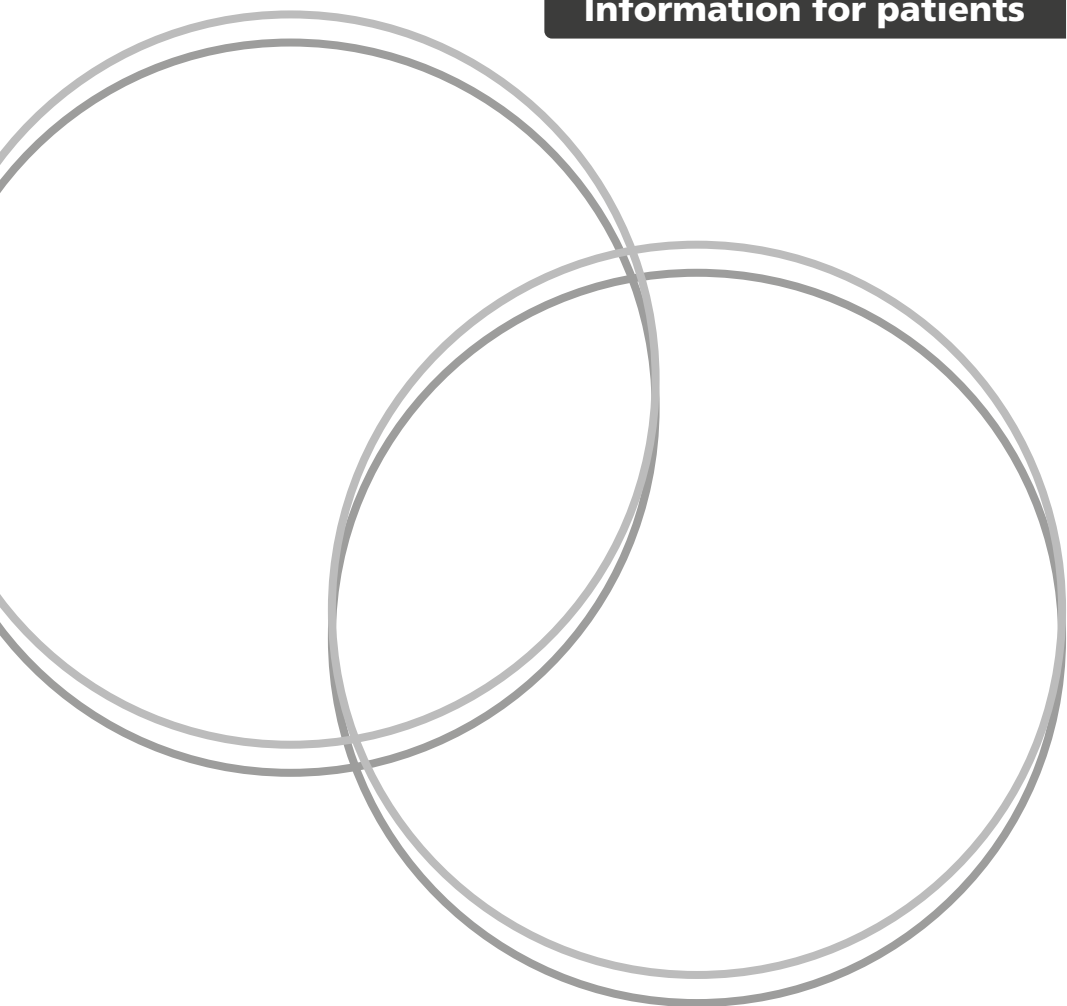


Corneal Graft Surgery (Deep Anterior Lamellar Keratoplasty – DALK)

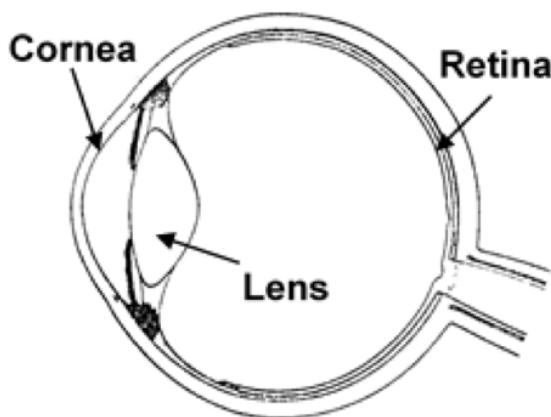
Information for patients



This leaflet explains why you may need a corneal transplant, what happens during DALK surgery, and the possible risks, benefits, and aftercare.

