Review of Optometric Business

SPECIAL REPORT

# Opportunities & Business Strategies in Myopia Management

**Market**
Size of the myopia epidemic & treatment potential

**Techniques**
Treatment techniques in use

**Technology**
Required instrumentation, clinical skills & processes

**Strategies & ROI**
Setting goals & measuring success



DECEMBER 2018

# TABLE OF CONTENTS




Review of Optometric Business

www.ReviewOB.com

Al Greco, Publisher
Roger Mummert, Content Director
Margery Weinstein, Executive Editor

Mark Wright, OD, FCOVD, Professional Editor
Carole Burns, OD, FCOVD, Professional Editor
Bill Scott, Jobson Research

# Redefining Myopia: A Global Call to Action in Myopia Management

By Mark Wright, OD, FCOVD
Review of Optometric Business Professional Editor

As optometrists, we are taught that myopia is an eye condition of distance blur. And we're taught how to treat it with corrective spectacle or contact lenses.

Now we're being asked why.

Today, new clinical findings may obsolete what for the past century or more has been an axiom of the optometric profession: When myopia occurs, measure and compensate for it.

New research ties myopia—specifically, high myopia defined as -5.00D or more—with notably higher incidences of eye conditions that may be detrimental later in life. These conditions include retinal tears and detachments, myopic maculopathy, cataracts, and glaucoma.

While there is not unanimous agreement as to cause nor best treatment options for myopia, the evidence is beginning to show that creeping myopia can be managed.

So what is the best treatment for our patients who show signs of myopia early on and face the risk of high myopia?

The best treatment is a determination each of us is called on to make every day in practice. In doing so, bear in mind one central clinical question: If I have the means to lessen the amount of myopia my patient ultimately has, is it not my responsibility as an eyecare provider to try to do so, to the benefit of my patient?

One thing is clear: Myopia is growing and rapidly. By mid-century, half of the world may be myopic, up from about a third today, according to the World Health Organization. The complications related to this are so enormous, we struggle to calculate them.

While this myopia epidemic is global, each of us can act locally to do our part in addressing it.

This enormous opportunity is optometry's to seize. Our profession is uniquely positioned with the clinical skills, the staffing structure, and the professional organization and support to define and deliver the highest standards of care in myopia management.

This report from Review of Optometric Business taps leaders in this field to provide a clinical overview, as well as practice management strategies to succeed in providing patients with myopia management.

This report marks the first step in what will be a sustained and growing focus on this new era of myopia management.

## Overview

# The Myopia Management Market

By Richard Edlow, OD

There is mounting evidence that the prevalence of myopia, both worldwide and in the United States, is growing at unprecedented levels. The associated public health issues go well beyond standard corrections of refractive error (i.e., eyeglasses, contact lenses and refractive surgery) to include pathology related to high myopia and loss of productivity.

A variety of recent clinical studies and research are in the process of changing the conventional management of myopia. This will ultimately change the dynamics of clinical practice for many frontline eyecare practitioners and, as a result, the economics of the eyecare industry and the individual practice.

As the prevalence of myopia rapidly grows, much is still unknown, or unproven as to the causative effects and pathophysiology. Essentially, we must look at all potential factors that might influence elongation of the eye's axial length, including environmental, genetic and physiologic considerations. For those not quite convinced that axial length could be influenced in dynamic ways, it would be worthwhile reading "Homeostasis of Eye Growth and the Question of Myopia", Neuron, Vol. 43, 447–468, August 19, 2004, Copyright ©2004 by Cell Press.

### SHIFTS IN MYOPIA OVER TIME

The past several decades have shown significant shifts in the prevalence of myopia and the resultant physiologic and anatomical changes (i.e., increased axial length). It is postulated that these changes dramatically increase the future risk and prevalence of a variety of significant pathologies, including:

- retinal detachment
- glaucoma
- cataract
- choroidal neovascularization
- staphyloma (and resultant ocular damage)
- myopic macular degeneration

Data analyzed from three longitudinal European studies clearly show the relationship between axial length elongation and increased prevalence of visual impairment. (JAMA Ophthalmology, December 2016; 134(12); 1355-1363)

Worldwide, the World Health Organization and Brien Holden Institute indicate that children with myopia will increase from 1.4 billion to 4.7 billion from 2000 to 2050, and those with high myopia (-5.00D or greater) from 163 million to 938 million (approximately 10 percent of the world's population). (Holden, Brien A., et al. "Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050." Ophthalmology 123.5 (2016): 1036-1042.)

Prevent Blindness America estimates that approximately 24 percent of the adult population has myopia of one diopter or greater. The National Health and Nutrition Examination Study (NHANES, the data center part of the U.S. Centers for Disease Control) estimates the prevalence of myopia (0.50D and greater) in the 12-to-54-year-old population to approximate 41.6 percent.

The macro data available for the U.S. is not extremely consistent by age groups, but we can safely estimate that the average exam fee and eyewear expense per individual throughout the country is $174. (Note: Vision Council data dividing total U.S. expenditures for exams, frames, lenses and contact lenses by total vision

correction users — $33.483 billion / 192.4 million users.)

So, at a minimum, we can estimate that $16 billion goes toward standard exam and refractive error corrections each year (Note: includes 9 percent of 7-to 17-year-olds and 50 percent of 20-to 59-year-olds) for myopic errors.)

Beyond the correction of refractive error, the greater concerns are related to the effects of high to severe degrees of myopia beyond adolescence. Estimates for myopia greater than or equal to -5.00D are approximately 7.5 percent of the population, thereby affecting over 13 million individuals in the U.S., based on 2017 U.S. Census data.

Various studies worldwide point to a number of causative variables, from decreased outdoor play time, increased use of digital devices, to increased pressure in the education system.

A steep increase in myopia in the U.S. is reflected in estimates from the National Eye Institute at the National Institutes of Health (NIH). Among the U.S. population aged 12 to 54, the NIH estimates that myopia increased from 21 percent in 1971 to 42 percent in 2017—and that figure is projected to rise to well over 50 percent by 2050.

PBA source: Ruderman, Marjory. 2016. Children's Vision and Eye Health: A Snapshot of Current National Issues (1st ed.). Chicago, IL: National Center for Children's Vision and Eye Health at Prevent Blindness

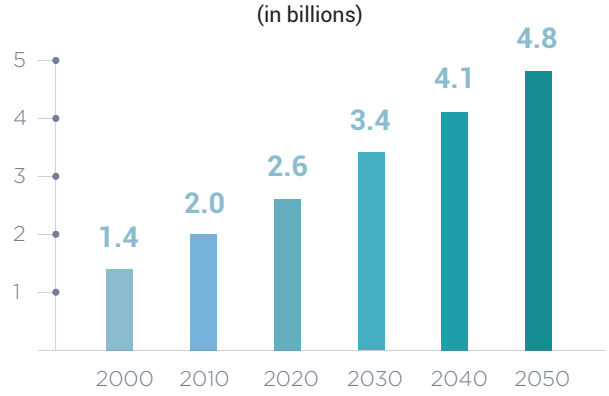
The economic costs of children's vision disorders are significant, amounting to $10 billion yearly in the United States. This estimate takes into account the costs of medical care, vision aids and devices, caregivers, special education, vision screening programs, federal assistance programs, and quality of life losses. Families shoulder 45 percent of these costs—not including the value associated with diminished quality of life.

Wittenborn JS, Zhang X, Feagan CW, et al. The Economic Burden Of Vision Loss And Eye Disorders Among The United States Population Younger Than 40 Years. *Ophthalmology*, 2013;120(9):1728-1735.

Based upon the above data, we can calculate the

## Global Prevalence of Myopia

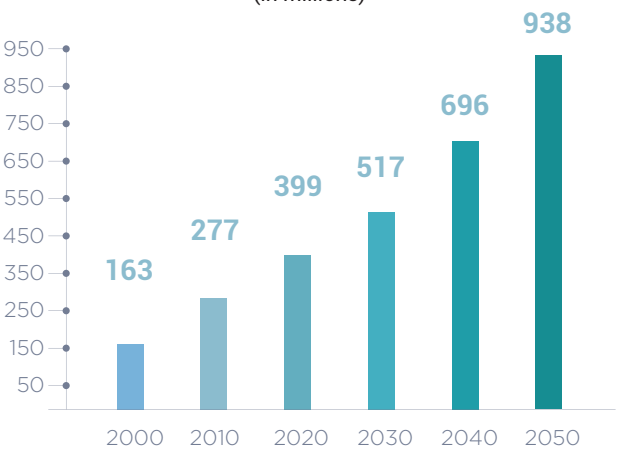
(in billions)




Holden, Brien A., et al. "Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050." Ophthalmology 123.5 (2016): 1036-1042.

## Global Prevalence of High Myopia*

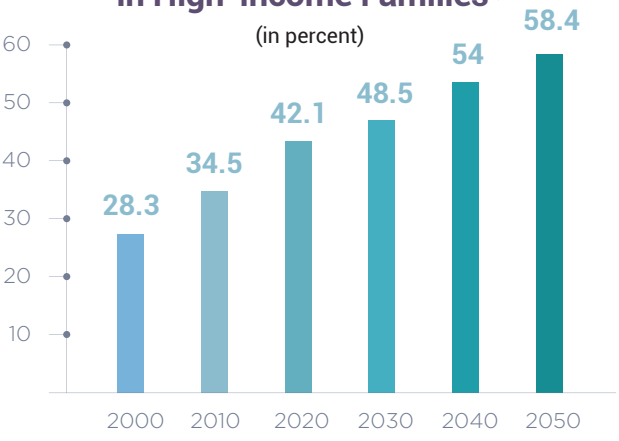
(in millions)




Holden, Brien A., et al. "Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050." Ophthalmology 123.5 (2016): 1036-1042.

## North American Prevalence of High Myopia in High-Income Families*

(in percent)




Holden, Brien A., et al. "Global prevalence of myopia and high myopia and temporal trends from 2000 through 2050." Ophthalmology 123.5 (2016): 1036-1042.

* High myopia defined as -5.00D or more

economic impact on society, the eyecare industry and on the practice level.

There are several ways to look at comparative paths. One can imagine a scenario where practitioners simply continue to correct refractive errors as they present themselves, without initiating any corrective action (see clinical aspects of myopia management) and calculate the impact on all levels.

