2024
EYE BANKING STATISTICAL REPORT

EYE BANK ASSOCIATION OF AMERICA®

TABLE OF CONTENTS

EYE BANK ASSOCIATION OF AMERICA®

2024 Analysis of Surgical Use and Indications for Corneal Transplant

Introduction:

The 2024 Eye Banking Statistical Report of the Eye Bank Association of America (EBAA) includes information on all EBAA member eye banks (53 U.S. and 12 international eye banks and EBAA accredited entities (1 U.S.) reporting data for the 2024 calendar year and represents an essentially complete picture of eye banking activity in the United States. Data on utilization are provided for all tissue recovered by EBAA eye banks, and indications for surgery are provided for all tissue used for transplant in the U.S.

Details of This Year's Analysis:

Since 2017, the data for Indications for Transplant have been segregated by where the tissue from domestic eye banks was used - domestically or internationally. Before then, the analysis of all corneas supplied by U.S. eye banks combined both domestically and internationally used corneas. However, the validity of the conclusions drawn from international tissue utilization was compromised by the lack of recipient information from corneas exported outside the U.S. The percentage of unknown indications for transplant in U.S. tissue shipped internationally has been significant in recent years (61.7% in 2021, 58.9% in 2022 and 57.8% in 2023) and jumped to 64% in 2024 (**Table 8**). The large number of unknowns makes it difficult to draw reasonable conclusions about what the tissue was used for or what the indication for surgery was. For this reason, the indications for transplant data (**Table 9**) are presented only for domestic utilization of corneas supplied by U.S. eye banks; the unknown utilization percentage for domestic grafts was 10% (7.2% in 2023). Since 33.5% of U.S. tissue was shipped internationally for PK, ALK, or EK procedures in 2024, the 64% figure of international unknowns represents a large subset of missing data on utilization of tissue recovered by US eye banks.

Donations and Tissue Supply:

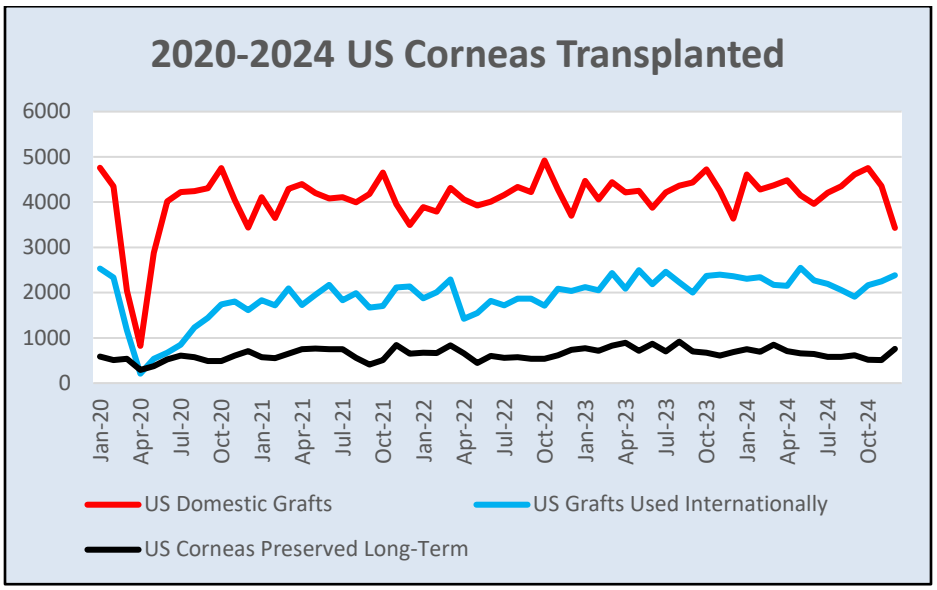


Figure 1: Corneal Transplants Supplied by U.S. Banks, 2020-2024.

Domestic transplants increased 1.2% and international transplants (using tissue from the U.S. banks) decreased 1.7% in 2024. Both domestic and international transplant numbers are close but still lag slightly behind pre-COVID numbers **(Figure 1)**.

In 2024, donors were up 3.1% and total corneas donated were up 2.9% compared to 2023 (**Table 1**). Total corneal grafts (transplanted or long-term preserved) utilizing tissue from U.S. banks in 2024 were down 1.2% (up 9.9% in 2023). Intermediate-term preserved corneas, which included all refrigerated tissue stored in hypothermic corneal storage solution used for full thickness and lamellar procedures, were essentially the same (78,291) in 2024 as in 2023 (78,112).

Corneas distributed in long-term storage solutions increased 33.9% in 2024 **(Table 1)**. Most corneas distributed in long-term storage solutions were used for glaucoma drainage devices. A downward trend in the use of long-term preserved corneas by ophthalmic surgeons seems to have reversed in 2024.

Table 1: Total Donations and Distribution of Tissue in 2024.

Donations	**2022**	**2023**	**2024**	**% Change**
Eye Banks Reported	56	56	54	(3.6%)
Total Whole Globes and Corneas Donated	122,472	137,697	141,735	2.9%
Total Number of Donors	61,747	69,637	71,778	3.1%
Distribution	**2022**	**2023**	**2024**	**% Change**
Total Corneal Grafts	79,126	86,986	85,926	(1.2%)
Intermediate-Term Preserved Corneas	71,835	78,112	78,291	0.2%
Total Domestic Transplants	49,597	50,925	51,559	1.2%
Total International Transplants	22,238	27,187	26,732	(1.7%)
Sclera	2,247	2,195	4,151	87.1%
Long-Term Preserved Corneas	4,580	5,362	7,182	33.9%
Research	13,943	13,983	13,169	(5.8%)
Training	6,614	8,239	9,190	11.5%

The total numbers for domestic and international transplants provided by U.S. eye banks for the past 34 years can also be seen in **Figure 2** below. The raw data from which this figure is compiled is shown in **Table 2** below. In 2024, U.S. eye banks collectively exported 31.1% of tissue recovered in the U.S. to international surgeons. This trend, averaging approximately 30% over the last 12 years, demonstrates the continuing commitment of both U.S. eye banks and help international eye banks to reduce global blindness from corneal disease.

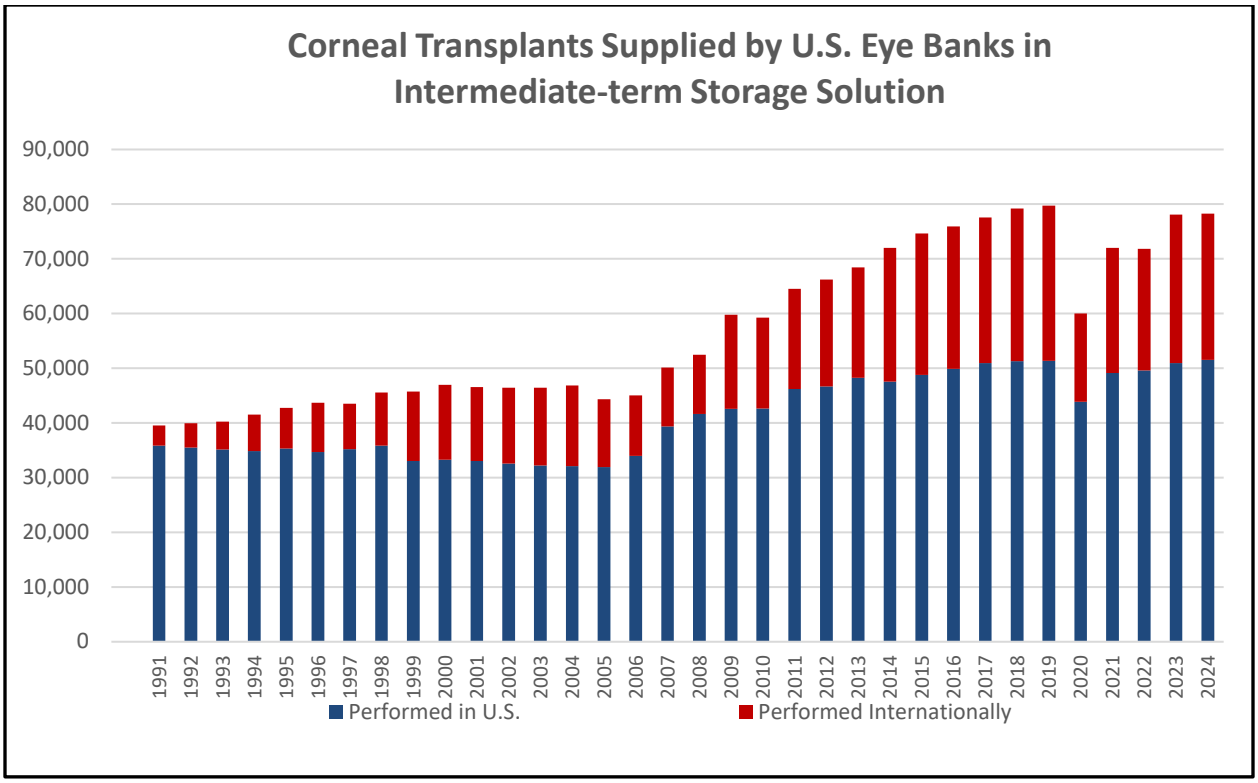


Figure 2: Total Corneal Transplants Supplied by U.S. Eye Banks in Intermediate-Term Storage Solution 1991-2024, Stratified by Domestic and International Use.

