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## TELEMEDICINE IN THE DIAGNOSIS OF DIABETIC RETINOPATHY

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**Background:** Screening is key for detection of diabetic retinopathy (DR). Telemedicine can be used for screening. The aim of this study is to compare image diagnosis with the clinical diagnosis in the detection of DR. **Methods:** Dilated retinal images of 304 patients with diabetes were captured using the Remidio smart-phone based fundus camera at Diacon Hospital, Bangalore, India. The images [posterior pole (macula centered), nasal and superotemporal field of each eye of each patient] were graded as per the International Diabetic Retinopathy Classification System. The clinical diagnosis was recorded based on the direct ophthalmoscopy findings. The clinical diagnosis was compared with the image diagnosis. **Results:** Analysis included images from 297 patients (7 ungradable), of which 129 had DR clinically. The comparison of the image diagnosis versus the clinical diagnosis for referable cases of DR [moderate non-proliferative DR (NPDR) or more severe disease or the presence of diabetic macular edema (DME)]: Sensitivity 80% (95% CI 75.45% - 84.55%), Specificity 95.05% (95% CI 92.58% - 97.52%). The comparison of the image diagnosis versus the clinical diagnosis for all cases of DR (mild NPDR or more severe disease or the presence of DME) was: Sensitivity 84.5% (95% CI 80.38% - 88.61%), Specificity 92.86% (95% CI 89.93% - 95.79%). Sensitivity and specificity for the image diagnosis of DME was 94.74% (95% CI 92.2% - 97.28%) and 93.53% (95% CI 90.73% - 96.32%). **Conclusion:** Telemedicine can make DR screening more accessible to individuals with diabetes in developing countries.



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