The global prevalence of visual impairment and blindness from myopic macular degeneration is expected to increase dramatically from 2000 to 2050 if no significant intervention with effective myopia management occurs. Currently, it is estimated that 537 million people suffer some level of visual impairment from high myopia with approximately 250 million with best corrected acuity of 20/200 or worse. Additionally, the loss of productivity is measured in hundreds of billions of dollars ($240 billion U.S.).

Fricke TR, Jong M, Naidoo KS, et al. Global prevalence of visual impairment associated with myopic macular degeneration and temporal trends from 2000 through 2050. Br J Ophthalmol Epub ahead of print: 26 April 2018. doi: 10.1136/bjophthalmol-2017-311266

The incidence of rhegmatogenous retinal detachment following cataract surgery has been reported to be between 0.5 and 1.0 percent; however, the rate for individuals with high myopia is 2.4 percent.

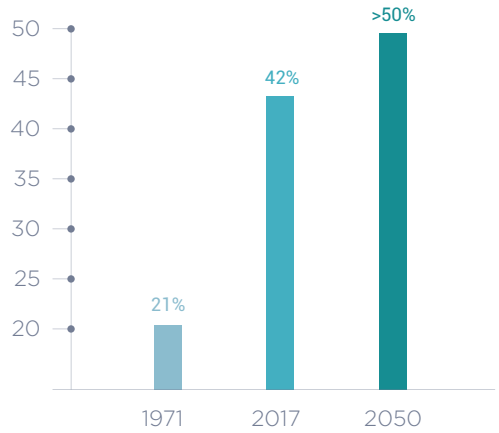
(reference: Ulster Med J. 2009 May; 78(2): 99–104. PMCID: PMC2699196 PMID: 19568445. The incidence and rate of rhegmatogenous retinal detachment seven years after cataract surgery in patients with high myopia. Michael A Williams,[1] Stuart McGimpsey,[1] Salwa Abugreen,[2] Wing Chan,[1] James A Sharkey,[1] Richard M Best,[1] and Patrick B Johnston[1])

In a study published in 2015, glaucomatous visual field defects were found to be highly correlated with degrees of myopia; high myopia having a 14x higher incidence compared to emmetropia.

(Invest Ophthalmol Vis Sci. 2013 Jan; 54(1): 830–835. Published online 2013 Jan 28. doi: [10.1167/iovs.12-11158] PMCID: PMC3562121, PMID: 23299483. Association between Myopia and Glaucoma in the United States Population. Mary Qiu,[1] Sophia Y. Wang,[1] Kuldev Singh,[2] and Shan C. Lin[1])

## Projections for Increase in Myopia

(percent of U.S. population aged 12-54)




Source: National Eye Institute at the National Institutes of Health

It is becoming more and more imperative that eyecare providers take a more active role in the prevention of myopic progression. Just as sub-markets have developed in the U.S. health care industry (e.g., with orthodontics, an $11 billion market, and hearing aids, a $7 billion market), one should expect something similar with the myopia management market.

Over the past few years, several models for the delivery of myopia management have emerged. Treehouse Eyes has established itself as a primary source for myopia management, based on a concierge approach, one patient at a time. Likewise, individual practices have taken their own lead in myopia management beyond just orthokeratology. A prime example is that of Nicholas Despotidis, OD, Eyecare Professionals, PC, in New Jersey (see page 20).

This reports describes treatment methods based on that, if just 2 percent of myopic children between the ages of 7 to 17 (45.7 million per 2017 U.S. Census estimates) were enrolled in a myopia management program, this market would generate $1.8 billion. More importantly, this would reduce future complications related to high myopia.

## Richard Edlow, OD

is known as The Eyeconomist. For many years, he chaired the AOA Information & Data Committee and continues to publish data on the economics of the eyecare industry. He is a founding partner in Catonsville Eye Group and is past president of the Maryland Optometric Association. Formerly, he was CEO of Katzen Eye Group, a 22-doctor co-managed practice.

# Myopia Management and Technology

By Daniel Press OD, FCOVD

For most eyecare professionals (ECPs), progressive myopia, especially among children, is a refractive error that they correct with single vision spectacles or contact lenses. We must stop thinking about myopia as simply a refractive error and start thinking about it as an eye health issue. Progressive myopia should be a concern for all ECPs, as it is associated with an increased risk of blinding eye diseases such as cataracts, glaucoma, retinal detachment, and myopic macular degeneration.[1]

Technology is an important consideration in myopia management. What technology assists in developing baseline measurements of myopia? What technology is beneficial for monitoring myopia progression? What technology is being used in the treatment of progressive myopia? Before answering these questions, defining myopia as more than subjective distance blur is helpful. Myopia leads to blurred distance vision, but the true concern is related to the increased axial length of the eye. Defining myopia in relation to axial length will help communicate that true concern to patients.

Why is it that the rates of myopia are skyrocketing worldwide? Due to the rapid increase in the prevalence of myopia from this generation to the last, it is believed that environmental factors are playing a significant role in the alarming rates of myopia. The advent and infiltration of technology over the previous two decades is thought to be partially responsible for the myopia surge.

There are active debates as to the role of near point stress and increasing myopia, but what has been shown repeatedly is that sunlight exposure is correlated with lower levels of myopia. Could it be simply that children are spending more time on technology and less time playing outside?

## TECHNOLOGY AND CAUSATION: SCREEN TIME

Technology and screen time should be a concern for parents and ECPs alike. When advising patients, the American Academy of Pediatrics has resources available for parents on the subject.[2] Sunlight/daylight has been shown to reduce the risk of developing myopia and in addition has been shown to possibly reduce the progression of myopia.[3,4,5] Currently parental report is the only way to assess time outdoors.

Technology to monitor light exposure in children would be useful data for the ECP, but what could be used to accomplish that purpose? Wearable technology that does not promote increased screen time, such as the GizmoWatch is gaining popularity among parents with younger children. The GizmoWatch is a kid-friendly smartwatch that does not encourage "screen addiction."[6] It is being marketed as a way to keep children safe. The watch allows for limited access to messaging and phone calls and has a GPS locator. It would be feasible to add sunlight monitoring to the existing technology which would give important information to parents and practitioners.

The educational environment is emphasizing more use of digital technology in and outside of the classroom. It is estimated that half of students in the United States have school-issued technology. There are a reported 30 million children in the U.S. that use Google's education

apps. Combine that with recreational, social and gaming use of technology, and the outlook is grim for how much time children are spending on screens.

Tech companies are beginning to recognize the concern, and new software is allowing parents to monitor screen time. For example, Apple iPhone's operating software version ios-12 has screen time insight capabilities. Not only can you monitor screen time, but you can adjust the settings to control downtime. ECPs should be equipped to educate parents on the concerns related to screen time and encourage limiting recreational screen time in the household.

## GENETICS & ENVIRONMENT

Currently, we understand the risk factors for myopia to include genetic and environmental components. The number of myopic parents is a risk factor for a child developing myopia. Is that directly due to genetic risk or is that due to cultural influences? The most likely answer is that it is due to a combination. Much work has been done in the area of genetics and myopia, and recent research has identified 161 genetic factors in myopia.[7] In the future, understanding how a different genetic makeup interacts with different environmental influences will aid in establishing a comprehensive myopia baseline. This potentially allows the ECP to identify at-risk patients, make specific environmental recommendations and tailor treatments to target the patient who may respond better to specific optical or pharmaceutical intervention.

## DEVELOP A BASELINE AND MONITOR

Once a child shows risk factors or is developing myopia, technology can play an important role in developing a baseline and monitoring progression. Currently, there is ample evidence supporting three methods for slowing myopia progression. Two interventions (orthokeratology and multifocal contact lenses) involve optical defocus, and one intervention (atropine ophthalmic solution) involves a biochemical influence. The technologies incorporated in practice should allow for the measurements of visual/ocular components that may contribute to the development of myopia or are potentially influenced by the interventions. Those components include axial length, cornea, pupil size, accommodation, and binocular vision.

Increased axial length is a risk factor for permanent visual loss.[8] An important question that is yet to be answered is what is considered satisfactory control in regards to axial length? While we wait for the data from randomized clinical trials, axial length information is critical in determining the effectiveness of any myopia intervention program, and it will likely be considered standard of care for myopia management in the near future. Axial length is measured by either ultrasound biometry or non-contact optical biometry.

*The IOL Master from Zeiss provides valuable axial length data, which is useful in guiding decision making in myopia management.*

Contact ultrasound biometry is not utilized often in clinical practice due to the difficulty in conducting the examination, particularly in the pediatric population. Therefore, the most common technology employed in measuring axial length is optical biometry. Among the available optical biometry options, the most common

technology used in research and clinical practice is the IOLMaster from Zeiss and the Haag-Streit Lenstar. The ECP can expect to spend in the range of $12,000-$15,000 for a refurbished IOLMaster 500 from Zeiss. In addition to providing valuable information, investing in this technology will help establish the clinic as one that is serious about actively managing myopia.

### CORNEAL ANALYSIS, CONTACT LENS FITTING & TOPOGRAPHY

Corneal analysis is critical for contact lens fitting, especially if fitting orthokeratology lenses. There are new technologies that combine biometry and topography. Examples of these technologies include the Aladdin HW3.0 by Topcon and the Pentacam AXL by Oculus. The prices for these technologies are likely not justified for the primary care optometrist looking to get started in the field of myopia management.

Placido-based topographers would likely be the most reasonable choice, and is considered standard of care when fitting orthokeratology lenses. Options include the Keratograph 5m by Oculus and the E300 by Medmont. The Keratograph 5m excels not only in the measurement of corneal topography but has the advantage of dry eye diagnostics and pupillometry. The E300 has the advantage with taking precise measurements with impressive accuracy and the broadest coverage of the placido disk topographers. Other technology that is helpful but not considered standard of care is wavefront aberrometry, useful in understanding higher order aberrations in the optical system.

Pupil size is critical information for the ECP when managing myopia. Objective pupillometry provides information that can be used to design optics that target the peripheral retina. In addition, pupillometry can aid in quantifying the mydriatic side effect of atropine ophthalmic solution, an increasingly common tool in combating progressive myopia. Objective pupil size can be measured with independent technology such as the VIP-300 by Neuroptics, which has the benefits of measuring pupil size under different lighting conditions. Alternatively, most topographers will allow for the basic objective measurements of pupil size.

### TECHNOLOGY & TREATMENT: PERIPHERAL MYOPIC DEFOCUS

The effectiveness of therapies for myopia utilizing optical defocus are dependent on the leading theory of peripheral myopic defocus slowing myopia progression. Technologies relying on peripheral defocus include overnight orthokeratology, daytime wear multifocal contact lenses and, more recently, spectacle designs incorporating defocus technology.