Table 2 (next page) shows the data from which **Figures 2, 3a** and **3b** are plotted. Keratoplasty tissue recovered in the U.S. dropped approximately 20% in 2020 from COVID-19 but has approximated pre-COVID levels since 2023.

Table 2: Corneal Transplants Supplied by U.S. Eye Banks 2000-2024.

Year	Total Provided by U.S.	Performed in U.S.	Performed Internationally
2000	46,949	33,260	13,689
2001	46,532	33,035	13,497
2002	46,440	32,559	13,881
2003	46,436	32,240	14,196
2004	46,841	32,106	14,735
2005	44,329	31,952	12,377
2006	45,035	33,962	11,073
2007	50,122	39,391	10,731
2008	52,487	41,652	10,835
2009	59,784	42,606	17,178
2010	59,271	42,642	16,629
2011	67,590	46,196	18,307
2012	68,681	46,684	19,546
2013	72,736	48,229	20,213
2014	76,431	47,530	24,483
2015	79,304	48,792	25,832
2016	82,994	49,869	26,057
2017	84,297	50,934	26,645
2018	85,441	51,294	27,913
2019	85,601	51,336	28,402
2020	66,287	43,873	16,123
2021	79,641	49,110	22,928
2022	79,126	49,597	22,238
2023	86,986	50,925	27,187
2024	85,926	51,559	26,732

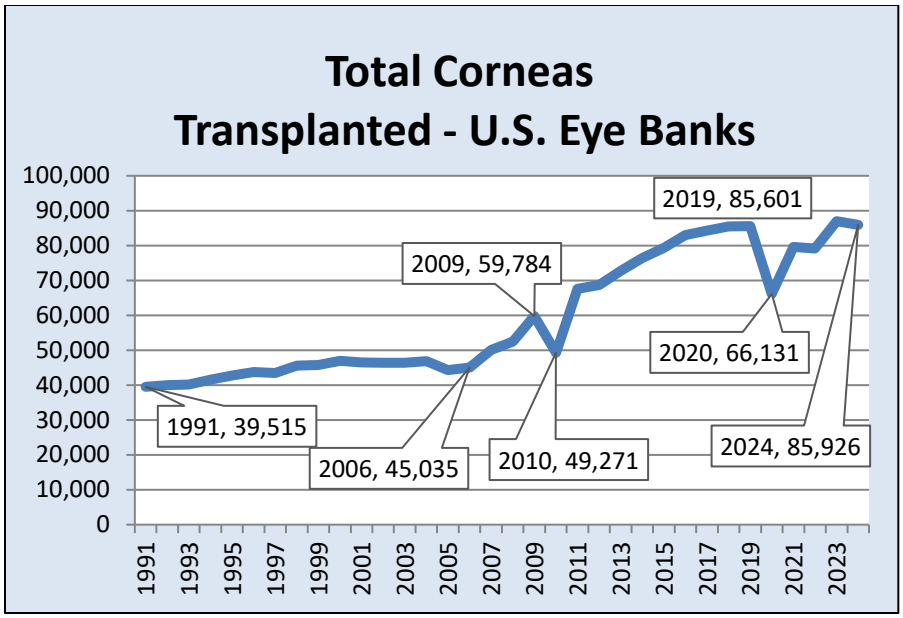


Figure 3a: Total Corneas Transplanted from U.S. Eye Banks, 1991-2024.

Figure 3a (above) shows the data from **Table 2** graphically displayed to show the increasing number of total corneas provided by U.S. eye banks over the past 34 years. **Figure 3b** below shows the percentage of U.S. recovered tissue that is used domestically. The decrease in tissue exportation in 2020 from the COVID-19 epidemic adversely affected tissue recovery and corneal surgery in the U.S., leaving less tissue to share with other countries. The percentage of corneas from U.S. eye banks used domestically has decreased since 1991 as more tissue is shipped internationally.

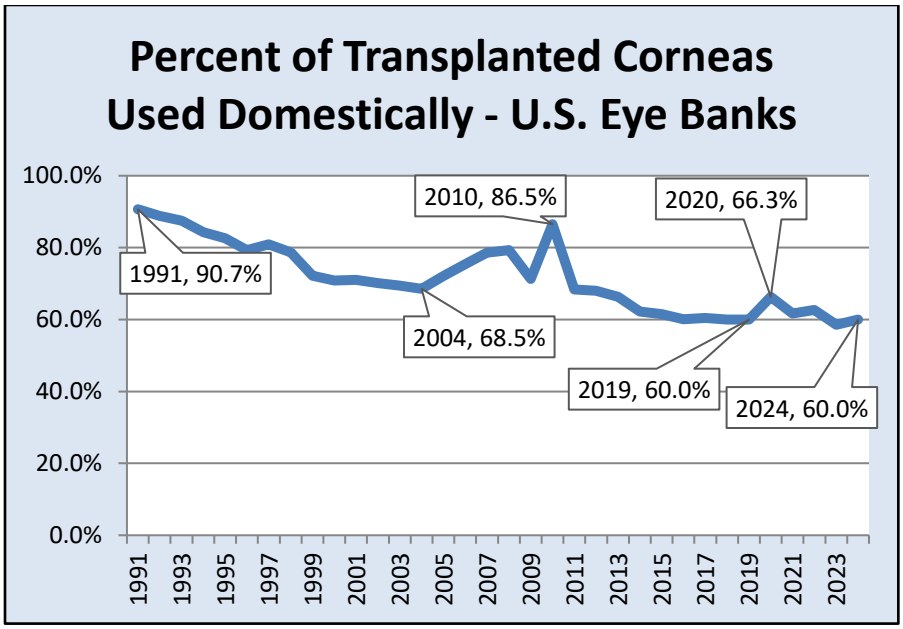


Figure 3b: Percent of Corneas from U.S. Eye Banks Used Domestically.

Tissue Utilization from US Eye Banks:

Table 3. Utilization of Tissue Supplied by U.S. Eye Banks for Domestic and International Use, 2020 - 2024.

