

Artificial Intelligence Improves Patient Follow-Up in a Diabetic Retinopathy Screening Program [Letter]

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Dear editor

We commend Dow et al for demonstrating that an artificial-intelligence (AI) driven diabetic retinopathy (DR) screening workflow led to a threefold increase in follow-up rates compared to a human workflow.¹ Utilizing IDx-DR, the first FDA-approved autonomous DR screening system, marks a promising advancement in access to DR screening and care.^{2,3} After all, DR is a leading cause of vision loss in the United States,⁴ and its prevalence remains an epidemiological concern.^{5,6} Despite the positive results illustrated by Doe et al, we wish to contribute some additional factors that merit consideration prior to implementation.

First, study participants were seen in both primary care and endocrinology settings. Patients screened at endocrinology clinics represent a population with poorly controlled or advanced diabetes,⁷ along with other systemic conditions. These patients may be referred to ophthalmology regardless of screening results, and we must consider whether AI screening affects referral behavior to begin with. After all, AI screening cannot detect several relevant ocular conditions. Namely, patients with diabetes are at moderate risk of developing open angle and neovascular glaucoma and retinal vascular occlusions.^{8,9} Accordingly, there is a benefit of over-referral. While the study did also screen primary care patients, DR screening of high-risk populations may cause other missed diagnoses.

Second, although this study was performed in an urban, ethnically diverse setting, rural populations may benefit significantly from point-of-care AI screening as they are less likely to meet the standard of diabetes care.¹⁰ Lacking proximity to specialty care, rural patients face barriers to attending follow-up appointments, receiving procedures, and seeking urgent care.¹¹ While these nuances are not captured in this study, they should inform equitable and cost-effective deployment of screening initiatives.

Finally, the authors surmise that the positive findings may be due to more rapid delivery of results in the AI workflow.¹ However, patients also cited knowledge gaps as to why they did not follow up.¹ Therefore, real-time delivery of results could be bolstered with patient education. Future studies should consider a stepwise protocol for DR screening in rural primary care offices that reduces patient burden by combining novel screening tools. This may involve high sensitivity screening by IDx-DR^{2,3} prior to smartphone OCT (SCANLY),¹² reviewed remotely by a retina specialist who determines the need for referral.

Dow et al's work encourages the implementation of AI DR screening in existing workflows to improve patient follow-up rates. Therefore, the high prevalence of DR and the screening benefits to rural populations warrant ponderance on selection bias, diagnostic blind spots, and thoughtful implementation as we await integrated screening tools.

Throughout the field of ophthalmology, there is an advent of AI screening tools, including for NAION,¹³ glaucoma,¹⁴ and other pathologies.¹⁵ However, isolated screening comes with the risk of neglecting comorbid pathologies. Although with its own challenges, future multimodal AI screening^{16,17} may more effectively address this concern.

Disclosure

The authors report no conflicts of interest in this communication.

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