

# Myopia – A 21st Century Public Health Issue

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Based on the growing prevalence of myopia around the world, in particular in the young generations in East and Southeast Asia, it was the vision of the late Professor Brien Holden to initiate the International Myopia Institute. For long, Professor Holden, who already had founded and led the Brien Holden Vision Institute in Sydney, had realized the need to address the issues of myopia and myopia-related risks to vision, how clinicians could best manage myopia, and how further myopia research could be advanced. Myopia needed to be recognized as a public health issue if there was to be a change in the approach to this condition, and only a collaborative effort across all eye care professions and researchers could bring this about. Under the auspices of the International Myopia Institute, experts from different myopia-related fields have come together, so that synergistic effects could develop and to make their latest research accessible and easy to understand for practitioners, governments, policy makers, educators, and the general public. Starting with a World Health Organization (WHO)-associated global scientific meeting on myopia, which was held at the Brien Holden Vision Institute in Sydney, Australia in 2015, subgroups of researchers within The International Myopia Institute formed to address the major aspects of myopia. These include the public health issues of myopia, sequelae of myopia, such as the increased risks of sight-threatening complications due to glaucoma, retinal detachment, and myopic macular degeneration, the classification of myopia, prevention of myopia and its complications, and evidence for treatments. With myopia projected to affect 50% of the world population by 2050 and the fear that myopia could become the most common cause of irreversible blindness worldwide,<sup>1</sup> The International Myopia Institute, thus, is a

collaborative effort to bring together individuals from across all areas of myopia research.

As a first major step, The International Myopia Institute has edited in this special *IOVS* issue a series of white papers on defining and classifying myopia, potential interventions, clinical trials and instrumentation, industry guidelines and ethical considerations, clinical management guidelines, experimental models of emmetropization and myopia, and the genetics of myopia. These articles, summarizing the current knowledge in the field and showing trends for future developments, may form a basis for further research, bridging gaps, and connecting people who so far had not intensively exchanged information and ideas. The IMI Myopia white paper reports initiative was chaired by Earl Smith and James Wolffsohn and facilitated by Monica Jong.

The future initiatives and role of The International Myopia Institute will be to foster these scientific cooperations, to be a platform for further harmonization of definitions and guidelines, and also to promote the connections between the scientific world and the public, ultimately supporting the advocacy of this issue at the level of governments, peak health and regulating bodies.

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### References

1. Holden BA, Fricke TR, Wilson DA, et al. Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050. *Ophthalmology*. 2016;123:1036-1042.