Use of Donated Tissue	2020	2021	2022	2023	2024
Corneal Grafts Total	66,278	79,641	79,126	86,986	85,926
Penetrating Keratoplasty (PK)	25,023	30,412	28,728	31,001	31,060
Anterior Lamellar Keratoplasty (ALK)	1,072	1,307	1,230	1,398	1,711
Endothelial Keratoplasty (EK)	29,947	35,532	36,173	39,883	41,558
Keratolimbal Allograft (KLA)	119	134	122	109	106
Keratoprosthesis (K-Pro)	174	175	136	156	154
Glaucoma Shunt Patch or other non-keratoplasty use	873	839	920	1,082	1,346
Other keratoplasty (experimental surgery)	11	25	31	27	161
Unknown or Unspecified	2,777	3,614	4,495	4,456	2,195
Sclera	3,151	5,614	2,247	2,195	4,151
Long-Term Preserved Corneas	9,093	12,626	4,580	5,362	7,182
Keratoplasty	125	82	134	306	1,927
Glaucoma Shunt Patching	7,037	10,283	4,444	5,045	5,215
Other Surgical Uses	1,931	2,261	2	11	40
Research	11,336	14,222	13,943	13,983	13,169
Training	6,504	7,425	6,614	8,239	9,190

Table 3 (above) shows combined domestic and international utilization of tissue supplied by U.S. eye banks over the past five years. Total grafts in 2024 were 85,926, down slightly (1.2%) from 86,986 in 2023. Penetrating keratoplasty (PK) numbers were also essentially the same in 2024 (31,060) as in 2023 (31,001). Although PK procedures worldwide have been on a decreasing trend since 2005, PK grafts in 2023 and 2024 were higher than any of the previous 3 years. Tissue used for endothelial keratoplasty (EK) procedures, including both Descemet Stripping Endothelial Keratoplasty (DSEK) and Descemet Membrane Endothelial Keratoplasty (DMEK), increased 4.2% from 39,883 in 2023 to 41,558 in 2024, the highest number of annual EK procedures to date. The number of corneas used for anterior lamellar keratoplasty (ALK) increased 22.4% in 2024. The number of grafts for keratolimbal allograft (KLA) and keratoprosthesis (K-Pro) have been essentially unchanged over the past six years. Even with the increase in ALK, the total number of corneas used for ALK, KLA and K-Pro procedures remain relatively small compared to the number of PK and EK procedures performed. **Table 3** shows these three procedures together utilized just 2.3% of the tissue supplied by US eye banks for domestic and international use in 2024.

U.S. eye banks also provided 22,359 ocular tissues for research and training, demonstrating continued eye bank support for cornea education and surgical training to promote development of future therapy and procedures.

Domestic Use of Keratoplasty Tissue from US Eye Banks

Table 4: Domestic Use of Intermediate-Term Preserved Tissue from U.S. Eye Banks 2015-2024.

Domestic Surgery Use	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Penetrating Keratoplasty	19,160	18,579	18,346	17,347	17,409	15,402	16,269	15,835	14,486	14,143
Endothelial Keratoplasty	27,208	28,327	28,993	30,336	30,650	26,095	30,098	30,812	33,715	34,700
Anterior Lamellar Keratoplasty	1,115	1,232	1,027	884	745	505	544	476	598	584
Keratolimbal Allograft	97	82	93	68	95	109	124	107	89	88
K-Pro	323	279	304	225	251	161	167	122	148	142

Trends in the domestic use of tissue (supplied by domestic eye banks in intermediate-term storage medium and used in the U.S.) are shown in **Table 4,** above. All grafts except EK were down in 2024 compared to 2023. The number of PKs performed in the U.S. using intermediate-term storage solution decreased 2.4% from 14,486 in 2023 to 14,143 in 2024 (8.5% decrease in 2023). Domestic PK numbers have gradually decreased over the previous 19 years from a high of 42,063 in 2005 (66.4% decrease).

EK procedures in 2024 increased 2.9% from 33,715 in 2023 to an all-time annual high 34,700 in 2024 (9.4% increase in 2023 from 30,812 in 2022). Separate DMEK and DSEK numbers are discussed below (see **Table 5**). The number of corneas used domestically for EK has increased every year since tracking started in 2005, surpassing PK in 2012 (see **Figure 4).**

ALK procedures in the U.S. decreased from 598 in 2023 to 584 in 2024 (2.3%). There had been a 25.6% increase in 2023 from 476 in 2022. Annual DALK procedures have ranged in the past from a high of 1,232 in 2016 to a low of 476 in 2022. KLA and K-Pro procedures have been essentially flat in the U.S. over the past 10 years. Combined, ALK, KLA and K-Pro made up 1.6% of intermediate-term preserved tissue use in the U.S. in 2024. That percentage was essentially the same as in 2022 and 2023 and was essentially equal in both domestic and international data.

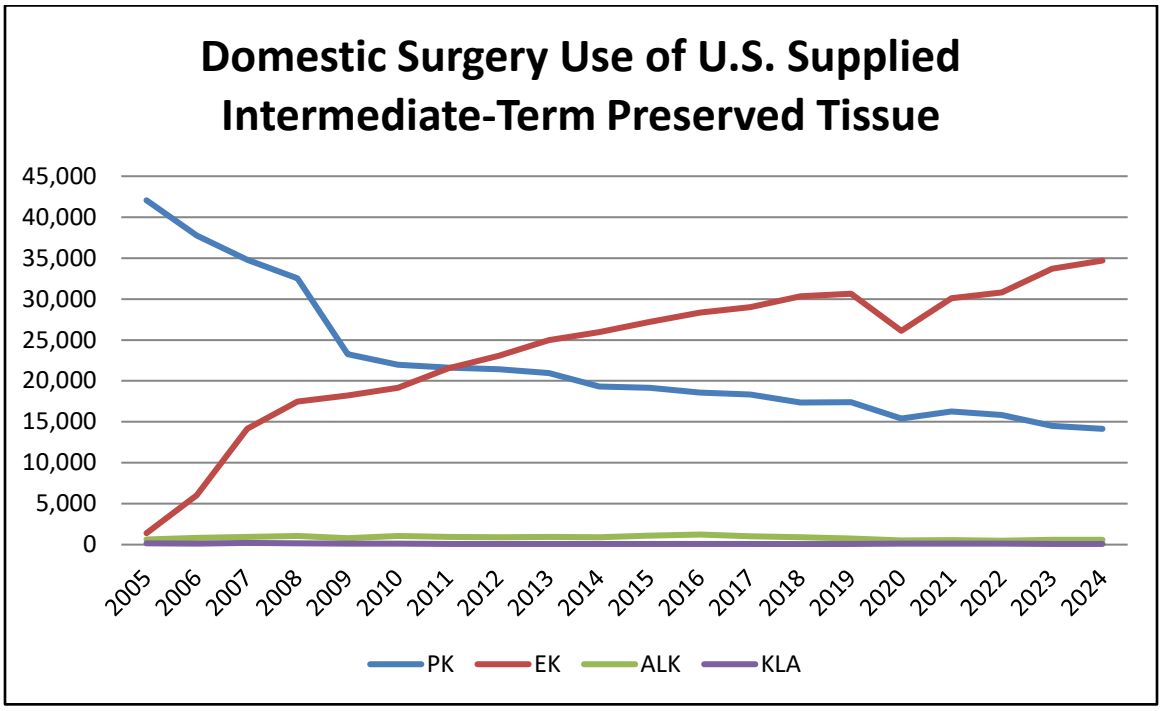


Figure 4: Domestic PK vs. EK vs. ALK Surgery Trends 2005 - 2024.

Figure 4 (above) is the most recognizable graph in cornea specialty publications. The relative frequency of PK, EK, and ALK procedures performed in the U.S. over the last 20 years can be seen in **Figure 4.** PK grafts have decreased since their peak in 2005 due to the increased use of EK to correct endothelial disease. In 2012, the number of EK procedures exceeded the number of PK procedures. EK numbers in this figure include both DSEK (including variants such as DSAEK and PDEK) and DMEK.

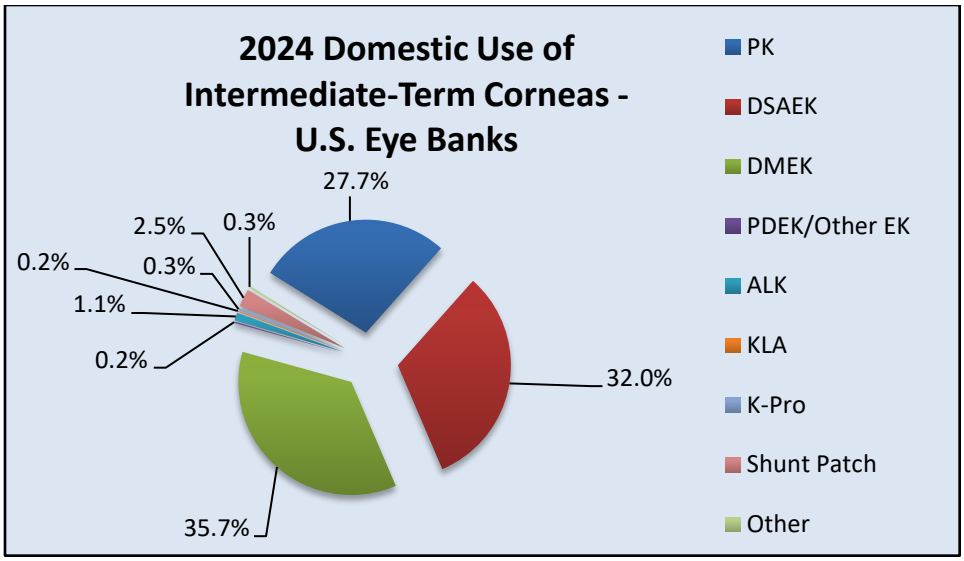


Figure 5: Domestic Use of Intermediate-Term Corneas, 2024.