What is the cornea?

The cornea is the transparent front surface of the eye that helps focus light so you can see clearly. If the cornea becomes cloudy or misshapen due to disease, injury, or a condition such as keratoconus, vision can become blurred or distorted.



Why do I need a corneal transplant?

If the front layers of the cornea are damaged or weakened, light cannot pass through properly and vision cannot be improved with glasses or contact lenses alone. A partial-thickness corneal transplant may restore clearer vision and strengthen the eye.

What is a deep anterior lamellar keratoplasty (DALK)?

DALK is a partial-thickness corneal transplant. The surgeon removes the damaged outer layers of your cornea and replaces them with healthy donor tissue. Your own inner layer (endothelium) remains in place, which reduces the risk of rejection.

This surgery is commonly used for:

- Keratoconus
- Corneal scarring
- Certain inherited corneal conditions

Fine stitches hold the donor tissue in place while the eye heals.

Other options

The alternative is not to have surgery. Vision would not improve and may worsen over time.

Depending on the condition, other treatments may be considered first:

- Glasses or contact lenses
- Corneal cross-linking
- Full thickness corneal graft (penetrating keratoplasty)

Your specialist will discuss the most suitable option with you.

Why choose DALK rather than a full-thickness transplant (PK)?

In DALK, only the damaged outer and middle layers of the cornea are replaced. Your own inner layer (endothelium) is kept.

Advantages include:

- Lower risk of graft rejection
- Better long-term graft survival
- Stronger wound that reduces the chance of future injury
- Fewer serious complications inside the eye
- Quicker and safer recovery overall

Around 75 percent of patients achieve vision good enough for driving although they usually need glasses or contact lenses or sometimes further surgery for best results.

Possible disadvantages of DALK over full-thickness graft

- Slightly lower chance of achieving 6/6 (excellent) vision than recipients of full-thickness grafts.

Why might a full thickness corneal graft (penetrating keratoplasty) still be needed?

Sometimes the inner layer can tear during surgery or the surgeon may find unexpected scarring that affects deeper layers. If this happens, a partial-thickness graft is not possible. The safest option is to convert to a full-thickness transplant (PK) during the same operation.

We may often try a DALK even though the chance of conversion to a PK is high. Generally the chance of needing full thickness varies to up to 25%.

The operation

- Anaesthetic: General anaesthetic
- Duration: One to two hours
- Procedure: Damaged corneal layers replaced with donor tissue secured with stitches
- Removed tissue may be examined to help understanding the underlying cause of your corneal problems
- Most patients go home the same day with a protective pad and shield

Donor cornea

Many people donate parts of their body after their death, including their corneas, in order to help others. The individual or their family consent to the use of the eyes for medical purposes after their death, e.g. by carrying a donor card. The donor cornea is taken from an eye that has been removed from a person who has died.

Unlike organ transplants such as kidneys or hearts, a corneal transplant does not need to be matched to your blood group or tissue type. This means a suitable donor cornea is usually easier to find, however, it is usually necessary to wait for some time until a cornea in the correct condition is available.

Corneas are not taken from donors known to have infectious conditions. All donors are screened for HIV or Hepatitis viruses before their corneas are used. The cornea is treated with antibiotic solution before being used for your operation. Unfortunately, not all conditions can be detected, and it is not possible to guarantee that the donor cornea is free from infection. The risk of CJD (brain disease) from corneal grafting is unknown.

Specialist eye surgeons use donor corneas which have rigorous procedures to ensure the best quality and safest corneal tissue.

Risks of DALK

Like all major eye operations, risks may occur immediately or many years later.

