

Continues overleaf ➤

Figure 1. Bipolar electrosurgery

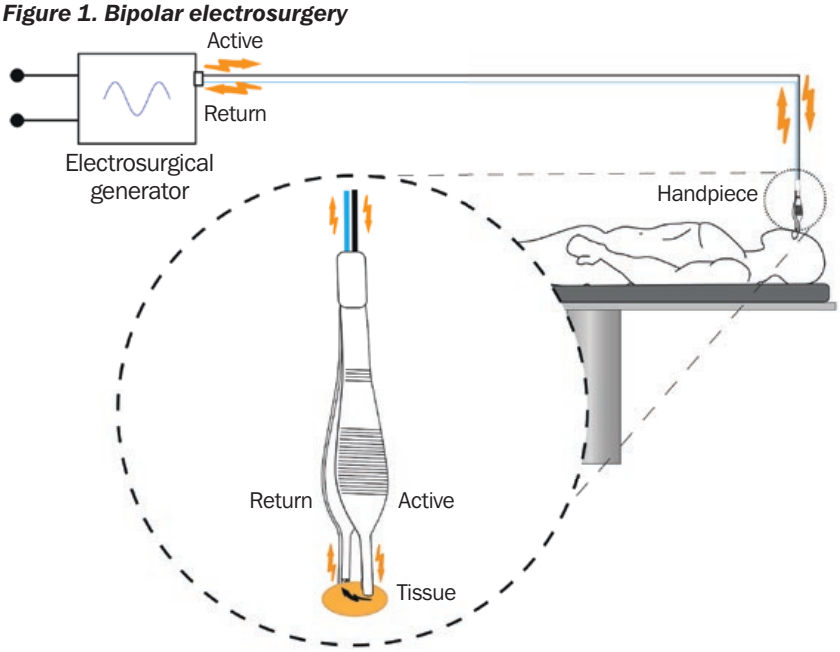

Figure 2