Figure 5 (above) shows the domestic use of intermediate preserved tissue in the U.S. Most corneas in the US are used for PK, DSEK or DMEK. ALK, KLA, and K-Pro make up 1.6% of all corneas utilized in intermediate storage medium; the procedures do not require a healthy endothelium for success.

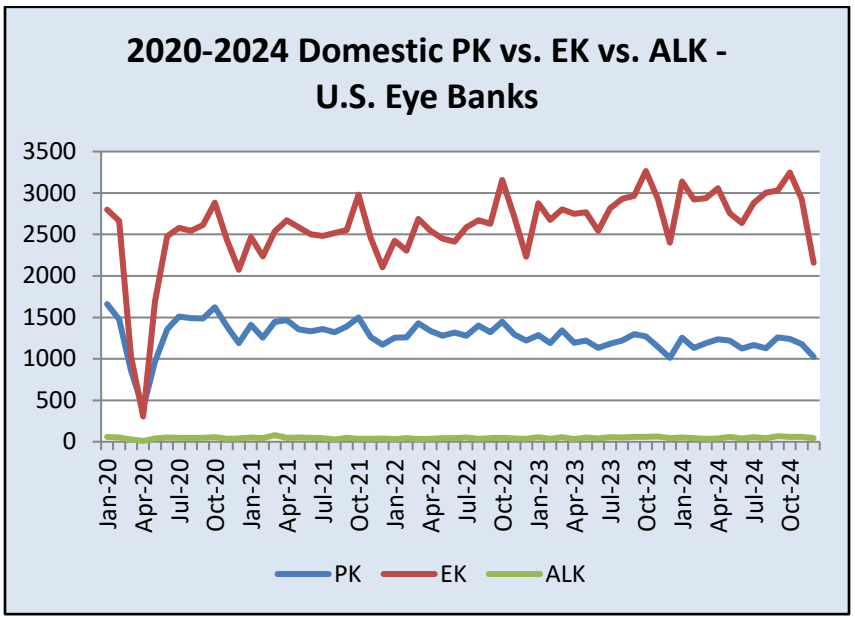


Figure 6: Domestic PK vs. EK vs. ALK, 2020 - 2024.

Figure 6 (above) shows domestic PK, EK and ALK use in the U.S from 2020 to 2024. The general increase in EK procedures and the decrease in PK procedures over time can be seen.

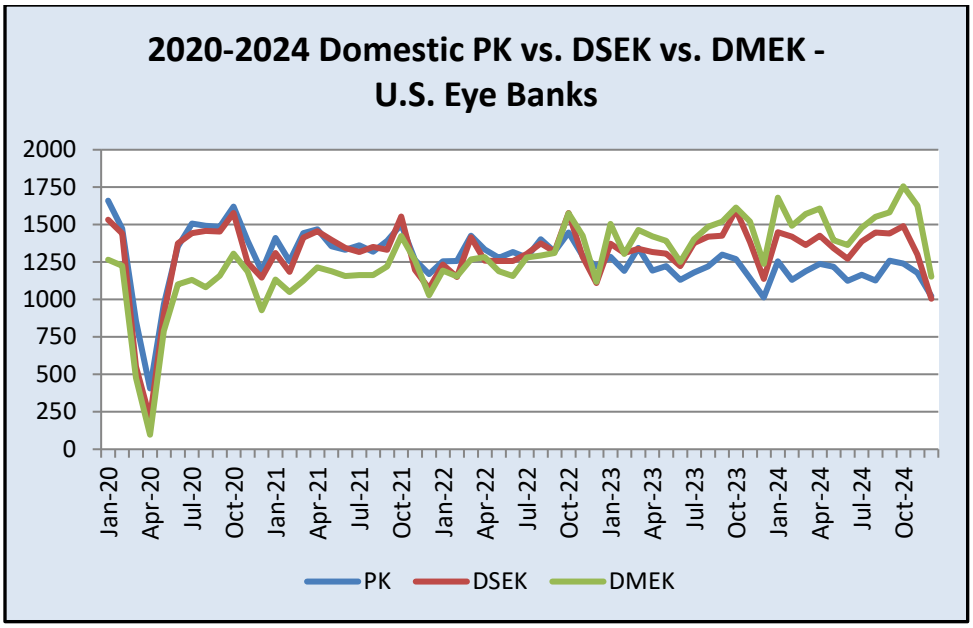


Figure 7: Domestic PK vs. DSEK vs. DMEK, 2020 - 2024.

Figure 7: The monthly number of PK, DSEK, and DMEK procedures performed in the U.S. 2020-2024 using tissue from U.S. eye banks is shown for the last five years**.** Recovery from COVID since 2020 can be seen.

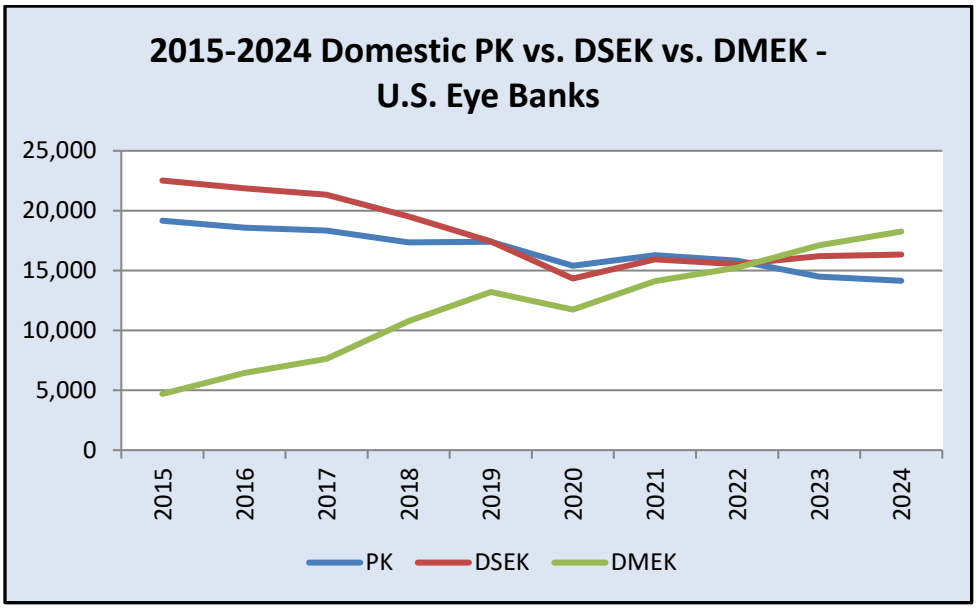


Figure 8: Domestic PK vs. DSEK vs. DMEK, 2015 - 2024.

Figure 8 (above) shows that the total number of PK, DSEK and DMEK procedures performed in the US were essentially equal in 2022. Since 2022, DMEK has increased and been the leading

keratoplasty procedure performed in the United States. Since 2022, there have been more of both DMEK and DSEK procedures performed than PK procedures.

Table 5: U.S. Eye Banks, Domestic Endothelial Keratoplasty Numbers (2018 – 2024).

Domestic Surgery Use	2018	2019	2020	2021	2022	2023	2024
Total Endothelial Keratoplasty Procedures	30,336	30,650	26,095	30,098	30,812	33,715	34,700
DSEK, DSAEK, DLEK Procedures	19,526	17,428	14,391	15,935	15,544	16,207	16,345
DMEK or DMAEK Procedures	10,773	13,215	11,749	14,128	15,248	17,116	18,256
PDEK	26	6	4	0	5	3	6
Other EK	11	1	11	35	15	389	93

Table 5 (above) shows that in 2023 the annual number of DMEK procedures surpassed DSEK. The increase in the number of DMEK procedures has accounted for the annual increase in total EK numbers seen since 2013, although DSEK numbers have remained stable over the past 4 years. DMEK procedures increased from 17,116 in 2023 to 18,256 in 2024 (6.7%), a record high. DSEK procedures increased 0.9% in that same period. DMEK growth has been associated with a growing appetite for tissue from donors aged 50 and over without history of diabetes.