Immediate:

Infection (rare but can be sight-threatening, around 1 in 1,000 cases)

Bleeding inside the eye (rare but can be sight-threatening, around 1 in 500 cases)

Damage to other eye structures

Early (weeks–months):

Rejection of the donor cornea (around 1 in 10 patients within two years)

Raised eye pressure (glaucoma), sometimes related to steroid drops

Problems with wound healing

Stitches becoming loose, broken, or infected (sometimes needing adjustment or removal)

Late (months–years):

Cataract (clouding of the eye's natural lens)

Graft failure (the cornea becomes cloudy again)

Ongoing glaucoma (can require ongoing drops, laser or surgery treatment to prevent loss of vision)

Retinal detachment (rare)

Weakness at the graft site, leaving the eye more prone to injury

If a graft fails, another transplant may be possible but each repeat carries more risk.

How long does a DALK graft last?

DALK has an excellent long-term success rate, especially when the inner layer of the cornea (endothelium) is healthy. Most grafts remain clear for many years. DALK generally has a higher survival rate and lower rejection risk than a full-thickness graft.

Overall, more than 9 out of 10 DALK grafts remain clear at 5 years, and many last much longer.

Success depends on the reason for surgery:

Reason for graft	Chance graft remains clear at 5 years
Keratoconus	90–100%
Scarring or inherited problems	85–95%
Complex or high-risk situations (previous infection or complicated surgery)	70–85%

After the operation

Follow-up:

You will be seen within the first week and then regularly, usually 4–6 times in the first year.

Eye drops:

Steroid and antibiotic eye drops essential to prevent infection, inflammation, and rejection.

At first: every 1–2 hours during the day

After 1 month: usually 4 times a day

Duration: at least 12 months, sometimes longer

Vision:

Your sight will be blurred at first but should gradually improve. Vision may fluctuate until several months after the stitches are removed. Full recovery may take up to 24 months.

Stitches:

Stitches remain in place for at least nine months, though this varies. Removal may be done in the outpatient clinic or theatre, usually under local anaesthetic, as a day procedure.

Eye care:

The eye will always remain more vulnerable to injury. Avoid rubbing, protect the eye from trauma, and use protective eyewear when needed.

Work:

Expect at least one week off work, longer for physically demanding jobs.

Sport / hobbies:

Avoid sports and active hobbies for at least four weeks.

Flying:

Sometimes an air bubble is used at the end of surgery. You are safe to fly as soon as the air bubble has disappeared which usually takes a few days.

Symptoms of graft rejection

Because the donor cornea is “foreign” tissue, your immune system may try to attack it. Rejection can occur at any time, even years later.

Seek urgent same-day medical attention if you notice:

- Red eye
- Sensitivity to light
- Sudden loss of vision
- Pain

Rejection is often reversible if treated promptly, but delays can cause permanent sight loss.

Consenting for information sharing

To ensure the highest quality transplant material is used, we must share your details with NHS Blood and Transplant (NHSBT), who supply donor corneas.

If you do not give consent, donor tissue availability may be affected.

For further details, please see:

NHS Blood and Transplant: Giving consent for use of your information

Waiting list

You will be placed on a waiting list for donor tissue.
Waiting times vary.

You will usually be given a few weeks’ notice of your surgery date by post or telephone, though sometimes only days (e.g. in case of cancellations).

Contacting us

If you have a minor eye problem, please seek advice from your GP, optician or pharmacist.

Call our specialist telephone triage number if you need URGENT help or advice or if you notice:

- Redness and/or swelling of your eye lids and/or eyeball
- Any loss of sight
- Intense pain

Tel: **01865 234 567**

(select the option for “Eye Emergencies”)

Monday to Friday

8:30am – 4:30pm

Saturday and Sunday

8:30am – 3:30pm (including Bank Holidays)

You will be able to speak to an ophthalmic health professional who will advise you.

If you need advice out of hours, please phone NHS111 or your out of hours GP practice.

Further information

NHS Website: www.nhs.uk

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

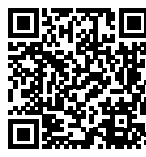
Author: Ophthalmology team

April 2026

Review: April 2029

Oxford University Hospitals NHS Foundation Trust

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