

EMR data can predict myopia development

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(HealthDay)—Big data and machine learning approaches can improve prediction of myopia in Chinese children, according to a study published online Nov. 6 in *PLOS Medicine*.

Haotian Lin, M.D., Ph.D., from Sun Yat-sen University in Guangzhou, China, and colleagues developed an algorithm to predict high [myopia](#) onset among Chinese school-aged children. In eight ophthalmic centers, real-world clinical refraction data were derived from [electronic medical record](#) systems. Age, spherical equivalent (SE), and annual progression rate were used to develop the algorithm to predict SE and high myopia onset up to 10 years in the future. For algorithm training and validation, random forest machine learning was used.

The researchers found that the algorithm accurately predicted high myopia in internal validation (area under the curve [AUC], 0.903 to 0.986 for three years; 0.875 to 0.901 for five years; and 0.852 to 0.888 for eight years), external validation (AUC, 0.874 to 0.976 for three years; 0.847 to 0.921 for five years; and 0.802 to 0.886 for eight years), and multiresource testing (AUC, 0.752 to 0.869 for four years). The [algorithm](#) provided clinically acceptable accuracy over three years (AUC, 0.94 to 0.985), five years (AUC, 0.856 to 0.901), and eight years (AUC, 0.801 to 0.837) with respect to the [prediction](#) of high myopia development by 18 years of age.

"Our study demonstrates that machine learning prediction algorithms further translate the benefit of big data research into clinical practice," the authors write.

More information: [Abstract/Full Text](#)

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