Table 6: U.S. Eye Bank Use of Preloaded Tissue for Endothelial Keratoplasty, 2024.

U.S. Eye Banks, Use of Preloaded Tissue for Endothelial Keratoplasty 2024			
Procedure	Total Number of procedures	Pre-loaded	Percent of Total
DSEK	22,226	2,246	10.1%
DMEK	21,187	17,319	81.7%

Data for preloaded endothelial keratoplasty was collected starting in 2021. Most surgeons loaded their own DSEK tissue, but in 2024, the number of procedures requesting pre-loaded DSEK tissue increased from 8.7% to in 2023 to 10.1% (5.5% in 2022). Most surgeons continue to use pre-loaded DMEK tissue: 82.2% in 2023 and 81.7% in 2024. (See **Table 6,** above).

Tissue for Glaucoma Shunts:

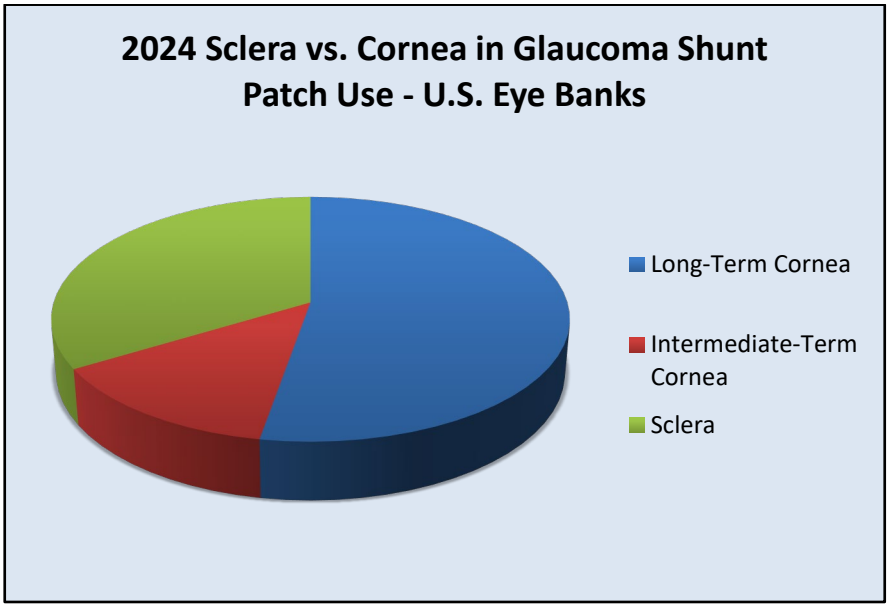


Figure 9: Corneal Tissue Used for Glaucoma Shunt Patching in 2024

Use of eye bank tissue to cover glaucoma shunt procedures is shown above in **Figure 9**. Corneas in long-term storage made up approximately 52.7% of the tissue used for glaucoma shunt patching. Although corneal tissue is a popular material that glaucoma surgeons use to cover tube shunt hardware, there has been a decrease in the number of glaucoma procedures using long-term preserved corneal tissue since 2021 (see **Figure 10,** below).

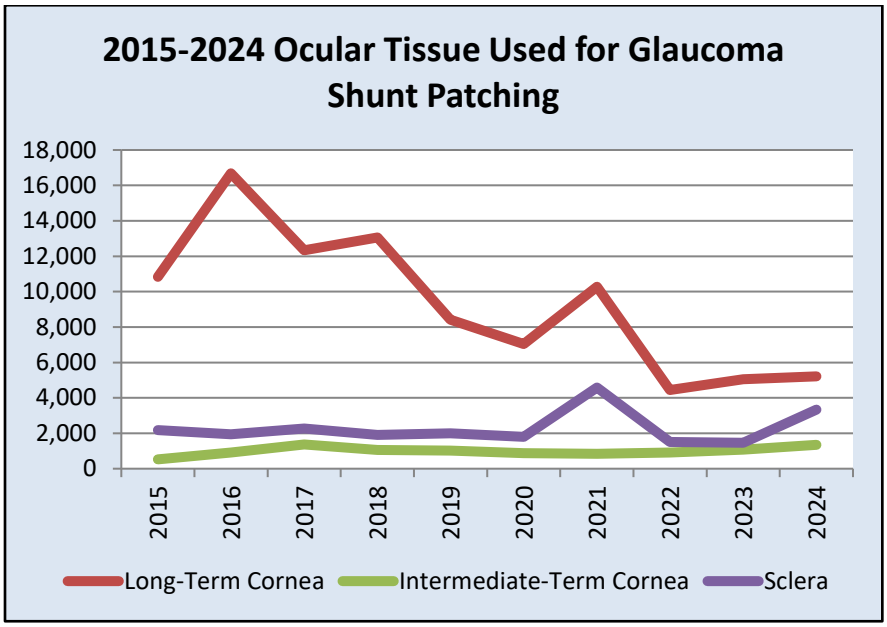


Figure 10. Tissue Used for Glaucoma Shunt Patching, 2015 - 2024.

The choice of whether to use cornea or sclera for tube shunt patching is usually due to the preference of the operating surgeon. A separate reimbursement code covering the use of ocular tissue to patch tube shunt hardware was discontinue five years ago because of protest of manufacturers of competing non-human materials for the same purpose. Now the cost of ocular tissue to cover shunt hardware is bundled and there is financial pressure to avoid ocular tissue for patching. Corneas in long-term storage made up approximately 52.7% of all ocular tissue used for glaucoma shunt patching in 2024 (see **Table 7** below) but was 80% in 2015.

Corneas in long-term preservation has been used to stabilize Descemet layer or stroma in patients with ectatic disease of the cornea. Data from this indication is being collected now and will be reviewed next year.

Table 7: Ocular Tissue Used for Glaucoma Shunt Patching (2015-2024). This table includes data from both domestic and international use of tissue from U.S. eye banks.

Ocular Tissue Used for Glaucoma Shunt Patching - U.S. Eye Banks											
Ocular Tissue Used for Glaucoma Shunt Patching	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Long-Term Cornea	10,843	16,683	12,345	13,066	8,420	7,037	10,283	4,444	5,045	5,215	
Intermediate-Term Cornea	527	917	1,368	1,058	1,018	873	839	920	1,082	1,346	
Sclera	2,175	1,944	2,266	1,900	1,989	1,804	4,583	1,518	1,464	3,327	
Total	13,545	19,544	15,979	16,024	11,427	9,714	15,705	6,882	7,591	9,888	

Indications for Keratoplasty:

The indications for the three main keratoplasty procedures performed utilizing corneas provided by U.S. eye banks, both for domestic and international use, are shown in **Table 8**, Indications for Corneal Transplant Reported by U.S. Banks, 2024. The large number of "unknowns" has been a persistent problem with international tissue and compromises the validity of conclusions that can be drawn from that data. For example, 64% of tissue shipped internationally for penetrating keratoplasty (PK) has no diagnosis provided (65.5% in 2023). For this reason, only domestic data is used for statistical analysis of indications for surgery in **Table 9** below.

Table 8: Indications for Corneal Transplant, Reported by U.S. Banks, 2024.

