

# Multimodal imaging interpreted by graders to detect re-activation of diabetic eye disease in previously treated patients: the EMERALD diagnostic accuracy study

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## Plain English summary

### EMERALD diagnostic accuracy study

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## Plain English summary

**M**ore and more people are developing diabetes. Diabetic macular oedema and proliferative diabetic retinopathy are complications of diabetes, which could cause blindness. Thus, people with diabetic macular oedema and proliferative diabetic retinopathy need to be treated in a timely manner and reviewed in clinic for life.

The population in the world is ageing. As a result, there are more people with eye diseases. There are also more treatments now for people with eye diseases. The workload in hospitals is increasing, making it difficult for the NHS to cope with the demand. There are not enough ophthalmologists (eye doctors) to look after patients. Delayed appointments and treatment mean that patients may lose sight.

The goal of EMERALD (Effectiveness of Multimodal imaging for the Evaluation of Retinal oedema And new vessels in Diabetic retinopathy) was to see if patients with treated and stable diabetic macular oedema or proliferative diabetic retinopathy could be followed by 'ophthalmic graders', who are not doctors but are trained to diagnose diabetic macular oedema and proliferative diabetic retinopathy. In EMERALD, trained ophthalmic graders examined photographs of the back of the eye of people with diabetic macular oedema and proliferative diabetic retinopathy. They checked if diabetic macular oedema and proliferative diabetic retinopathy remain inactive. If so, patients could continue follow-up with the ophthalmic graders. If diabetic macular oedema or proliferative diabetic retinopathy were active, graders would immediately refer patients to ophthalmologists.

EMERALD found that graders were excellent at detecting diabetic macular oedema, and this could give ophthalmologists time to see other patients. Graders were not quite as good at detecting active proliferative diabetic retinopathy. However, considering that patients had already had treatment, this may still be safe. Patients participating in focus group discussions mentioned that they would prefer to see ophthalmologists, so they could ask questions about their eye condition. If this was not possible, they would like to have immediate results from graders and still see the ophthalmologist from time to time.



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