*The Keratograph by Oculus is one of the many options for topographic measurement of the cornea. Topography is essential for monitoring patients undergoing orthokeratology treatment, and it provides valuable information for many conditions affecting the cornea.*

A new spectacle lens, the MyoSmart lens by Hoya, developed in cooperation with the Hong Kong Polytechnic University, has multiple small spheres of defocus immediately outside of a clear central optic zone. A single study that was a two-year, randomized, double-blind trial showed impressive results at slowing axial elongation. Although the early evidence for the MyoSmart Lens is compelling, the eyecare practitioner should keep in mind it currently is available only in Asia. MyoSmart spectacle lenses are due for a global launch in the next two years. Another spectacle lens explicitly designed to slow the progression of myopia is the Zeiss MyoVision Pro. More study is needed in the utility of this new lens in slowing myopia progression.

Single-use (daily disposable) soft contact lenses are an attractive option for pediatric patients due to their superior safety profile. Single-use contact lenses that have promising roles in myopia management through peripheral defocus include the NaturalVue 1 Day Multifocal by VTI and the MiSight daily lenses by CooperVision (currently not available in the U.S.). Currently, there is no product design or medication that is FDA-approved for specifically reducing the progression of myopia.

Beyond those two designs, extended depth of focus contact lenses recently have been developed by the Brien Holden Vision Institute based in Australia.

### ORTHOKERATOLOGY

Orthokeratology (OK) has been indicated for the temporary reduction of myopia but also has been shown to reduce the progression of myopia.[9] The research supporting the use of OK lenses in reducing myopia progression have most often used designs of contact lens manufacturers Paragon and Euclid, which have a standard optic zone size. Designing OK lenses that control the amount of plus power in the periphery by controlling the size of the optic zone may prove to be even more effective at slowing myopia progression than what has been shown to date. OK technology that allows for better outcomes for patients with astigmatism is also available through Paragon, Euclid, and EyeSpace, among others.

### ATROPINE

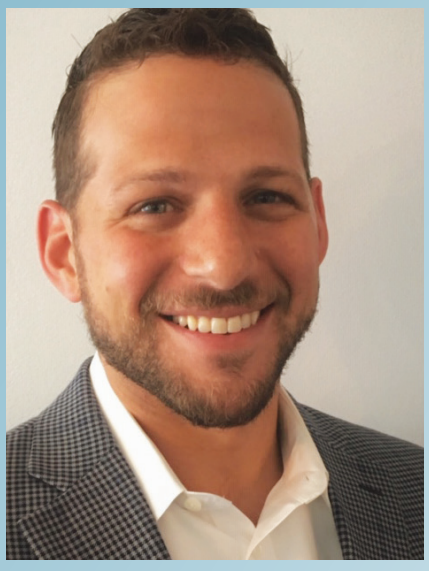
Atropine ophthalmic solution is currently the only pharmaceutical option available in the U.S. that has been shown to slow myopia progression. The most common use of atropine is with lower concentrations, as low as 0.01 percent. While on therapy it is known that the higher the concentration of atropine, the more effective the treatment.[10,11] Side effect profiles should be monitored in patients on atropine therapy, and that includes measuring accommodation and pupil size. Due to the side effects of atropine, other molecules are being explored for effectiveness of myopia control while minimizing side effects.

While atropine is a non-selective muscarinic antagonist, Pirenzepine is a selective muscarinic antagonist that does not cause mydriasis and cycloplegia. While Pirenzepine has shown positive results in slowing myopia progression, clinical trials in the U.S. have been discontinued due to intolerance by subjects. Other future possibilities in pharmaceutical intervention include the use of Dopamine, Nitric Oxide, Growth Factors, Gamma-aminobutyric Acid, and 7-methylzanthine (7-MX).[12] 7-MX is of particular interest as it is a metabolite of caffeine and dark chocolate making for good headlines!

This is an exciting time in the field of myopia management. We are still in the nascent phase of understanding how environmental, genetic, optical, pharmaceutical and other factors influence the development and progression of myopia. Existing and emerging technologies in contact and spectacle lenses, pharmaceuticals and diagnostic equipment are enhancing our ability to identify and

treat patients suffering from progressive myopia. While there is a plethora of information available on the topic of myopia, the ECP interested in providing this critically important service in the clinical setting will have a tremendous amount of new information to look forward to in these next few years.


1. Flitcroft, D. I. (2012). The complex interactions of retinal, optical and environmental factors in myopia aetiology. Progress in retinal and eye research, 31(6), 622-660.
2. https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/American-Academy-of-Pediatrics-Announces-New-Recommendations-for-Childrens-Media-Use.aspx
3. Effect of outdoor activity on myopia onset and progression in school-aged children in northeast China: the Sujiatun Eye Care Study, Ju-Xiang J et al. BMC Ophthalmology 2015 15:73
4. Risk factors for incident myopia in Australian schoolchildren: the Sydney adolescent vascular and eye study. French AN, et al. Ophthalmology. 2013 Oct;120(10):2100-8
5. Myopia Prevention and Outdoor Light Intensity in a School-Based Cluster Randomized Trial. Wu PC, Chen CT et al. Ophthalmology. 2018 Aug;125(8):1239-1250. doi: 10.1016/j.ophtha.2017.12.011. Epub 2018 Jan 19.
6. https://www.verizonwireless.com/connected-devices/verizon-gizmowatch/
7. Genome-wide association meta-analysis highlights light-induced signaling as a driver for refractive error, Nature Genetics (2018)
8. Association of Axial Length With Risk of Uncorrectable Visual Impairment for Europeans With Myopia. Tideman, Snabel, et al. JAMA Ophthalmol. 2016 Dec 1;134(12):1355-1363
9. Orthokeratology for Myopia Control: A Meta-analysis. Jun-Kang, et al. Optometry & Vision Science: March 2015 - Volume 92 - Issue 3 - p 252–257
10. A Review of Current Concepts of the Etiology and Treatment of Myopia. Cooper J, Tkatchenko AV Eye and Contact Lens Vol 44;4;2018
11. Yam, Jiang, et al. Low-Concentration Atropine for Myopia Progression (LAMP) Study: A Randomized, Double-Blinded, Placebo-Controlled Trial of 0.05%, 0.025%, and 0.01% Atropine Eye Drops in Myopia Control. Ophthalmology. 2018
12. The Science Behind Myopia. 2017 Nov 7. Carr BJ, Stell WK. In: Kolb H, Fernandez E, Nelson R, editors. Webvision: The Organization of the Retina and Visual System [Internet].


**Daniel Press OD, FCOVD**

is in private practice at North Suburban Vision Consultants, located in the north suburbs of Chicago, where he serves as the director of pediatrics, binocular vision and vision therapy. Dr. Press is board certified by the College of Optometrists in Vision Development (COVD) in vision therapy and rehabilitation and currently serves on the COVD board of directors as President-Elect. Dr. Press has authored articles and is a frequent lecturer on the topics of myopia and visual development and rehabilitation. Dr. Press is adjunct faculty at ICO, IU School of Optometry, SUNY and PCO.

## Treatment Therapies

# Current Treatments in Myopia Management

By Eric R. Ritchey, OD, PhD, FAAO

Traditionally, optometry has managed myopia from a palliative approach, treating symptoms with spectacles and contact lenses while offering little in the way of a true treatment. The advent of refractive surgery offered patients an alternative to spectacles and contact lenses; however, this option did nothing to prevent the development of ocular disease associated with increased ocular growth. While myopia prevalence has been steadily increasing for over 40 years, our understanding of refractive error development and myopia progression have also increased.[1-3] Today's optometrist can finally offer our young myopes an alternative to traditional refractive error correction that can improve their quality of life and reduce their potential for future ocular disease. Today's practitioners also have diagnostic tools at their disposal to effectively track the progression of myopia and determine if their treatment method is effective. In this article, we will discuss some of the technologies available to eyecare practitioners for the modern management of myopia.

### TO TREAT OR NOT TO TREAT?

First, we need to address the question of why we should attempt to slow myopia progression. Often the parents of potential patients do not feel that being nearsighted is a significant health concern. While most patients

**Myopia Increases the Risk of Serious Sight-Threatening Complications**

| | Relative Risk of Ocular Disease Secondary to Myopia Compared to Emmetropia[1] | | |
|---|---|---|---|
| CONDITION | -2.00 D | -5.00 D | -8.00 D |
| Myopic Macular Degeneration | 2.2 x higher | 40.6 x higher | 126.8 x higher |
| Retinal Detachment | 3.1 x higher | 9.0 x higher | 21.5 x higher |
| Cataract | 2.1 x higher | 3.1 x higher | 5.5 x higher |

References

1. Flitcroft, D. I. (2012). The complex interactions of retinal, optical and environmental factors in myopia aetiology. Progress in retinal and eye research, 31(6), 622-660.
2. Vongphanit, J., Mitchell, P., & Wang, J. J. (2002). Prevalence and progression of myopic retinopathy in an older population. Ophthalmology, 109(4), 704-711.
3. Ogawa, A., & Tanaka, M. (1988). The relationship between refractive errors and retinal detachment--analysis of 1,166 retinal detachment cases. Japanese Journal of Ophthalmology, 32(3), 310-315.
4. Lim, R., Mitchell, P., & Cumming, R. G. (1999). Refractive associations with cataract: the Blue Mountains Eye Study. Investigative Ophthalmology & Visual Science, 40(12), 3021-3026.

consider myopia to be a nuisance or a relatively benign condition, myopia has become a worldwide epidemic. Epidemiologic studies have shown that the prevalence of myopia has been steadily increasing globally, with some countries in Southeast Asia reporting myopia prevalence of 90 percent or greater in young adults by the time they enter their twenties.[4-6] The United States and Europe,

while not seeing increases as large as those seen in Asia, have also shown a steady increase in myopia development.[1, 7, 8] Along with the increase in myopia prevalence, the age of myopia onset is decreasing, meaning that the myopes we see in the future will most likely be more myopic than our current patients. The consequence of these changes is the development of future disease and quality of life for our patients. Myopia has been associated with a number of conditions, including increased odds for developing cataracts, open angle glaucoma and retinal detachment. High myopia, defined as worse than -5.00 or -6.00 diopters of myopia in most scientific publications, is associated with a number of conditions including posterior staphyloma, chorioretinal and RPE atrophy, and lacquer cracks. Most significant may be the development of myopic maculopathy, which includes macular hemorrhages, foveoschisis, macular holes and choroidal neovascularization (CNV). These conditions may lead to significant vision loss or blindness.[9-16] With an increasing number of myopic patients and more myopia-related ocular disease, myopia will become an increasingly significant financial burden on public health infrastructure, not only from the cost of spectacles and contact lenses, but, also from the increased medical and surgical expenses associated with treating high myopia.[17-20]

Given these risks, the case for attempting to slow myopia progression is compelling. However, it is important to remember that currently there is no FDA-approved pharmacological or medical device treatment for the prevention of myopia development or for the slowing on myopia progression. All of the technologies we will discuss are used on an "off-label" basis. Off-label usage of medical devices and pharmaceuticals is a common and accepted practice in health care.