Indications for Penetrating Keratoplasty 2024	Domestic Use		International Use		TOTAL
A. Endo Dysfunction or Corneal Edema due to Prior Surgery	1,320	9.3%	593	3.5%	1,913
B. Ectasias/Thinning (primary)	1,793	12.7%	939	5.6%	2,732
C. Heritable Endothelial Dystrophies	730	5.2%	802	4.7%	1,532
D. Repeat Corneal Transplant	3,229	22.8%	805	4.8%	4,034
E. Anterior/Stromal Non-Ectatic Degenerations or Dystrophies	496	3.5%	225	1.3%	721
F. Complications of Prior Refractive Surgery	114	0.8%	49	0.3%	163
G. Microbial Keratitis	498	3.5%	209	1.2%	707
H. Mechanical (non-surgical) or Chemical Trauma	658	4.7%	240	1.4%	898
I. Congenital Opacities	328	2.3%	342	2.0%	670
J. Post-Surgical (not refractive or keratoplasty) Opacification/Distortion	328	2.3%	139	0.8%	467
K. Non-Infectious Ulcerative Keratitis, Thinning, or Perforation	1,170	8.3%	143	0.8%	1,313
L. Secondary Endothelial Dysfunction	1,131	8.0%	289	1.7%	1,420
Z. Unknown, Unreported, or Unspecified	2,348	16.6%	12,142	71.8%	14,490
Total Indications for Penetrating Keratoplasty	**14,143**		**16,917**		**31,060**
Indications for Anterior Lamellar Keratoplasty	**Domestic use**		**International Use**		**TOTAL**
B. Ectasias/Thinning (primary)	174	29.8%	125	11.1%	299
D. Repeat Corneal Transplant	42	7.2%	13	1.2%	55
E. Anterior/Stromal Non-Ectatic Degenerations or Dystrophies	79	13.5%	25	2.2%	104
F. Complications of Prior Refractive Surgery	8	1.4%	2	0.2%	10
G. Microbial Keratitis	22	3.8%	11	1.0%	33
H. Mechanical (non-surgical) or Chemical Trauma	33	5.7%	13	1.2%	46
I. Congenital Opacities	43	7.4%	16	1.4%	59
J Post-Surgical (not refractive or keratoplasty) Opacification/Distortion	21	3.6%	19	1.7%	40
K. Non-Infectious Ulcerative Keratitis, Thinning, or Perforation	63	10.8%	14	1.2%	77
Z. Unknown, Unreported, or Unspecified	99	17.0%	889	78.9%	988
Total for Anterior Keratoplasty	**584**		**1,127**		**1,711**
Indications for Endothelial Keratoplasty	**Domestic Use**		**International Use**		**TOTAL**
A. Endo Dysfunction or Corneal Edema due to Prior Surgery	5,387	15.5%	772	11.3%	6,159
C. Heritable Endothelial Dystrophies	16,661	48.0%	837	12.2%	17,498
D. Repeat Corneal Transplant	4,315	12.4%	470	6.9%	4,785
L. Secondary Endothelial Dysfunction	5,895	17.0%	1,886	27.5%	7,781
Z. Unknown, Unreported, or Unspecified	2,442	7.0%	2,893	42.2%	5,335
Total for Endothelial Keratoplasty	**34,700**		**6,858**		**41,558**
Total Number of PK, ALK, and EK Procedures	**49,427**		**24,902**		**74,329**

A side-by-side comparison of the information in **Table 8** (above) is shown in **Figure 11a** (domestic) and **11b** (international). Note the large overall number of "unknowns" (58%) for international use in 2024. The international procedures without a diagnosis in 2022 were 59% and 58% in 2023. The larger number of ALK cases performed internationally is related to international use of some donor tissue that might not be considered suitable for PK domestically, because of decreased endothelial cell count.

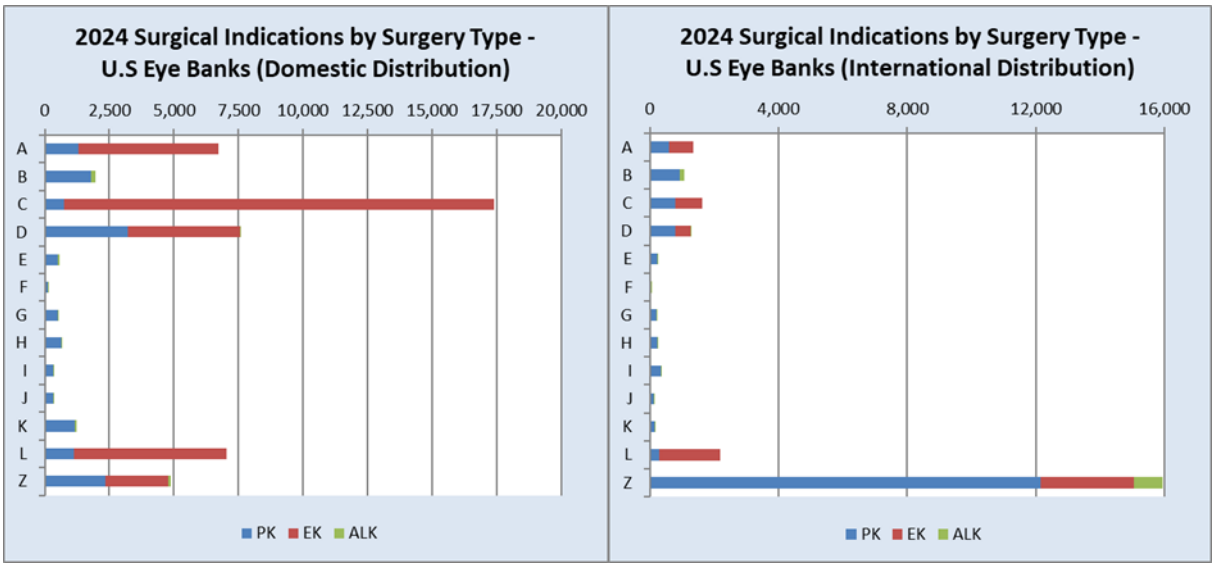


Figure 11: 2024 Keratoplasty Indications, U.S. Eye Banks: Domestic vs. International Distribution.

Figure 11 a & b: Surgical indications for 2024 domestic (**a**, right panel) and international (**b**, left panel) tissue distribution for keratoplasty. Note line Z: the high number of unknowns.
A – Endothelial Dysfunction/Edema due to Prior Surgery. **B** – Ectasias/Thinning (primary). **C** – Heritable Endothelial Dystrophies. **D** - Repeat Corneal Transplant. **E** – Anterior/Stromal Non-Ectatic Degeneration/Dystrophy. **F** – Complications of Prior Refractive Surgery. **G** – Microbial Keratitis. **H** – Mechanical (non-surgical) or Chemical Trauma. **I** – Congenital Opacities. **J** – Post-Surgical (not refractive or keratoplasty) Opacification/Distortion **K** – Non-Infectious Ulcerative Keratitis, Thinning or Perforation. **L** – Secondary Endothelial Dysfunction **Z** – Unknown or unreported.

Table 9, Indications for Transplant, Domestic Utilization of Tissue from U.S. Eye Banks, on the following page, is arranged into four basic categories for which keratoplasty is performed: 1) endothelial cell failure, 2) stromal or full thickness (non-endothelial) disease, 3) regrafts and 4) unknown. The specific diagnosis, or indication for transplant, is listed within each general category.

Table 9: Domestic Indications for Keratoplasty Reported by U.S. Eye Banks in 2024.

Endothelial Cell Failure								
Surgical Diagnosis		PK		ALK		EK		TOTAL
A	Endothelial Dysfunction or Corneal Edema due to Prior Surgery	1,320	19.7%	--	--	5,387	80.3%	6,707
C	Heritable Endothelial Dystrophies	730	4.2%	--	--	16,661	95.8%	17,391
L	Secondary Endothelial Dysfunction (other than dystrophy or surgical/non-surgical trauma).	1,131	16.1%	--	--	5,895	83.9%	7,026
	Subtotal	**3,181**	**10.2%**	**0**	**0.0%**	**27,943**	**89.8%**	**31,124**
		22.5% of PK				80.5% of EK		63.0% of grafts
Stromal or Full Thickness (non-endothelial) Disease								
Surgical Diagnosis		PK		ALK		EK		TOTAL
B	Ectasias / Thinnings	1,793	91.2%	174	8.8%	--	--	1,967
E	Anterior and Stromal Non-Ectatic Degenerations or Dystrophies	496	86.3%	79	13.7%	--	--	575
F	Complications of Prior Refractive Surgery	114	93.4%	8	6.6%	--	--	122
G	Microbial Keratitis	498	95.8%	22	4.2%	--	--	520
H	Mechanical (non-surgical) or Chemical Trauma	658	95.2%	33	4.8%	--	--	691
I	Congenital Opacities	328	88.4%	43	11.6%	--	--	371
J	Post-Surgical Non-Edematous Corneal Opacification or Distortion (not due to prior refractive surgery or keratoplasty)	328	94.0%	21	6.0%	--	--	349
K	Non-Infectious Ulcerative Keratitis or Perforations	1,170	94.9%	63	5.1%	--	--	1,233
	Subtotal	**5,385**	**92.4%**	**443**	**7.6%**	**0**	**0.0%**	**5,828**
		38.1% of PK		75.9% of ALK				11.8% of grafts
Regraft								
Surgical Diagnosis		PK		ALK		EK		TOTAL
D	Repeat Corneal Transplant	3,229	42.6%	42	0.6%	4,315	56.9%	**7,586**
		22.8% of PK		7.2% of ALK		12.4% of EK		15.3% of grafts
Unknown / Unspecified								
Surgical Diagnosis		PK		ALK		EK		TOTAL
Z.	Unknown, Unreported, or Unspecified	2,348	48.0%	99	2.0%	2,442	49.9%	**4,889**
		16.6% of PK		17.0% of ALK		7.0% of EK		9.9% of grafts
		PK		**ALK**		**EK**		**TOTAL**
Total for Each Procedure		**14,143**		**584**		**34,700**		**49,427**

