

**Supplemental file 7. Overview of all the definitely, probably and possibly associated risk factors, ranged according to the level of association**

Risk factor	Level of association*	Direction Increased risk with	Number of study results		
			Univariate	Multivariate	Total
Pre-existing glaucoma	4 (H)	Presence	17	7	24
Preoperative IOP	4	Higher preoperative IOP	4	3	7
Combined surgery: Keratoplasty + IOL removal or exchange	4	Presence	5	2	7
Aphakic vs. phakic: Status pre- or intraoperative not defined	4	Aphakic	2	1	3
Pseudophakic with IOL in anterior chamber vs. Phakic: Status pre- or intraoperative not defined	4	Anterior chamber	1	1	2
Pseudophakic with IOL in posterior chamber vs. Phakic: Status pre- or intraoperative not defined	4	Posterior chamber	1	1	2
bullous keratoplasty vs. keratoconus	3	bullous keratoplasty	11	0	11
Combined surgery (general)	3	Presence	7	3	10
Glaucoma in contralateral eye (no glaucoma in contralateral eye)	3	Presence	1	1	2
Indication bullous keratoplasty (yes vs. no)	3	Presence	0	2	2
Ethnicity: Caucasian vs. African-American descent	3	African-American descent	1	1	2
Cyclosporine use before transplantation	3	Presence	0	1	1
Olopatadine 0.1% use before transplantation	3	Presence	0	1	1
Type of steroid use: Prednisolone acetate 1% vs. dexamethasone 0.1%	3	Prednisolone	0	1	1
Age patient (old vs. young age)	2 (H)	Younger age	12	9	21
Type of surgery: Re-graft (due to failed or rejected graft)	2 (H)	Presence	11	3	14
Gender (male vs. female)	2 (H)	Male gender	9	4	13
Type of surgery: PKP vs. DS(A)EK	2 (H)	Higher in PKP	9	1	10
Graft diameter in PKP (large vs. small)	2 (H)	Larger diameter	6	2	8
Combined surgery: Keratoplasty + vitrectomy	2	Presence	3	1	4
Postoperative procedures or complications	2	Presence	1	2	3
History of ocular surgery	2	Absence	1	1	2
Preoperative presence of peripheral anterior synechiae	2	Presence	1	1	2
Postoperative corneal scar vs. corneal oedema	2	Corneal scar	2	0	2
Aphakic or pseudophakic vs. phakic: Status pre- or intraoperative not defined	2	Aphakic or pseudophakic	2	0	2
History of pseudo-exfoliation syndrome	2	Presence	1	0	1
Preoperative treatment of glaucoma with medication	2	Presence	1	0	1
Preoperative treatment of glaucoma with medication and/or surgical	2	Presence	1	0	1
Microbial keratitis with vs. without corneal perforation	2	Presence	1	0	1
Inflammatory vs. non-inflammatory indication	2	Inflammation	1	0	1
Ethnicity: Maori or Pacific (new Zealand Europeans, Samoan, other Pacific people) ethnicity vs. others (Indian, other European and Middle Eastern)	2	Others	1	0	1
Type of surgery: DSEK	2	Presence	1	0	1
Type of surgery: Re-PKP vs. DSAEK after failed PKP	2	DSAEK	1	0	1
Combined surgery: Keratoplasty + retaining anterior chamber IOL vs. Keratoplasty posterior chamber lens left in place	2	Presence	1	0	1
Half top-hat vs. regular PKP	2	Half top hat	1	0	1
Type of steroid use: Prednisolone acetate 1% vs. loteprednol etabonate 0.5%	2	Prednisolone	1	0	1
Type of steroid use: Prednisolone acetate 1% vs. fluorometholone 0.1%	2	Prednisolone	1	0	1
Pseudophakic vs. phakic: Status pre- or intraoperative not defined	2	Pseudophakic	1	0	1

\* level of association: 4 = definitely associated; 3 = probably associated; 2 = possibly associated; H= heterogeneity

Abbreviations: DMEK = descemet membrane endothelial keratoplasty, DS(A)EK = descemet stripping (automated) endothelial keratoplasty, IOL = intraocular lens, IOP = intraocular pressure, PKP = penetrating keratoplasty