Development of a cost-effectiveness model for optimisation of the screening interval in diabetic retinopathy screening

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Plain English summary

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Plain English summary

Diabetic eye disease [diabetic retinopathy (DR)] is a major cause of blindness in the working-age population in the UK, but if sight-threatening retinopathy (STDR) is detected early by taking digital photographs of the retina, treatment is effective and affordable.

Since the English NHS DR screening programme was introduced in 2003, fewer people have lost their vision. Currently, the programme has a standard for photographing every patient annually, which may not be necessary and puts a strain on resources.

In Gloucestershire, data from high-quality screening and general practitioner (GP) information were used to evaluate what screening intervals could match patient conditions with existing resources.

Two models to identify people at greater risk of sight loss were designed; the first using only results from screening data and the second using screening and GP data. Both models were checked using data from other screening programmes.

Annual screening for all who have no indication of STDR was found to be unnecessarily expensive. If no risk evaluation is used, screening this group (non-STDR) every 3 years was the most cost-effective option. If a risk model is employed with personalised intervals, low-risk groups can be safely and effectively screened every 5 years, whereas screening high-risk groups every 2 years further improves overall cost-effectiveness. Benefits were assessed using a measure called quality-adjusted life-years, which combines both life-expectancy and quality of life. There is uncertainty around some of the information used in cost-effectiveness models, so further research would be needed to support this work.

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