Endothelial disease is still the overall leading indication for domestic keratoplasty. (See **Table 9**). 31,124 of 49,427 (63.0%) keratoplasty procedures in the U.S. in 2024 were performed for endothelial failure (Fuchs' endothelial dystrophy, post cataract surgery edema and other causes of endothelial cell failure). For the treatment of endothelial disease, 89.8% of grafts were EK and 10.2% were PK.

Repeat transplants (7,586 in 2024, 15.3% of all grafts) were the second most frequent indication for keratoplasty. Specific regraft rates were PK 22.8%, EK 12.4% and ALK 7.2%, all comparable to the past 2 years.

Stromal disease (5,828, 11.8% of all grafts) was the third most common category of indications for transplant in 2023. Stromal disease includes keratoconus and ectatic disorders, dystrophies and degenerations, corneal opacities, iatrogenic refractive errors, opacity from microbial keratitis and other causes of corneal distortion. Of all keratoplasty procedures that were performed for stromal or full thickness disease, 5,385 (92.4%) were PK and 443 (7.6%) were ALK.

Unknowns (4,889, 9.9% of all grafts) were the fourth most common indication. Notably, a small number of eye banks are responsible for the large portion of unknown diagnosis information (11.4% in 2022 and 7.2% in 2023). The Association and its EBAA membership have taken on the challenge of determining the root cause of the large amount of unknown recipient information and addressing it. All eye banks are encouraged to continue their vigilance and continue to aggressively seek out recipient information on transplant recipients to maintain the relevance and value of the information in this statistical report.

Table 9 above, shows the specific diagnosis for keratoplasty procedures. Fuchs' dystrophy was the leading specific diagnosis for keratoplasty in the U.S. in 2024 (17,391, 35.2%), as it has been for the last 10 years. 95.8% of patients with Fuchs' dystrophy underwent EK and 4.2% had PK. Regrafts were the second most frequent individual diagnosis provided (7,586, 15.3% of all grafts), and "secondary endothelial dysfunction", which included other causes of endothelial dysfunction than Fuchs or surgical trauma, was the third leading indication (7,026, 14.2% of all grafts). Post-cataract surgery corneal edema was fourth (6,707, 13.6%). Unknowns were fifth (4,889, 9.9%).

Keratoconus (ectasias and thinning) was sixth (1,967, 4.0%) in 2024 as it has been in the previous two years, continuing a thirteen-year trend of declining keratoplasty procedures for keratoconus from a high of 8,071 in 2011. Treatment of keratoconus by cross-linking and improved technology in RGP contact lens fitting has been related to the decreasing number of keratoplasty procedures for corneal ectasia. Penetrating keratoplasty continues to be the preferred surgical procedure for treatment of corneal ectasia by almost 10 to 1 (PK vs. ALK). There were 1.793 (91.2%) PK and 174 (8.8%) ALK procedures for keratoconus in 2024. The technical difficulty of ALK and uncertainty over reimbursement continue to hold this ratio essentially unchanged for the past eight years, and total reported ALK procedures for all diagnoses remain low in the U.S. (476 in 2022, 598 in 2023, and 584 in 2024).

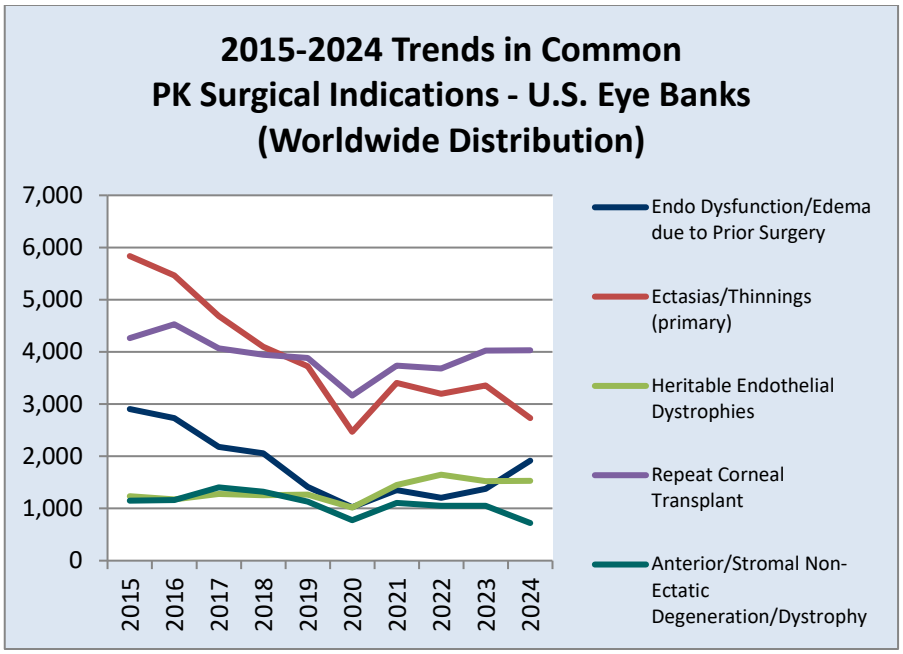


Figure 12. Ten-Year Trend in Common Surgical Indications for Penetrating Keratoplasty.

The overall number of PK procedures has dropped each year since 2005. In 2020, the number of PKs for keratoconus (ectasis and thinning) fell below the number of PKs for regraft. (See **Figure 12**, above). Keratoconus remains the leading single diagnosis for PK. In the U.S. in 2024, there were 1,793 PK grafts for keratoconus and 3,229 regrafts. PK for both keratoconus (red) and for post-cataract surgery corneal edema (dark blue) have been decreasing globally for the past 10 years. The decrease in keratoconus patients is likely related to cross-linking and newer RGP/scleral CL. PK for post-cataract surgery corneal edema is usually performed in cases with stromal opacification. Although EK has become the procedure of choice for edema related to endothelial cell failure and more surgeons are becoming comfortable with endothelial keratoplasty, a finite percentage of advanced Fuchs patients have stromal opacification and are better served with a full thickness graft than endothelial replacement alone. So, there are still likely to be a number of patients that will benefit from PK in the foreseeable future.

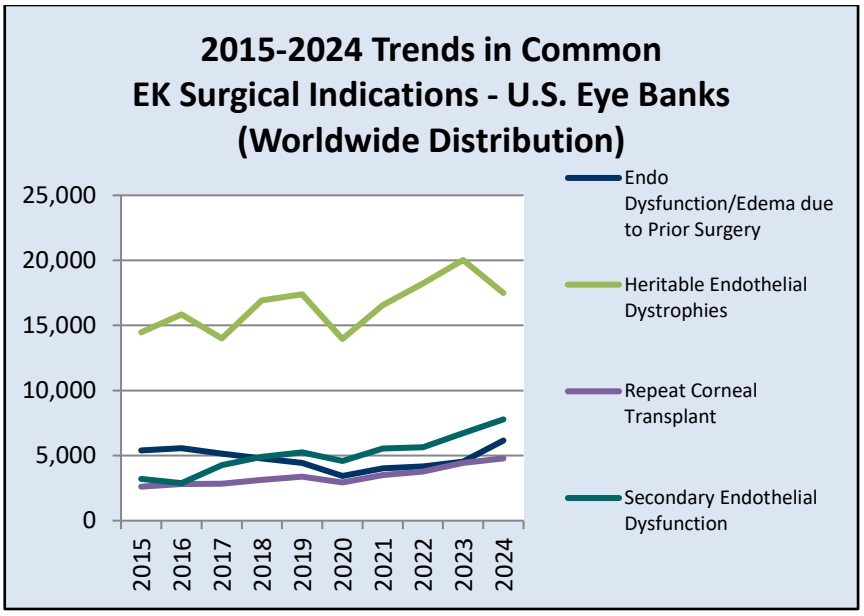


Figure 13: Ten-Year Trend in Common Surgical Indications for EK Procedures.

