

Axial length and refractive error in consecutive pediatric patients in a U.S. private optometric practice

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Purpose

While measuring axial length (AXL) is not required in myopia management practice, its adoption is beginning to accelerate with at least three optical biometers in the U.S. designed and marketed for this purpose. Advantages of partial coherence interferometry based devices are that they are non-contact, more reliable and repeatable than subjective refraction, can be administered by a technician, and relatively young children can fixate long enough for an accurate measurement. Herein lies a review of AXL in a private optometric practice in Fremont, California, USA (FOG).

Methods

The owner of FOG implemented the Topcon MYAH in 2022 with the intent to measure AXL in every patient age 4 to 20 as part of pre-testing, irrespective of refractive error (RE). This was a retrospective cross-sectional review of consecutive patients from May 2022 to June 2023.



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Results



151 axial length measurements



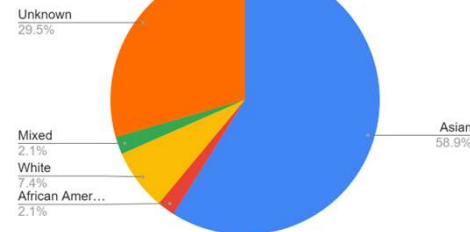
112 children



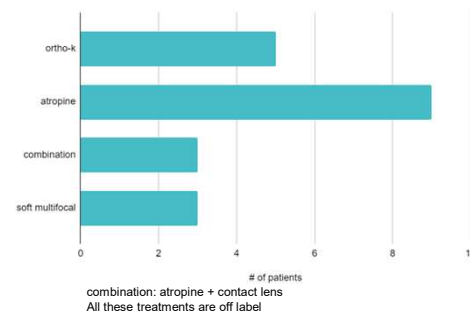
12.5 (range 4.7 to 20.6) years

Ethnicities

n = 112

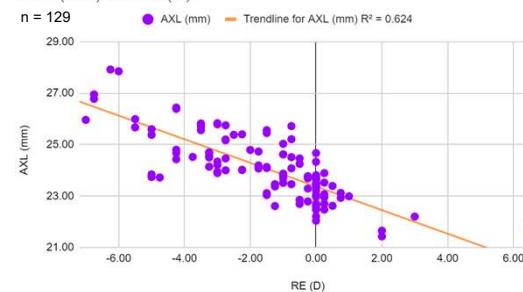


Myopia Management Treatments



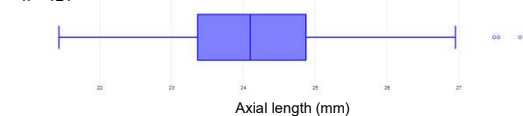
AXL (mm) vs. RE (D)

n = 129



Axial Length whisker plot

n = 121



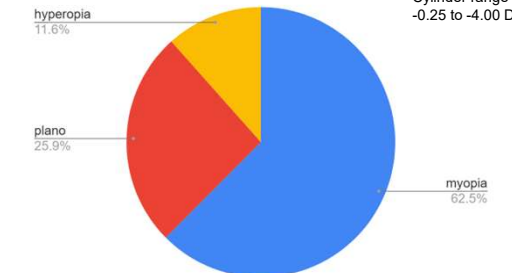
Mean

Axial Length 24.15 ± 1.15 mm (range 21.43 to 27.92)

Refractive error -1.53 ± 2.13 D (range +6.50 to -7.00)

Spherical Refractive Error

n = 112



22 out of 61 subjects
Age 6 to 11 had Pre Myopia
(-0.25 to +0.50)

Conclusions

A small proportion of the sample had longitudinal data due to the limited time the biometer had been in use. Further parent education is needed to encourage the parents of the other 60 patients with myopia to start treatment. ECPs and parents should start treating regardless of having a way to measure AXL but let AXL further inform clinical decision making once available. The hope is that more children at risk of myopia progression will be identified and treated earlier so that their AXL eye growth is better controlled at lower levels of myopia to reduce the risk of future myopia related complications and visual impairment.



FREMONT OPTOMETRIC GROUP



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