



<b>Title</b>	<b>Refractive Surgery – A Health Technology Assessment</b>
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## Aim

To describe the technological, patient-related, organizational, and economic aspects of refractive surgery in Denmark and to establish alternative models for its future organization. Refractive surgery, broadly defined, encompasses all forms of surgical intervention aimed at eliminating or attenuating optical refractive errors.

## Conclusions and results

*Technology:* Based on systematic literature review up to 2002 it is concluded that excimer laser based corneal refractive surgery can eliminate or greatly reduce myopia up to 10 dioptres, hyperopia up to 4 dioptres, and astigmatism up to 4 dioptres. LASIK surgery is possibly preferable for high corrections, while PRK may be safer for lower corrections.

*Patients:* Based on questionnaire responses from over 250 previously operated patients it can be concluded that the vast majority are satisfied with the result of a corneal refractive procedure. Many patients feel that their night vision is compromised after surgery. Two percent of all patients report much worse vision after surgery.

*Organization:* Based on questionnaires to all Danish ophthalmologists, an estimated 2,500 excimer laser based procedures were performed in 2000, most in private practice. Indications for free treatment are medical (including high myopia and/or astigmatism, anisometropia) and sociomedical (job, education requirements).

*Economy:* Socioeconomic calculations revealed that corneal refractive surgery is cost effective. Young patients with mild or moderate myopia benefit most, as expenses for glasses and/or contact lenses often can be eliminated for many years.

## Recommendations

- Treatment centers should improve communication with referring ophthalmologists, and unified Danish guidelines for ophthalmologists should be drawn up on referral, prognosis, side effects, and risks of refractive surgery.

- One or more of the Danish university departments should continue to provide excimer laser-based refractive surgery treatments for medical and sociomedical indications, and steps should be taken to ensure more intensive average utilization of apparatus capacity.
- The number of patients referred to the public health service for treatment of nearsightedness should be closely monitored, and the degree of nearsightedness should be used as a supplementary instrument for regulating the number of patients offered treatment.

## Methods

A systematic literature review was used to assess the technologies. Questionnaires to operated patients, non-operated myopic subjects, and Danish ophthalmologists were used to assess patient satisfaction after surgery, attitudes on refractive surgery, and selection of patients for free treatment in university hospitals. Cost-effectiveness analysis was used to calculate the possible socioeconomic benefit of refractive surgical procedures.

## Further research/reviews required

Refractive surgery is a rapidly developing field. As the number of intraocular lens implantation in phakic eyes is increasing, an HTA of this rather invasive treatment technique for refractive errors is required.