Per the FDA: "Good medical practice and the best interests of the patient require that physicians use legally available drugs, biologics and devices according to their best knowledge and judgement. If physicians use a product for an indication not in the approved labeling, they have the responsibility to be well informed about the product, to base its use on firm scientific rationale and on sound medical evidence, and to maintain records of the product's use and effects."

Given this, patients who wish to pursue myopia control treatment should be educated that use of any of these technologies is off-label, the risk and benefit from use of such treatment and this education should be recorded in the patient record.

## OPTICAL CORRECTIONS

It is well established that the eye has the ability to adapt its rate of growth to the visual environment. The work of Nobel Prize winners Hubel and Weisel led to early observations that animals become myopic when deprived of clear vision (i.e., form deprivation). This observation in animals was consistent with case reports of nearsightedness in children where the eye was partially or completely occluded due to eyelid hemangiomas,

neonatal lid closure, ptosis or cataract.[21-25] Beyond form deprivation, animal models have also shown that blur induced with lenses can alter ocular growth. Animals treated with plus-power lenses, generating myopic defocus, display slower rates of eye growth compared to eyes without treatment. The retina has the ability to detect the sign of optical defocus, thus when the eye detects myopic defocus, the rate of ocular growth decreased.[26] Furthermore, this defocus does not need to be present at the fovea. Animals treated with lenses that have no power in the lens center but plus power in the lens periphery also demonstrate a reduction in ocular growth.[27] This finding suggests that optical defocus in the retinal periphery is a significant factor in regulating optical growth. This observation from animals is also consistent with case reports on refractive error from humans where the retinal periphery undergoes significant damage as children. For example, children with Retinopathy of Prematurity (ROP) that undergo cryotherapy in the retinal periphery often become highly myopic. Another study found that children treated with avastin instead of laser therapy for ROP had significantly reduced amounts of high myopia, suggesting that an intact peripheral retina is required for emmetropization in humans.[28]

Based on the findings from basic science experiments, contact lenses have been used on an off-label basis for the control of myopia progression. The key to these treatments is the location of light relative to the retina. With traditional spectacle correction in myopia, light is focused on the macula, allowing for best visual acuity; however, in the retinal periphery, light falls behind the retina. The result is a peripheral image shell formed that falls behind the retina. This is referred to as relative peripheral hyperopia, and is considered a potential stimulus for ocular growth. Optics that reduce or eliminate relative peripheral hyperopia, which pulls the image shell closer to the retina or in front of the retina, would likely reduce myopia progression. Optical designs that incorporate additional plus power while maintaining

good central acuity have the potential to shift the image shell. Contact lens technology available today, in the form of center-distance soft bifocal contact lenses and reverse-geometry orthokeratology lenses, can provide patients optical profiles to reduce relative peripheral hyperopia and slow myopia progression.

### SOFT MULTIFOCAL CONTACT LENSES

Soft multifocal contact lenses with center-distance optics commonly used to correct presbyopia through a simultaneous vision effect have been examined for potential myopia control effects. A review of the published literature by Walline reported that the average myopia control effect with soft multifocal contact lenses was 46 percent.[29] Center-distance multifocal contact lenses increase plus power in the lens periphery by using aspheric optics or concentric rings of additional plus. In presbyopes, this design provides correction for near work; however in children, this increase in plus power reduces relative hyperopic defocus, particularly with aspheric multifocal designs. Center-distance designs are used to allow children to have acceptable distance vision, where center-near designs would induce too much distance vision blur to be effective for daily wear. In the United States, commercially produced center-distance multifocal designs that have been utilized in myopia control included the Proclear and Biofinity Multifocal "D" lens (CooperVision), the NaturalVue Multifocal (Visioneering Technologies, Inc.) and custom soft contact lens manufacturers (e.g., SpecialEyes).

Additionally, a multifocal contact lens designed for myopia control, the MiSight (CooperVision) contact lens, is available in Canada, Europe and other countries; however, the lens does not have FDA approval in the United States and is not available for purchase.

The Proclear and Biofinity soft multifocal contact lenses (CooperVision) utilize Balanced Progressive® Technology, a modified monovision system featuring two different aspheric lenses: a center-distance "D" lens and a center-near "N" lens, both with add powers ranging from +1.00 to 2.50 diopters in 0.50D steps. When using these lenses for myopia control, the center-distance "D" lens is used in each eye, with a recommendation to use the +2.50D add in each eye and the sphere power fit with a maximum plus power to maximum visual acuity approach. Using this approach, a small amount of negative power in the contact lens over-refraction is anticipated for maximum distance visual acuity; however, even with this addition minus sphere power, the lens is able to produce the desired optical effect in the retinal periphery.[30] If acceptable distance vision cannot be obtained with over-refraction, the bifocal add power may be reduced. This approach allows children with up to 1.00 diopters astigmatism to be fit successfully with these lenses. If the child has -1.00D or more refractive astigmatism, the Proclear Toric Multifocal and the Proclear Toric Multifocal XR lens may be used to fit children with astigmatism up to -5.75D.

The NaturalVue Multifocal 1 Day contact lens (Visioneering Technologies, Inc.) is a center-distance aspheric multifocal design that utilizes an extended depth of focus principal. This design provides a multifocal effect for add power requirements up to +3.00D, and there is no add power selection. Initial lens power may be selected using the spherical equivalent refractive error of the subject, or by using the NaturalVue QuickStart Calculator (Apple App Store or Google Play). The clinician should then over-refract using a maximum plus to best visual acuity approach. Children with up to -1.00D of refractive astigmatism may be fit with the lens, and a toric multifocal option is currently not available. While the lens does not have an indication for myopia control from the USFDA, the lens does have a myopia control indication approval in Australia.

An alternative to mass produced commercially available lenses are custom manufactured soft multifocal contact lens options. SpecialEyes (https://specialeyesqc.com) produces two multifocal soft contact lens options: the 54 Multifocal Aspheric design and the 54 Bifocal 2-Zone Annular design made in hioxifilcon D 54 percent material. Both the 54 Multifocal and the 54 Bifocal lenses can be made in a center-distance design and offer clinicians the ability to customize the size of the center distance zone. Each design can be made in sphere and toric designs with an add power of up to +4.00D. Because of the custom nature of the product, the lenses are replaced on a quarterly basis.

The MiSight soft multifocal contact lens is a dual-focus, center-distance concentric ring multifocal with an indication for myopia control in Canada, Europe, Australia and select additional countries. The lens is available from -0.25D to -6.00D spherical power and is fit in children with -0.75D refractive astigmatism using the spherical equivalent refractive error. Three-year data from a multicenter clinical trial found a 59 percent reduction in mean cycloplegic spherical equivalent refractive error and 52 percent reduction in axial elongation with the MiSight Lens compared to children wearing a spherical contact lens.[31] Recently released data from CooperVision at the BCLA Asia meeting discussed data from Year Four of the study, where the control subjects were refit from the single vision contact lens to the MiSight contact lens. Control subjects switched to the MiSight lens had a significant reduction in myopia progression, and the rate of axial elongation and spherical equivalent refractive error change was not significantly different between the

two groups.[32] Although the MiSight contact lens currently does not have FDA approval, the lens' availability in Canada means that practitioners may field questions from their patients regarding the product.

Recommendation: Currently available soft multifocal contact lenses on the market may be used on an off-label basis to provide myopia control to pediatric patients. Lenses should be fit with a maximum plus to maximal visual acuity philosophy to avoid over-minusing patients and potentially reducing the myopia control effect. Patients requiring astigmatic correction have limited options, including the Proclear Toric Multifocal or a custom manufactured contact lens. Practitioners looking for a daily disposable option for off-label myopia control may consider the NaturalVue Multifocal contact lens.

### RGP CONTACT LENSES AND MYOPIA MANAGEMENT

Spherical Rigid Gas Permeable (RGP) lenses had been recommended as potential myopia-control treatment options in the past; however, spherical RGP lenses are no longer considered an effective treatment option. While early studies suggested that these lenses may reduce progression, these studies often had significant limitations, including not measuring the axial growth of the eye. Research studies from Katz (2003) and Walline (2004) examining the ability of spherical RGP lenses to slow ocular growth with a-scan ultrasonography showed that spherical RGP lenses do not slow axial length growth.[29] While the Walline study showed a significant refractive error effect, with RGP wearers showing less progression in spherical-equivalent refractive error for RGP wearers compared to soft contact lens wearers, the RGP wearers had significantly flatter corneal curvature, suggesting that the anecdotally-observed myopia control effects of these lenses in clinical practice was simply the outcome of corneal molding with flat fitting lenses.

While RGP sphere lenses do not slow axial length growth, orthokeratology contact lenses with reverse curve geometry do give us an opportunity to slow myopia progression. Reverse geometry orthokeratology lenses redistribute the corneal epithelium laterally from the central treatment zone, creating an annulus of plus power in the mid-peripheral cornea. The resultant annulus of positive power in the corneal mid-periphery reduces relative peripheral hyperopia for our patients.

