Myopia is a growing epidemic that will affect half the global population by 2050, and its complications can cause irreversible visual loss.

People with myopia – or short-sightedness – are unable to see objects that are far away, but can see near objects clearly. This affects every aspect of their life, including education, employment and safety.

Over 2 billion people worldwide are estimated to have myopia, defined as ≤ -0.5 dioptres (D). Of these, around 10% have high myopia, defined as ≤ -5 D. People with high myopia are at increased risk of potentially blinding eye conditions such as macular degeneration, retinal detachment, open-angle glaucoma and cataract.

Myopia is already a major public health challenge. In 2015, an estimated 480 million people worldwide were considered blind or visually impaired because they did not have access to spectacles, making myopia the leading cause of visual impairment and blindness worldwide.

By 2050, myopia is expected to affect 5 billion people, which is half of the projected global population at that time. This will place an even greater burden on health services to provide spectacles and to prevent and manage the conditions associated with high myopia.

Uncorrected myopia, together with macular degeneration, were estimated to be responsible for a US $250 billion loss in global productivity in 2015. As myopia becomes more common, this is set to rise.
About this issue

Myopia, or shortsightedness, is a major public health problem in East Asia. As low- and middle-income countries become more urbanised, the myopia ‘epidemic’ is likely to spread. This issue looks at ways to prevent and manage myopia and minimise its impact.

Contents
1 Myopia: a serious condition that needs our attention
  Hasan Minto, Priya Morjaria and Kovin Naidoo
2 How myopia develops
  Priya Morjaria
3 High myopia and its risks
  Katie M Williams, Christopher Hammond
4 The impact of uncorrected myopia on individuals and society
  Nathan Congdon, Anthea Burnett, Kevin Frick
5 Myopia: a growing epidemic
  Tim Fricke, Priya Morjaria, Sumrana Yasmin
6 Can myopia be prevented?
  Krupa Philip, Xianguo He, Padmaja Sankaridurg
7 Myopia in low-resource settings
  Ian G Morgan, Amanda Nicole French, Kathryn A Rose
8 Advocacy to reduce the risk of myopia
  Tim Fricke, Priya Morjaria, Sumrana Yasmin
9 Preventing myopia in East Asia
  Jason James Ha, Mingguang He
10 How to detect myopia in the eye clinic
  Michelle L Hennelly
11 Practical tips for managing myopia
  Michael Morton, Ling Lee, Priya Morjaria
12 Optical interventions to slow the progression of myopia
  Tim Fricke, Daniel Tilia, Minh Anh Tran, Helena Hurairah
13 Pharmacological interventions in myopia management
  Tim Fricke, Priya Morjaria, Sumrana Yasmin
14 TRACHOMA: Sustaining trachoma elimination: Lessons from North Africa and the Middle East
  Farzad Mohammadi, Jaouad Hammou, Abdulatif Al Raisi Saleh Al Harbi
15 ONCHOCEARIASIS: Onchocerciasis elimination mapping
  Louise Hamill, Becks Hill, Alex Pavluck and Philip Downs
16 Test yourself
17 Picture quiz and Announcements & resources
18 Key messages

EDITORIAL
Continued

Making a difference
Meeting the need for myopia correction, and slowing down or reversing the global increase in myopia, requires that we address service delivery, access to affordable correction, health promotion, advocacy and policy change at both national and global level. Collaboration between government, civil society, researchers, innovators and the private sector – rather than competition – is essential. The International Myopia Institute (www.myopiainstitute.org) is one example of a collaboration that is bringing about consensus on key issues such as definitions, clinical guidelines, clinical trials, and how to involve industry. We need more coalitions around education, service delivery, health promotion, advocacy, and research. Coalitions and partnerships will allow us to scale up efforts and make the impact that is needed.

Governments must take the lead in addressing the increase in myopia. National policies must address child eye health specifically; e.g., by making eye examinations compulsory for children at school entry and making it easier to import (or manufacture) products and drugs that can help to control myopia progression. Healthy school initiatives should include spending time outdoors as this has been shown to delay the onset of myopia (which means that children would be less likely to develop high myopia). Schools provide an ideal point of contact between health and refractive error services for children and their parents; e.g., by hosting health promotion activities that encourage parents to take children for an eye examination and to get the appropriate correction for them.

