NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health Technology Evaluation

Low-dose atropine eye drops for treating myopia in people 3 to 14 years

Final scope

Remit/evaluation objective

To appraise the clinical and cost effectiveness of low-dose atropine eye drops within its marketing authorisation for slowing the progression of myopia in people 3 to 14 years.

Background

Myopia (also known as short-sightedness or near-sightedness) occurs when light coming from distant objects is 'overfocused', so that the point of focus is in front of the retina. It occurs because either the eyeball is too long or, less commonly, because the cornea is too curved. People with myopia can see close objects clearly but distant objects appear more blurry as their light rays do not focus properly in the eye.[1]

Myopia tends to start in childhood and early teenage years. The younger it starts, the more severe it is likely to become. By the time early adulthood is reached, the condition has usually reached its peak. This means that the myopia does not generally progress after the mid to late twenties.[1] Around 1 in 6 children in the UK are affected by myopia by the age of 15.[2]

Most people with myopia have no additional problems. However, people with severe myopia have a high risk of developing other eye conditions in later life. Complications in adults include:

- Myopic maculopathy / myopic macular degeneration
- A detached retina
- Raised pressure in the eye
- Glaucoma
- Myopia-associated optic neuropathy
- Cataracts

Common complications in children include:[3]

- Strabismus – where one eye points outward, or less commonly, inward
- Amblyopia – where vision does not develop properly in one eye, or less commonly, in both eyes

Short-sightedness can usually be managed with glasses or contact lenses which help the eyes focus correctly, so people can see distant objects more clearly. Standard single-vision glasses or contact lenses do not slow down myopia progression. Myopia-control glasses and contact lenses may be used to slow myopia progression but these are not available on the NHS.

The technology

Low-dose atropine eye drops (0.1 mg/ml, Ryjunea, Santen) has a marketing authorisation in the UK for slowing the progression of myopia in children aged 3 to 14 years. Treatment may be started in children with a progression rate of 0.5 diopters (D) or more per year and a severity of -0.5 D to -6.0 D.

Higher-dose atropine eye drops are currently available and used for other ocular indications as a topical mydriatic and cycloplegic. They are used in the treatment of iritis and uveitis to immobilise the iris and ciliary muscle and to prevent or break down adhesions. They are also used for induction of mydriasis and/or cycloplegia in adults and for cycloplegic refraction in children. Since they are a powerful cycloplegic, they are used in the determination of refraction in children below 6 years and children with convergent strabismus.

Intervention	Low-dose atropine eye drops (0.1 mg/ml, Ryjunea) in combination with standard single-vision glasses or contact lenses
Population	People aged 3 to 14 years with myopia with a progression rate of 0.5 D or more per year and a severity of -0.5 D to -6.0 D
Subgroups	If evidence allows, subgroups will include severity, age, ethnicity, presence of concurrent eye conditions, and rate of myopia progression. If consideration is given to these subgroups, the committee will deliberate on any equalities implications.
Comparators	Established clinical management without low-dose atropine eye drops including: • Standard single-vision glasses • Standard single-vision contact lenses
Outcomes	The outcome measures to be considered include: • axial length/elongation • myopic progression • long-term complications of myopia • adverse effects of treatment • health-related quality of life.
Economic analysis	The reference case stipulates that the cost effectiveness of treatments should be expressed in terms of incremental cost per quality-adjusted life year. The reference case stipulates that the time horizon for estimating clinical and cost effectiveness should be sufficiently long to reflect any differences in costs or outcomes between the technologies being compared.

	Costs will be considered from an NHS and Personal Social Services perspective. The cost effectiveness analysis should include consideration of the benefit in the best and worst seeing eye.
Other considerations	Guidance will only be issued in accordance with the marketing authorisation.Where the wording of the therapeutic indication does not include specific treatment combinations, guidance will be issued only in the context of the evidence that has underpinned the marketing authorisation granted by the regulator.
Related NICE recommendations	**Related technology appraisals:** Ranibizumab for treating choroidal neovascularisation associated with pathological myopia (2013 updated 2024) NICE technology appraisal guidance 298 **Related interventional procedures:** Laser correction of refractive error following non-refractive ophthalmic surgery (2011) NICE interventional procedures guidance 385 Intraocular lens insertion for correction of refractive error, with preservation of the natural lens (2009) NICE interventional procedures guidance 289 Photorefractive (laser) surgery for the correction of refractive errors (2006) NICE interventional procedures guidance 164

References

1. Patient UK. Myopia (short-sightedness). Health advice. Accessed 12 November 2025.

2. Morris TT, Guggenheim JA, Northstone K, Williams C. Geographical Variation in Likely Myopia and Environmental Risk Factors: A Multilevel Cross Classified Analysis of A UK Cohort. Ophthalmic Epidemiol. 2020 Feb. Accessed 12 November 2025.

3. NHS UK. Short-sightedness (myopia). Accessed 12 November 2025.