Clinical research has shown that corneal reshaping with orthokeratology lenses does lead to a reduction in axial length growth. A review of the published literature by Walline reported that the average myopia control effect with orthokeratology contact lenses was 43 percent; however, most studies examining the effectiveness of orthokeratology for myopia control have limitations, such as lack of true randomization or being retrospective in design.[29] A randomized clinical trial in Hong Kong, the ROMIO study, found a significant reduction in myopia progression with orthokeratogy lenses compared to subjects who wore single vision spectacles over a two-year period.[33] An additional study by Charm and Cho found a myopia control effect is observed in highly myopic children (myopia of -5.00D or worse) even if overnight orthokeratology only partially corrects the child's refractive error, and she needs to wear single vision spectacles to maximize distance vision.[34] Although there are no published randomized clinical trials comparing the effectiveness of different orthokeratology designs, Kang and Swarbrick examined the relative refractive profiles generated by three different orthokeratology lenses (BE, Contex OK, Paragon CRT) in a sample of young adult myopes with mild to moderate myopia (-1.00 and -4.00 D myopia with ≤ 1.50D of with-the-rule corneal astigmatism) over a two-week wear period. Kang and Swarbrick found no differences in the peripheral refractive profile between the three lenses, suggesting that there would be no significant difference in treatment efficacy between the lenses if used for myopia control.[35]

Additional work gives additional insight into the ability of orthokeratology to control myopia progression. Recent work examining orthokeratology ability to slow myopia progression in children with fast progression (>1.00D), medium progression (0.50D to <1.00D) and slow progression (<0.50D) over the preceding seven months with spectacle wear found that orthokeratology was effective for slowing myopia progression regardless if the child was a fast, medium or slow progressor. Although orthokeratology was effective for all groups, children 6-9 years old displayed the greatest myopia control effect, and these children made up the majority of the fast progressors in the trial. These findings suggest that young myopic children are likely to be fast progressors and a myopia control options should be discussed accordingly.

Recommendation: Spherical RGPs do not provide a myopia control effect and should not be utilized. Overall evidence suggests that orthokeratology with reverse-geometry technology reduces myopia progression in children; however, there are relatively few randomized controlled clinical trials examining the effect. At this time, no evidence exists that suggests that one reverse-geometry orthokeratology lens is superior to another in controlling myopia progression. Younger children may benefit more from early intervention compared to older children.

### SPECTACLE LENSES AND MYOPIA MANAGEMENT

Spectacles utilizing multifocal optics, (i.e., bifocal additions or progressive addition lenses or PALs), have been studied as potential myopia control devices due to theories of accommodative lag and/or near work being a stimulus for myopia progression. The results of these investigations have been underwhelming. Traditional bifocal spectacles have shown little or no clinical effect for controlling myopia progression. The most successful report comes from Cheng, et al., who examined the use of +1.50D Executive-style bifocal lenses and found a 39-percent reduction in myopia progression over a three-year period (2.06D progression single vision lens; 1.25D progression executive bifocal). Cheng also examined a +1.50D Executive-style bifocal that incorporated 3 prism-diopters of Base In Prism in each lens. These lenses also displayed a myopia control effect; however, this effect was not significantly different than the effect shown by the bifocal lenses without prism. While the study displayed a treatment effect, the study population was limited to Chinese-Canadian children with a history of at least a 0.50D progression the year prior to the beginning of the study, limiting the generalizability of the findings.[36]

Progressive addition lenses (PALs) have also been examined for myopia control in a number of studies. As with bifocal spectacle lenses, research on PALs indicate that these lenses are ineffective as myopia control devices. The Correction of Myopia Evaluation Trial (COMET) study followed 462 children over a three-year period assigned to wear either a PAL with a +2.00D add or a single vision lens. While the difference in refractive error was statistically different after three years of treatment, the dioptric difference was only 0.20D.[37] Berntsen, et al. examined the use of PALs in children between the age of 6 and 11 years old with myopia between -0.75D and -4.50D and high lag of accommodation. Berntsen found a statistically significant treatment effect after 1 for the PAL group; however, the treatment effect of 0.18D was considered clinically insignificant. Berntsen also noted that accommodative lag was not associated with myopia progression.[38]

Novel spectacle lens designs have also been considered for myopia control. Sankaridurg, et al., investigated three novel spectacle lens designs in Chinese children between the ages of 6 and 16 years old that had between +1.00 to +2.00D in the lens periphery. After 12 months, no treatment effect was observed for any of the three lens types. A post-hoc analysis suggested that the one of the lens designs may provide some benefit for children

between 6 and 12 years old with myopic parents.[39] This lens is marketed in Canada by Zeiss as the MyoVision spectacle lens (https://www.zeiss.ca/vision-care/en_ca/products/eyeglass-lenses/single-vision-lenses/single-vision-myovision.html). Other novel spectacle lens designs are currently being evaluated as myopia control devices. In 2018, Hong Kong Polytechnic University released a press statement stating that they had created a spectacle lens in collaboration with HOYA Vision that has "micro-lens segments" in the mid-periphery of the lens. The "micro-lens segments" create myopic defocus and slowed myopia progression in a double-masked clinical trial. (https://www.polyu.edu.hk/web/en/media/media_releases/index_id_6530.html) (https://www.healio.com/optometry/contact-lenses-eye-wear/news/online/%7Bb5546903-a98a-4cc1-9e12-4946386211b4%7D/hong-kong-polytechnic-develops-spectacle-lens-to-slow-halt-myopia).

Recommendation: Bifocal and Progressive Addition Spectacle lenses are not considered first line treatments for myopia control. Studies of these devices have shown statistically significant treatment effects, but often the observed effect is considered clinically insignificant. Novel spectacle lens designs are marketed outside the United States and are currently being developed; however, the potential efficacy of such devices in children in the United States is unknown.

### ATROPINE AND MYOPIA MANAGEMENT

Numerous studies have shown that atropine is effective in slowing myopia progression; however, the side effects of mydriasis, cycloplegia, blurred vision and light sensitivity have limited the drug's usefulness as a myopia control treatment. A dose-response effect is seen with atropine drops, with 1 percent atropine being the most effective dosage for slowing myopia progression; however, this is offset by the most severe side effects. Decreasing atropine concentration reduces side effects, but leads to reduced effectiveness. The side effect profile of atropine has led scientists to examine lower doses of atropine (e.g., 0.5 percent, 0.1 percent, 0.01 percent) in search of a dosage that provides a treatment effect with minimal side effects. The Atropine for the Treatment of Myopia research studies (ATOM and ATOM2) are perhaps the most influential clinical trials on the topic. The ATOM trial examined eyes of 6-12-year-old children treated with 1 percent atropine compared to eyes treated with vehicle (i.e., placebo) control. ATOM revealed a significant treatment effect for refractive error and axial elongation with 1 percent atropine over a two-year treatment period. Following the successful outcome from the ATOM study, the ATOM2 study examined the ability of 0.5 percent, 0.1 percent and 0.01 percent atropine drops to provide myopia control over a two-year period; however, there was no vehicle-only control group. The ATOM2 study reported a significant effect on myopia progression; however, with decreasing atropine concentration, a reduction in refractive error treatment effect was observed. ATOM2 also reported a reduction in axial elongation with atropine use, but this effect was greater with the 0.5 percent and 0.1 percent drops than with the 0.01 percent drops, suggesting that the 0.01 percent concentration drops may have a minimal impact on controlling axial elongation. This is supported when comparing data between the ATOM and ATOM2 studies; where the axial elongation observed in the ATOM study eyes treated with vehicle-only was not different than the axial elongation observed in eyes treated with 0.01 percent atropine in ATOM2. Both ATOM and ATOM2 completed a 12-month wash-out period where the

subjects on atropine treatment were discontinued. A significant rebound effect in ocular growth was observed with 1 percent, 0.5 percent and 0.1 percent atropine, while a minimal rebound effect was observed with 0.01 percent atropine. This lack of rebound effect with 0.01 percent compared to higher percentage atropine drops further suggests that low-dose atropine has a minimal effect on modulating axial elongation.[40, 41]

Atropine has been examined as a combined therapy with orthokeratology lenses. Wan, et al., reported on the outcome from a retrospective study of subjects using 0.125 percent or 0.025 percent atropine drops with Euclid Emerald four-zone reverse-geometry orthokeratology lenses. The subjects in the study were assigned to a high myopia or low myopia group for analysis. The authors reported a synergistic effect between orthokeratology and atropine, with slower axial elongation with the combination treatment compared to orthokeratology alone.[42]

Recommendation: Myopia control with atropine occurs in a dose-dependent manner, with higher doses of atropine providing a greater treatment effect. Discontinuation of atropine leads to a rebound growth effect which limits the usefulness of the treatment. The effectiveness of low-dose atropine is controversial, with some reports promoting its use; however, low-dose atropine does not appear to effectively slow axial growth. Current research examining potential synergistic effects between atropine and contact lenses is promising; however, there is not enough information available to make a recommendation on combination treatments.

## CONCLUSIONS

Myopia progression can be controlled using technology currently available to eyecare practitioners in the United States. Center-distance bifocal contact lenses and orthokeratology provide similar myopia control effects and may make recommendation for either modality based upon individual patient and parental needs. Atropine, while effective, can lead to significant rebound when discontinued, and low-dose atropine may not be effective at slowing ocular growth.

**Eric R. Ritchey, OD, PhD, FAAO**
is an Assistant Professor at the University of Houston College of Optometry. He is an OD and PhD graduate of The Ohio State University College of Optometry. His clinical interests are in specialty contact lens fitting, anterior segment disease and ocular prosthetics. His research activities focus on myopia development and contact lenses.