The private sector must support all components of a comprehensive approach, be it service delivery, human resource development, advocacy, policy change, research or health promotion. Industry should drive the agenda to create advanced, yet affordable, myopia control products, whether contact lenses or spectacle lenses, and make them accessible for all.

Non-governmental organisations (NGOs) involved in eye health are key to supporting the comprehensive approach by prioritising advocacy and policy change.

Contact Anita Shah
anita.shah@lshtm.ac.uk

Please support us
We rely on donations / subscriptions from charities and generous individuals to carry out our work. We need your help.
Subscriptions in high-income countries cost UK £100 per year. Contact Anita Shah admin@cehjournal.org or visit our website: www.cehjournal.org/donate

Subscriptions
Readers in low- and middle-income countries receive the journal free of charge. Send your name, occupation, and postal address to the address below. French, Spanish, and Chinese editions are available. To subscribe online, visit www.cehjournal.org/subscribe

Please visit our website: www.cehjournal.org/donate

Subscriptions...
NGOs must support the scaling up of services rather than see themselves as a replacement for either government or practitioners. They play a crucial role and can adopt a more active approach to influencing change. It is vital that myopia is included in World Health Organization, UNICEF, and other broader development agendas, as myopia has the potential to slow the education of our children and thus hamper efforts to achieve the United Nations’ Sustainable Development Goals (www.un.org/sustainabledevelopment).

Optometrists, ophthalmologists and allied eye health professionals can all play a role in reducing the detrimental impact on quality of life due to myopia. Health promotion and education need to become a critical component of patient management. Eye care professionals will also need to support efforts to change government policy and use their connection in the community to become advocates for these changes. This issue discusses evidence for the myopia epidemic and the risks of high myopia along with the interventions available to reduce the risk of myopia and slow down its progression. While there are clinical and optical interventions to slow down the progression of myopia, lifestyle and environmental changes (less near work and more time outside) are arguably of greater importance as it protects children against the onset of myopia. We have included practical tips on how to detect, refer, diagnose and manage myopia. A list of data that are required for monitoring myopia management are described to encourage clinicians to begin monitoring myopia progression in patients.

Figure 1 Myopia and high myopia are rapidly increasing worldwide

![Myopia and High Myopia](image)

Adapted from Holden et al. 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>No myopia</th>
<th>Low to moderate myopia</th>
<th>High myopia</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>77.1%</td>
<td>20.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2050</td>
<td>39.5%</td>
<td>50.7%</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

Total population: 7 billion
Total population: 10 billion

School eye health programmes form an integral part of the global effort to address myopia. Read our 2017 issue on School Eye Health here: [www.cehjournal.org/school-eye-health](http://www.cehjournal.org/school-eye-health).

References

Address for subscriptions
Anita Shah, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1 7HT, UK.
Tel +44 (0)207 958 8336
Email admin@cehjournal.org

Correspondence articles
We accept submissions of 800 words about readers’ experiences.
Contact Anita Shah:
correspondence@cehjournal.org

Published by the International Centre for Eye Health, London School of Hygiene and Tropical Medicine.

Unless otherwise stated, authors share copyright for articles with the Community Eye Health Journal. Illustrators and photographers retain copyright for images published in the journal.

Please note that articles are published online first and may have been shortened to fit the available space in this printed edition.

Unless otherwise stated, journal content is licensed under a Creative Commons Attribution-NonCommercial (CC BY-NC) license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial purposes, provided that the copyright holders are acknowledged.

ISSN 0953-6833.

Disclaimer
Signed articles are the responsibility of the named authors alone and do not necessarily reflect the views of the London School of Hygiene & Tropical Medicine (the School). Although every effort is made to ensure accuracy, the School does not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use.

The mention of specific companies or of certain manufacturers’ products does not imply that they are endorsed or recommended by the School in preference to others of a similar nature that are not mentioned. The School does not endorse or recommend products or services for which you may view advertisements in this journal.