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## Protection of diabetic patients with retinopathy in Hidalgo state through 2030

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**Objective:** Estimate the diabetic retinopathy progression in patients from a mathematical model with information from the comprehensive dilated eye exam as an initial condition.

**Methods:** A dynamic model was built for the incidents projection of DR in patients in the clinics of DM, at Hidalgo. Data collected in 20106 in patients with DMT2, a blood sample was taken in fast to determine the glucose and ophthalmologists did a comprehensive dilated eye exam, under mydriasis external medication with tropicamide and phenylephrine, with portable ophthalmoscope (direct and indirect ophtalmoscopy). At the end of the check up, pilocarpine was applied (2% solution) to revert the earlier effect.

**Results:** The DR prevalence in 2010 was of 33.3%, that represents 29.9% NPDR (71.4% was minor) and the 3.4% of PDR. In 2030, if the conditions are the same, a general prevalence of 72.4% will be obtained. We will expect 796,740 patients with DR more than those recorded in 2010. With an effective intervention, in 2020, the patient with NPDR will decrease 21.5% and 31.3% the patient with PDR (in comparison without any intervention). In addition, in 2030 the patient with NPDR will decrease 24.7% and 35% the patient with PDR.

**Conclusions:** The implementation of politics that prevent DR, allows a lower cost in the investments due to the attention to the patients without a surgery required.

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