1. Vitale S, Sperduto RD, Ferris FL, 3rd. Increased Prevalence of Myopia in the United States between 1971-1972 and 1999-2004. Arch Ophthalmol 2009;127:1632-9.
2. Sun J, Zhou J, Zhao P, et al. High Prevalence of Myopia and High Myopia in 5060 Chinese University Students in Shanghai. Invest Ophthalmol Vis Sci 2012;53:7504-9.
3. Lam CS, Lam CH, Cheng SC, Chan LY. Prevalence of Myopia among Hong Kong Chinese Schoolchildren: Changes over Two Decades. Ophthalmic Physiol Opt 2012;32:17-24.
4. Yoon KC, Mun GH, Kim SD, et al. Prevalence of Eye Diseases in South Korea: Data from the Korea National Health and Nutrition Examination Survey 2008-2009. Korean J Ophthalmol 2011;25:421-33.
5. Edwards MH, Lam CS. The Epidemiology of Myopia in Hong Kong. Ann Acad Med Singapore 2004;33:34-8.
6. Lin LL, Shih YF, Hsiao CK, Chen CJ. Prevalence of Myopia in Taiwanese Schoolchildren: 1983 to 2000. Ann Acad Med Singapore 2004;33:27-33.
7. Jobke S, Kasten E, Vorwerk C. The Prevalence Rates of Refractive Errors among Children, Adolescents, and Adults in Germany. Clin Ophthalmol 2008;2:601-7.
8. Rahi JS, Cumberland PM, Peckham CS. Myopia over the Lifecourse: Prevalence and Early Life Influences in the 1958 British Birth Cohort. Ophthalmology 2011;118:797-804.
9. Iwase A, Araie M, Tomidokoro A, et al. Prevalence and Causes of Low Vision and Blindness in a Japanese Adult Population: The Tajimi Study. Ophthalmology 2006;113:1354-62.
10. Kocur I, Resnikoff S. Visual Impairment and Blindness in Europe and Their Prevention. Br J Ophthalmol 2002;86:716-22.
11. Mitchell P, Hourihan F, Sandbach J, Wang JJ. The Relationship between Glaucoma and Myopia: The Blue Mountains Eye Study. Ophthalmology 1999;106:2010-5.
12. Saw SM, Gazzard G, Shih-Yen EC, Chua WH. Myopia and Associated Pathological Complications. Ophthalmic Physiol Opt 2005;25:381-91.
13. Soubrane G. Choroidal Neovascularization in Pathologic Myopia: Recent Developments in Diagnosis and Treatment. Surv Ophthalmol 2008;53:121-38.
14. Xu L, Wang Y, Li Y, et al. Causes of Blindness and Visual Impairment in Urban and Rural Areas in Beijing: The Beijing Eye Study. Ophthalmology 2006;113:1134 e1-11.
15. Xu L, Wang Y, Wang S, Jonas JB. High Myopia and Glaucoma Susceptibility the Beijing Eye Study. Ophthalmology 2007;114:216-20.
16. Yoshida T, Ohno-Matsui K, Yasuzumi K, et al. Myopic Choroidal Neovascularization: A 10-Year Follow-Up. Ophthalmology 2003;110:1297-305.
17. Rein DB, Zhang P, Wirth KE, et al. The Economic Burden of Major Adult Visual Disorders in the United States. Arch Ophthalmol 2006;124:1754-60.
18. Vitale S, Cotch MF, Sperduto R, Ellwein L. Costs of Refractive Correction of Distance Vision Impairment in the United States, 1999-2002. Ophthalmology 2006;113:2163-70.
19. Lafuma A, Brezin A, Lopatriello S, et al. Evaluation of Non-Medical Costs Associated with Visual Impairment in Four European Countries: France, Italy, Germany and the Uk. Pharmacoeconomics 2006;24:193-205.
20. Lim MC, Gazzard G, Sim EL, et al. Direct Costs of Myopia in Singapore. Eye (Lond) 2009;23:1086-9.
21. Robb RM. Refractive Errors Associated with Hemangiomas of the Eyelids and Orbit in Infancy. Am J Ophthalmol 1977;83:52-8.
22. O'Leary DJ, Millodot M. Eyelid Closure Causes Myopia in Humans. Experientia 1979;35:1478-9.
23. Hoyt CS, Stone RD, Fromer C, Billson FA. Monocular Axial Myopia Associated with Neonatal Eyelid Closure in Human Infants. Am J Ophthalmol 1981;91:197-200.
24. Rabin J, Van Sluyters RC, Malach R. Emmetropization: A Vision-Dependent Phenomenon. Invest Ophthalmol Vis Sci 1981;20:561-4.
25. Nathan J, Kiely PM, Crewther SG, Crewther DP. Disease-Associated Visual Image Degradation and Spherical Refractive Errors in Children. Am J Optom Physiol Opt 1985;62:680-8.
26. Wallman J, Winawer J. Homeostasis of Eye Growth and the Question of Myopia. Neuron 2004;43:447-68.
27. Smith EL, 3rd. Prentice Award Lecture 2010: A Case for Peripheral Optical Treatment Strategies for Myopia. Optom Vis Sci 2010;88:1029-44.
28. Geloneck MM, Chuang AZ, Clark WL, et al. Refractive Outcomes Following Bevacizumab Monotherapy Compared with Conventional Laser Treatment: A Randomized Clinical Trial. JAMA Ophthalmol 2014;132:1327-33.
29. Walline JJ. Myopia Control: A Review. Eye Contact Lens 2016;42:3-8.
30. Schulle KL, Berntsen DA, Sinnott LT, et al. Visual Acuity and over-Refraction in Myopic Children Fitted with Soft Multifocal Contact Lenses. Optom Vis Sci 2018;95:292-8.
31. Three-Year Study Indicates Pioneering Contact Lens Therapy Effective in Slowing Myopia Progression in Children by 59%. https://coopervision.com/our-company/news-center/press-release/three-year-study-indicates-pioneering-contact-lens-therapy.
32. Coopervision Releases Four-Year Data on Landmark Misight® 1 Day Contact Lens Study; Pioneering Approach Slows Myopia Progression in Children. https://coopervision.com/our-company/news-center/press-release/coopervision-releases-four-year-data-landmark-misight-1-day.
33. Cho P, Cheung SW. Retardation of Myopia in

Orthokeratology (Romio) Study: A 2-Year Randomized Clinical Trial. Invest Ophthalmol Vis Sci 2012;53:7077-85.
34. Charm J, Cho P. High Myopia-Partial Reduction Ortho-K: A 2-Year Randomized Study. Optom Vis Sci 2013;90:530-9.
35. Kang P, Swarbrick H. The Influence of Different Ok Lens Designs on Peripheral Refraction. Optom Vis Sci 2016;93:1112-9.
36. Cheng D, Woo GC, Drobe B, Schmid KL. Effect of Bifocal and Prismatic Bifocal Spectacles on Myopia Progression in Children: Three-Year Results of a Randomized Clinical Trial. JAMA Ophthalmol 2014;132:258-64.
37. Gwiazda J, Hyman L, Hussein M, et al. A Randomized Clinical Trial of Progressive Addition Lenses Versus Single Vision Lenses on the Progression of Myopia in Children. Invest Ophthalmol Vis Sci 2003;44:1492-500.
38. Berntsen DA, Sinnott LT, Mutti DO, Zadnik K. A Randomized Trial Using Progressive Addition Lenses to Evaluate Theories of Myopia Progression in Children with a High Lag of Accommodation. Invest Ophthalmol Vis Sci 2012;53:640-9.
39. Sankaridurg P, Donovan L, Varnas S, et al. Spectacle Lenses Designed to Reduce Progression of Myopia: 12-Month Results. Optom Vis Sci 2010;87:631-41.
40. Chua WH, Balakrishnan V, Chan YH, et al. Atropine for the Treatment of Childhood Myopia. Ophthalmology 2006;113:2285-91.
41. Chia A, Chua WH, Cheung YB, et al. Atropine for the Treatment of Childhood Myopia: Safety and Efficacy of 0.5%, 0.1%, and 0.01% Doses (Atropine for the Treatment of Myopia 2). Ophthalmology 2011;119:347-54.
42. Wan L, Wei CC, Chen CS, et al. The Synergistic Effects of Orthokeratology and Atropine in Slowing the Progression of Myopia. J Clin Med 2018;7.

# Practice Success Strategies

## 12 Actions to Create a Myopia Management Specialty

By Nicholas Despotidis, OD, FAAO, FCOVD, FIAO

Achieving success in myopia management requires a strategy. The following 12 actions are integral to building a myopia management specialty:

### PERSEVERE

I have seen many of my colleagues strive for success but come up three feet short of hitting gold. Success takes time and perseverance.

I took a personal interest in OrthoK when my sons became myopic, and I was able to slow the progression of their myopia. That was back in 1998, and it took the following 10 years for it to pick up steam in our practice. But offering this service to patients provides a great deal of satisfaction professionally.

Our practice has worked with consulting groups The Power Practice™ and the EMyth, based on the book of the same name. In the process, we learned that striving for higher gross/more patients is not the answer to success. We now work three days a week with a total team effort. We focus on medical optometry, Vision Therapy (VT) and myopia management.

### KNOW WHAT MYOPIA MANAGEMENT IS AND IS NOT

Begin by defining myopia control. It is not the same as OrthoK. Myopia management is not just a therapy with atropine nor soft multifocal contact lenses.

Myopia control is understanding the demographic that is interested in slowing the progression of myopia. We identify the parent interested in this and work from there.

It is helpful to compare myopia control with the obesity epidemic. We realize that we're heavier than in years past, but that realization has not lead to action in the U.S.

**HAVING THE CONVERSATION:**

### "What is myopia management?"

Marketing myopia control requires that your staff answer basic questions well:

"I've never heard of it; is it new?"
"How much is myopia management?"
"Does insurance cover it?"
"Flexible spending account?"
"Is it safe?"
"I heard it causes blindness, true?"
"May I visit your office?"
"May I speak to your patients?"
"Is it permanent?"

If your staff fails to answer all of these questions well, the patient response will be: "I'll call back."

*Opportunity lost.*

Likewise, just because there is an epidemic of myopia does not mean parents will embrace methods to slow its progression. In my experience, only a select demographic views myopia as a disease and is interested in its containment. That's the demographic we focus on.

What's required is that we allocate adequate time and resources to succeeding with myopia control. If you squeeze specialty care patients into a busy schedule you will fail at it. Take the time to engage patients; they will refer friends and family.

### MARKETING WORKS, ADVERTISING DOESN'T

Traditional advertising does not work with myopia control. Advertising presents a simple call-to-action and a sale;

with myopia management the task of fully educating a patient in what to expect of treatment and outcome is too extensive to provide briefly.


Our marketing of myopia management is multi-stepped: awareness, then consideration, which leads to securing confidence and commitment to treatment. This, in turn, creates patient loyalty and advocacy that provides more patients.

The right approach requires an awareness of current patients. You need to develop loyalty and word of mouth. In the digital world, Apple has done this, developing loyalty that leads to product advocacy.

### CREATE RAVING FANS

Internal marketing is highly effective, and this includes marketing in the exam chair. Know the demographic of your patients and address their stress.

In that end, you need raving fans, not just happy patients.

Show you care by taking time to answer the many questions that parents have concerning myopia management. This often is a new option for parents. To your patients, show how you are different and special. A big part of that is allocating adequate time and resources. If you try to squeeze specialty care patients into your busy schedule, you will fail at myopia management. You will succeed when you take time to engage patients, and they will refer friends and family members.

### KNOW YOUR DEMOGRAPHIC

Generally speaking, overachievers are interested in myopia control. Recognize nervous parents who are concerned about their children. There also are guilty parents, who view myopia as a disease and haven't done enough to help their children.

Knowing the demographic to "market" to is critical to success. In myopia management, it's about wowing current patients who will refer others. However, in specialties like VT, referrals often come from occupational therapists, post-concussion doctors, coaches and teachers--but less frequently from patients. In a low-vision subspecialty, retinal specialists are normally our referral sources. And in specialty contact lenses, like scleral lenses, it's cornel specialists who generally refer to us.

As we learned in building a successful OrthoK practice, all types of patients are interested, so know who you are marketing to. Another lesson from VT: It's not just about the patient; it also involves the circle of support, which includes occupational therapists, post-concussion doctors, coaches, teachers, etc. Contrary to other specialties (low vision, rehabilitative vision) where referals come from fellow professionals, referrals for OrthoK come from patients and parents who have been wowed with their own OrthoK experience.

### PROVIDE CRITICAL NON-ESSENTIALS IN YOUR OFFICE

**Testimonial: Chloe's Story**

# "A Leap of Faith"

*As clinicians, we need to recognize how parents see their child's vision.*

When I met Chloe, she was 10 years old and already wearing eyeglasses. She had one of the highest prescriptions I've managed in such a young student, yet she was not stereotypical of many of my younger patients who suffer from myopia.

Notably, Chloe rarely entertained herself with electronics. Chloe's parents had encouraged her toward hobbies that stimulate independent thinking. Chloe adores origami, does needlepoint, and she is an avid reader. Early on, she exhibited a vocabulary that rivaled most adults.

Chloe's mother is a schoolteacher, and she has observed firsthand the obsessions many kids have with handheld devices. Yet, despite all efforts, Chloe's eyesight was continually worsening. Her parents sought our care to address this.

I clearly recall the initial consult. Chloe and her mother were so pleased to find out there were options—like orthokeratology—to correct her vision while possibly arresting her myopia.

However, Chloe's dad was not convinced. Like a lot of parents, he had never heard of orthokeratology and was apprehensive, if not skeptical. After all, these were his daughter's eyes! I met with him separately and reviewed, step by step, how this technology works.

Chloe's dad was impressed but still conflicted and had many questions: "Reshape my daughter's eye?" he asked? "Won't that hurt? Would too much pressure be put on her eyes and cause problems later on? What if she rubs her eyes while she is sleeping?"

The questions Chloe's dad had were

appropriate and his concerns valid, and I addressed each one. After a few days, he took a leap of faith and agreed to begin the treatment for his daughter.

We came to see how typical it was that Chloe's dad, like most parents, were torn. They were apprehensive about agreeing to their child wearing contact lenses that would address their myopia development—yet also worried about increased risk of sight-threatening conditions later on if their child's eyesight further deteriorated.

The takeaway: Orthokeratology is a treatment not to be taken lightly. A successful outcome is determined by the expertise and experience of the doctor providing it. Unlike with traditional contact lenses, orthokeratology reshapes a child's eye, and this requires clinical skill and consistent follow-up to achieve proper vision correction safely and without unnecessary risk such as exposure to infection.

In Chloe's case, the outcome could not have been better. Her dad? He's the biggest fan of the technique! Orthokeratology has allowed his daughter to experience life without all of the limitations created by eyeglasses. Her vision has not gotten worse since she started the treatment several years ago. This is a welcome result of Chloe and her parents taking a “leap of faith."

Consistency, consistency, consistency is the key to providing outstanding patient care. As we are taught, there are 21 points of care in an eye exam. Tonometry, ophthalmoscopy and visual fields are examples of essential steps. However, there are other steps that are considered non-essential yet are critical to good clinical care. These include:

- Respond to parents who Email or text the office
- Place urgency in your response
- Spend time with patients during their visit
- Follow up after every visit
- Assign dedicated staff to patients
- Thank parents following each visit

When you create raving fans, it's a fragile relationship. Consistency will overcome resistance.

**HAVING THE CONVERSATION:**

## "Can we get in right away?"

"From what you're telling me, Julia is experiencing fear, so I'd like to see her right away."

### KNOW THE ULTIMATE GOAL

Have all patients refer qualified candidates to your practice. For myopia management, this cannot just be everyone who is myopic; they need to be myopes who view myopia as a disease. Further, each patient must be a motivated, qualified patient. By "qualified," this means the patient understands both the treatment and the doctor providing it; they need to know why they are choosing you and putting their trust in your abilities.

### MAKE TIME FOR A CONSULTATION

When I first offered orthokeratology as an option for myopia correction, I tried to explain it during my comprehensive eye exam. Big mistake!

Parents were unfamiliar with myopia management as a corrective option for their kids. They expected eyeglasses or contact lenses, and I rarely was successful in telling them why orthokeratology was the best option for their children within the confines of a 20-minute eye exam.

Today, I recommend a separate consultation for their child to determine what option is best. I explain that if they're interested in arresting their child's myopia, there are options but further testing is necessary. Out of 40 parents, only one proceeds with this recommendation; the remainder stick to traditional vision correction.

During the consultation, I allow time to not only trial the lenses on the child, but just as important, engage the parent and child on our care. We're not simply fitting the child, we're treating a family that is concerned with their child's myopia progression and wants to know all options and what's involved with each. The consultation lets us achieve those goals.

Most practitioners focus on fitting lenses at the consult; we focus on making the patient feel comfortable with our office and safe with our treatment. We talk to the child directly and gain their trust, then we proceed with the fitting process. Following our diagnostic testing, we give the child a snack to reward them for their courage and trust. This is not trivial. As parents, we appreciate when our kids are happy and feel safe. Further, we need to feel confident in their healthcare provider.

When we've completed the evaluation aspect of the consult, we leave time to talk with the parents and answer all their questions--and there are plenty! Remember, the parent interested in myopia management for their child often is highly educated and inquisitive, yet skeptical. Spend time with the parent to engage them in

your quality of care (not myopia control; the two are very different).
Parents will ask:
“Are there side effects?"
“Why don't other doctors offer myopia management?"
“Is it permanent?"
“How does it work?"
“What happens if my child cannot adapt to the treatment?"

The questions may seem endless, however if you allot the time and don't rush the parents, your success is assured. That's our “secret sauce."

## EMAIL PATIENTS AFTER THE CONSULT

After a lengthy consultation, parents need to go home and digest the information provided during their visit. We've learned to give them the opportunity to reach out afterward, via email, with any further questions or concerns. Here is a sample email and an example of a critical non-essential:

December 4, 2018

Mr. Jones,

It was good meeting with you today. I've included two papers for your review that elaborate on today's discussion.

A comparison of 16 modalities used to treat myopia and their success in slowing down its progression.

A paper that reviews Atropine's effectiveness in minimizing myopia progression.

I've also provided a link to a TEDx talk on the topic of myopia in children. I encourage you and your wife to watch it.

A Childhood Disease Worth Preventing

I've summarized my consultation in a detailed report; you'll have a copy in a few days. Once you have a chance to review my findings, just email me any questions. I'm here to help.

Dr. D

**Nicholas Despotidis, OD**

The purpose of the follow-up email is to solidify our commitment to helping their child, using unparalleled communication and education. We modify the email to reflect the parent's individual questions and concerns. Make the email your own and stay in continuous contact with parents interested in myopia control for their children. Communication is good marketing and even better care.

PATIENT: Ally Jones
DOB: 02/02/2006

December 3, 2018

Mr and Mrs.Jones,

Ally is a very bright young lady, and it was a pleasure speaking with her today during her consultation. She has never worn eyeglasses, but it was noted at school her eyesight may be deteriorating.

Ally was diagnosed with myopia (nearsightedness). I've inserted a chart that predicts the progression for Ally's prescription, based on current research.

Ally's mother is only a -2.00 in each eye and didn't even begin to need glasses until her college years. Ally also owns an iPhone which she says she uses minimally…only to Snapchat with friends and FaceTime with her dad when he's away at work. She was cautioned of the excessive use of electronics, and encouraged to try to get outdoors as much as possible.

An eyeglass prescription is made up of three numbers. The first number signifies the magnitude of myopia. RE indicates the right eye and LE indicates the left eye. The second number shows the amount of astigmatism present. The third number denotes the direction of astigmatism. The following is a summary of my findings for your records:

Examination Findings: RE: -4.00- 0.50 x 110 LE: -4.50

**What can we do?**
Researchers have found success in slowing the progression of myopia utilizing specialty contact lenses, known as Orthokeratology (OK). Orthokeratology lenses work by reshaping the cornea (front surface of the eye). Each cornea is unique like a fingerprint and has distinct variations in surface curvature throughout.

## EXAM REPORT: SAY WHY THE CHILD WILL BENEFIT FROM YOUR CARE

We've learned that no matter how much time we spend with patients, a detailed report summarizing our findings and recommendations solidifies us as the best

healthcare provider for their child. Here is a sample introduction to one of our reports:

### KNOW YOUR "SECRET SAUCE"

I have changed my motto from, "I help to keep children's eyesight from getting worse," to, "I don't just treat eyes, I treat the child behind the eyes."

And I mean it! I communicate this message before, during, and after the consultation. My office even emails patients after each visit, long after they enroll in our myopia management program. If you do this, you'll be more than just an eyecare professional to your patients; you'll become a trusted healthcare professional who cares enough by keeping in touch throughout the treatment process. Remember, good care is good marketing.

### FEE DEVELOPMENT

All successful practitioners understand the importance of proper fee development. In the past, many of us allowed insurance reimbursement to dictate the fees we accept for services provided. This results in cognitive dissonance if the fees do not properly reimburse us for the care we want to provide.

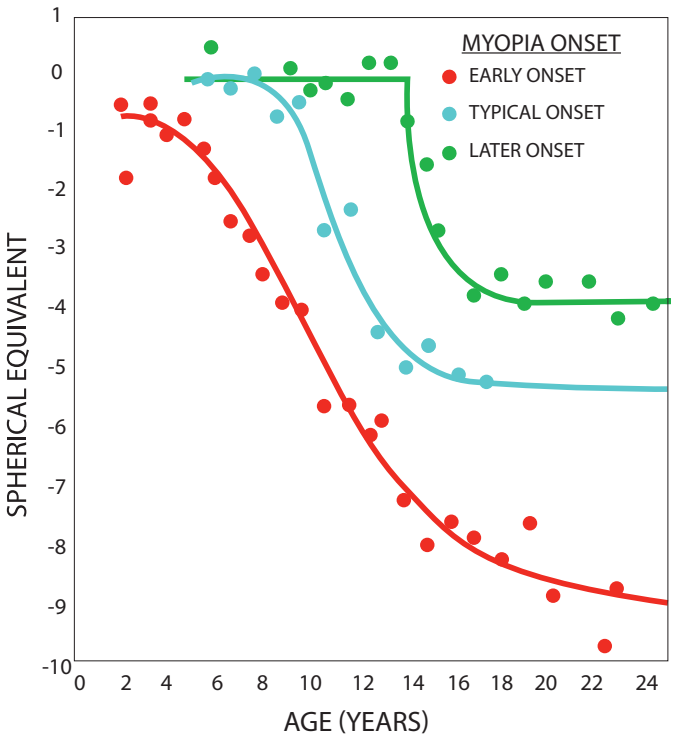
Many of my colleagues enjoy taking their time with patients, learning more about them and their families, in order to provide personalized vision care. However, with healthcare reform, that focus has transitioned into efficiency, moving more patients through the system to compensate for reduced reimbursements, and eyeglass and contact lens flight.

Many practitioners set fees based on what their colleagues are charging. In my experience this is a mistake, because we all encounter different expenses associated with providing specialty care. Myopia management is unlike simple myopia correction; you're treating a child in hopes of slowing the deterioration of their vision as they mature…no easy task. If a practitioner has a philosophy of fitting orthokeratology like regular contacts lenses, fitting patients into her schedule with other patients, this involves less chair cost than a doctor who follows the recommendations outlined in this article.

Emails, snacks, consultation appointments, reports, and critical non-essentials absorb staff and doctor time. If your fees do not reimburse you for that care, you should not embark on myopia management. Remember, there is a stark difference between being busy and being profitable.

To ensure the latter, you need to calculate your chair cost. Your CPA can calculate this for your office by taking into account how much you need to collect by the end of the day to pay everyone except the owners. If your accountant finds you need to earn $2,000 per day to pay your bills, and you're open an average of 10 hours a day, your chair cost is $200 per hour. Only after you exceed this number will you personally profit from services you provide.

If your chair cost is $200 an hour and it takes you three



hours in a year to provide myopia management to one patient, you'll need to collect $600 in fees plus material costs before you profit. Successful practitioners calculate their chair cost and materials needed to offer myopia control, then arrive at fees which make it worth their effort to provide such specialty care. Take into account you're not simply treating myopia; you're treating a child with myopia and the family who cares for them.

This is why many practice owners are busy, but their personal salaries are not proportionate to the time they spend and the effort they place in their practices. This does not need to be the case with myopia management. It's not a commodity: The "secret sauce" is YOU!

Your job is to assure you're implementing the aforementioned steps to create raving fans. Slow and steady wins the race; be patient with yourself and don't give up. It's worked for us and for hundreds of doctors who've followed our systems. If you decide to embrace myopia management yet only wind up dabbling in it, you may be stopping three feet away from practice autonomy.

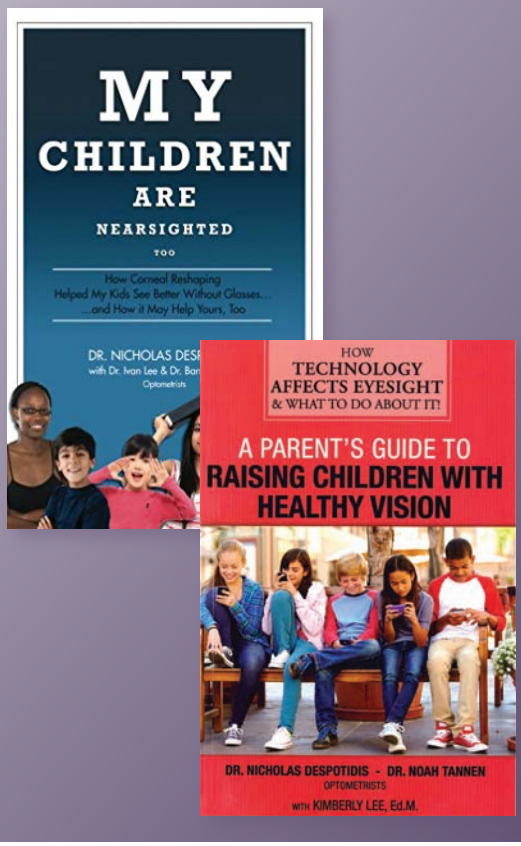
**Nicholas Despotidis, OD, FAAO, FCOVD, FIAO**

practices in Hamilton, NJ, with two partners, Barry Tannen and Ivan Lee. Their multi-disciplinary practice offers a variety of specialty services, including vision rehabilitation, treatment of vision-related learning problems, and orthokeratology. Together they have one of the largest single-location practices in the country.

## My Children are Nearsighted Too

Nick is the lead author of two books, "A Parent's Guide to Raising Children With Healthy Vision" and "My Children are Nearsighted Too." His TEDx talk, "A Childhood Disease Worth Preventing," which educates parents on the worldwide epidemic of myopia, was voted one the more popular talks of the event.

Dr. Despotidis will give an exclusive practice management workshop, "SuperChargeYourPractice," at the Vision by Design symposium, in 2019, to be held in San Antonio, Texas.



RESOURCES

# Information & Resources

**Brien Holden Vision Institute**
https://www.brienholdenvision.org/

- Guidelines for Myopia Management
  https://www.brienholdenvision.org/news/item/161-guidelines-for-myopia-management-now-freely-available-online.html

- Global Myopia Centre
  https://www.globalmyopiacentre.org/

- Myopia Calculator
  https://www.globalmyopiacentre.org/tools/myopia-calculator.html

**Institute for Control of Myopia in Children**
https://www.myopiainstitute.com/

**International Myopia Institute**
www.myopiainstitute.org

**Myopia Management**
https://www.managemyopia.org/

**Myopia: Prevention and Control**
www.myopiaprevention.org

**Myopia Profile**
https://myopiaprofile.com/why-binocular-vision-matters-in-myopia-management/

RESOURCES

# Clinical Literature

**Review of Optometry**
Myopia Management in Action
by Daniel Press, OD, and Barry Eiden, OD
https://www.reviewofoptometry.com/article/ro0218-myopia-management-in-action

**Clinical and Experimental Optometry**
"Contact Lenses to Slow Progression of Myopia"
Padmaja Sankaridurg, PhD, MIP, BOptom
https://onlinelibrary.wiley.com/doi/full/10.1111/cxo.12584

**Taiwan Journal of Ophthalmology**
"How to Effectively Manage Myopia"
Ann Yi-Chiun Chuang
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5525606/

**California Optometry**
"Clinical Management of Progressive Myopia"
Anne Tasaki, Yue Liu, Christine Wildsoet
https://www.coavision.org/files/CE%40HOME.pdf

**AOA**
Optometric Clinical Practice Guideline:
"Care of the Patient with Myopia"
https://www.aoa.org/documents/optometrists/CPG-15.pdf

**Medscape**
Management of Myopia
https://www.medscape.com/viewarticle/779114_3

## SPONSOR

# "As a Global Leader in Eyecare, We are Committed to Meeting a Global Challenge"

As a global leader in eyecare, we take our corporate responsibilities seriously and continually strive to do the right thing for our customers and their patients, our company, our employees, our stakeholders, and our communities.

Alcon develops and manufactures innovative ophthalmic products to serve the full life cycle of eyecare needs. Each year, our products touch the lives of millions of people living with conditions such as refractive errors, dry eye, cataracts, glaucoma, and retinal diseases. We offer the most complete line of ophthalmic surgical devices, ocular health products, differentiated contact lenses, and lens care products.

Alcon continues to set new standards in eyecare through its commitment to developing new and innovative products and technologies to address unmet eyecare needs around the world. Alcon is committing its full R&D resources to solve the global myopia crisis because patients are at the center of everything we do.

With approximately 1,200 associates worldwide researching and developing treatments for vision conditions and eye diseases, our dedication to eye health is unmatched. Based on the unmet medical needs of today – and tomorrow – Alcon is currently developing products and solutions to treat progressive myopia, cataracts, glaucoma, age-related macular degeneration, retinal diseases, refractive errors, dry eye, and other ocular health problems.

Alcon has more than 20,000 associates in 74 countries, collectively working to provide innovative products to help patients see, look and feel their best.

## SPONSOR

# "We Help People Get The Care They Need"

CareCredit has a singular purpose: to help people get the care they need and want–including eyecare and eyewear that help correct myopia – when they want it.

Although CareCredit cannot help find solutions to the increasing prevalence of myopia, we can make it easier for people to treat their nearsightedness. For families, the CareCredit healthcare credit card can help kids, teens and parents get the frames, lens upgrades, multiple pairs and year supply of contact lenses they want by helping them fit cost into their monthly budget.

For those who prefer a solution that minimizes the need for glasses and contacts, CareCredit can make it easier to proceed with elective treatment such as LASIK, PRK and orthokeratology.

Today, CareCredit can be used at over 200,000 health-focused provider and retail locations, and we continue to expand our community of care providers and the types of care our current 11 million cardholders can use their card for.

Visit www.carecredit.com to add CareCredit as a payment option or to access resources that can encourage your patients to get the eyecare and eyewear they want without delay.

**Randall S. Baldwin**
Vice President Marketing, Specialty Industries
CareCredit, a Division of Synchrony Financial

## SPONSOR
# "Life Should Not Be Lived Out of Focus"


Nearly half of all Americans suffer from myopia, and while many practitioners are aware of the rising rate of myopia in places like East Asia, many may not know there has been a dramatic increase in this condition in the United States over the last several decades.

This number will only continue to grow. Myopia is one of the most prevalent vision issues in children who usually don't know they can't see clearly. Eyecare professionals (ECPs) can no longer view myopia as just a refractive error issue with blurry vision. We know that, over time, myopia can put the eyes at risk for serious vision-threatening conditions. The sooner ECPs diagnose and treat it, the better it is for patients.

Because once myopia progresses, you can't turn back the clock.

That is why Essilor is actively creating awareness with consumers to help parents recognize the signs of myopia and drive them to get a comprehensive eye exam for both themselves and their children. Additionally, Essilor is committed to partnering with the optical industry and our newly formed Myopia Taskforce to develop recommended solutions for comprehensive myopia care, and equip ECPs with the products they need to protect and enhance patients' visual health.

We are committed to eradicating poor vision in one generation, and we know we can't do this without the partnership of the eyecare industry and eyecare professionals.

So join Essilor on our journey to making myopia matter.

Visit Essilorshare.com today to access and download materials about myopia to use in your practice, and encourage consumers to take a proactive role in their children's eye health. By doing so, they can help their children see well today and in the future.

Because life should not be lived out of focus.

**Millicent Knight, OD, FAAO, FAARM**
Senior Vice President Customer Development
Essilor of America

essilor
Better Sight. Better Life.