Figure 13 shows that primary endothelial dystrophy is the leading indication for endothelial keratoplasty (both DMEK and DSEK). The number of regrafts remains constant; but since more people are having the procedure, and the procedure is becoming more refined, the percent of patients needing regraft is diminishing over time.

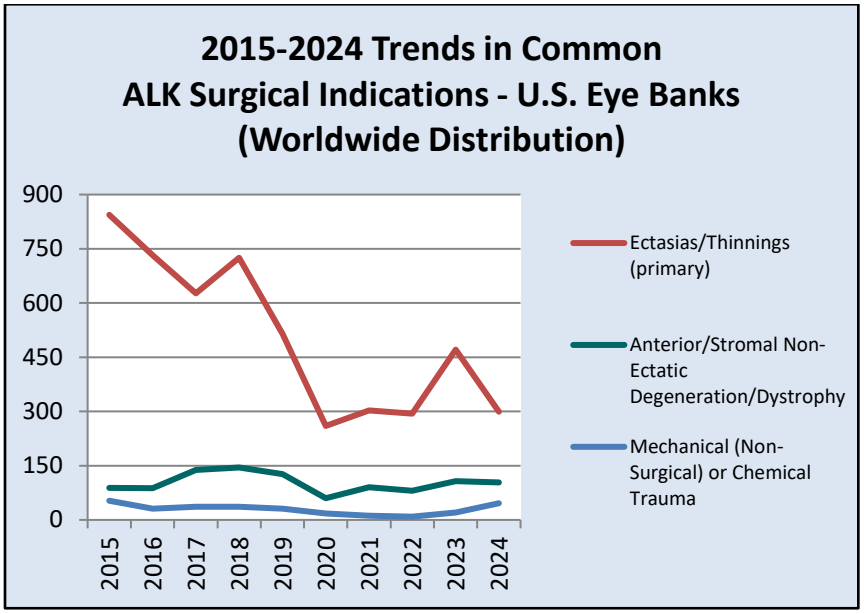


Figure 14: Ten-Year Trend in Surgical Indications for ALK Procedures.

The leading indication for ALK was keratoconus and other corneal ectasias this year, as it has been for the past 10 years. But because fewer patients require keratoplasty for keratoconus, the number of ALK procedures has trended downward over the last nine years. Possible reasons for this decline include the technical difficulty of successful DALK, diminished reimbursement because DALK is not reimbursed as much as PK, and the effectiveness of cross-linking and current rigid gas permeable contact lenses in mitigating the need for surgery in keratoconus patients.

Conclusions:

1) Post cataract surgery corneal edema increased 49.1% in 2024, from 4,497 patients with this diagnosis in 2023 to 6,707 in 2024. There was an increase in both PK (+52.6%) and EK (+48.3%) procedures for these patients. Post cataract surgery corneal edema had declined over the past decade, and the reasons for the significant increase this year are not known.

2) DMEK in 2024 was the most common keratoplasty procedure performed (see **Figure 8**).

3) The leading indication for keratoplasty in 2024 was endothelial disease (63.0% of grafts, see **Table 9**). There is possible confusion between the diagnosis of "corneal edema due to prior cataract surgery," otherwise known as post-cataract surgery corneal edema, and "secondary endothelial dysfunction other than surgical trauma," which includes edema caused by glaucoma, uveitis or contact lens wear.

4) Corneal surgeons requested pre-loaded DSEK tissue 10.1% of the time, and pre-loaded DMEK tissue 81.7% of the time.

5) PK procedures in the U.S. have declined from a high of 42,063 in 2005 to 14,143 in 2024.

6) PK is still the most common procedure used for corneal ectasia (91.2%), but PK for ectasias has trended lower for the past 10 years, presumably due to cross-linking and newer RGP/scleral contact lenses (see **Figure 11** and **Table 9**).

7) ALK procedures decreased 2.3% from 598 in 2023 to 584 in 2024 but still constitute only 7.6% of keratoplasty procedures for stromal disease and 1.2% of all keratoplasty procedures.

8) The number of anterior lamellar keratoplasty, keratolimbal allografts and keratoprosthesis procedures have been essentially flat over the last 10 years. These three procedures combined make up approximately 1.6% of all keratoplasty procedures performed in the U.S. (see **Table 4**).

9) Corneas in long term storage solution are the most common ocular tissue (52.7%) used by glaucoma surgeons to cover glaucoma drainage devices (**Figure 9**), but the amount of ocular tissue used to cover drainage devices has decreased by 50% over the past 8 years (**Table 7**) due to reimbursement issues. There used to be a separate code for ocular tissue used to cover tube shunts, but now the fee is bundled, and surgery centers are less inclined to absorb the cost of ocular material to cover tube shunts. The choice of sclera or corneal tissue to cover tube shunts is glaucoma surgeon preference.

10) There was absent recipient diagnosis for 63.9% of U.S. eye bank tissue shipped internationally in 2024 (**Table 8, Figure 11b**), the highest percentage ever recorded in the statistical report. Eye banks still need to diligently try to collect recipient information on tissue used both domestically and internationally, as well as when exporting tissue to other eye banks.

Respectfully submitted,

Woodford S. Van Meter, MD
Emeritus Professor of Ophthalmology, University of Kentucky
Medical Director, The Eye Bank of Kentucky
EBAA Statistical Report Committee

STATISTICS FROM UNITED STATES EYE BANKS

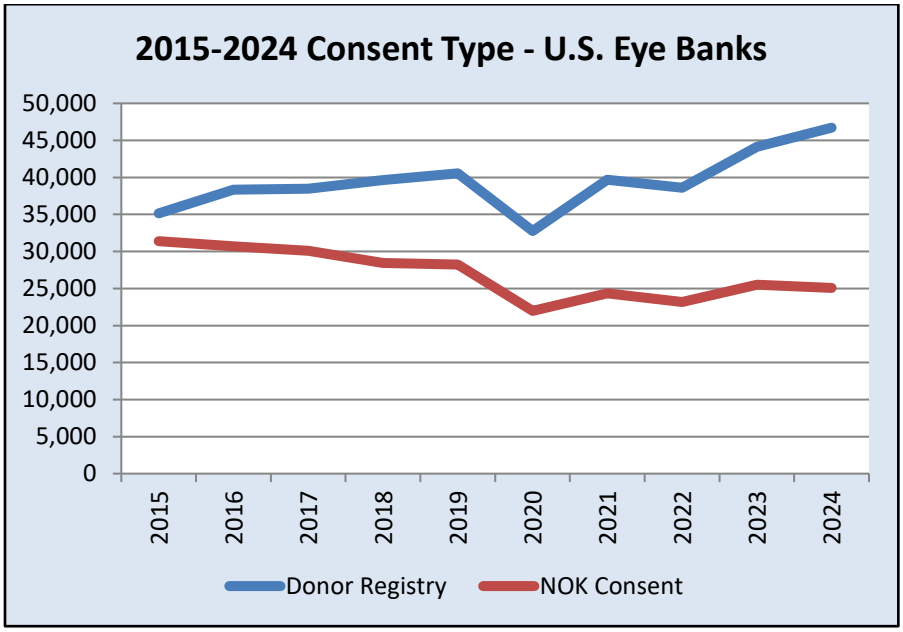
EYE BANK ASSOCIATION OF AMERICA®

2024 Eye Banking Statistics Reported by U.S. Banks
Death Referrals and Tissue Recoveries

Donations	2022	2023	2024
Number of Eye Bank Reporting Entities*	56	56	54
Total Whole Eyes and Corneas Donated	122,472	137,697	141,735
Total Number of Donors	61,747	69,637	71,778

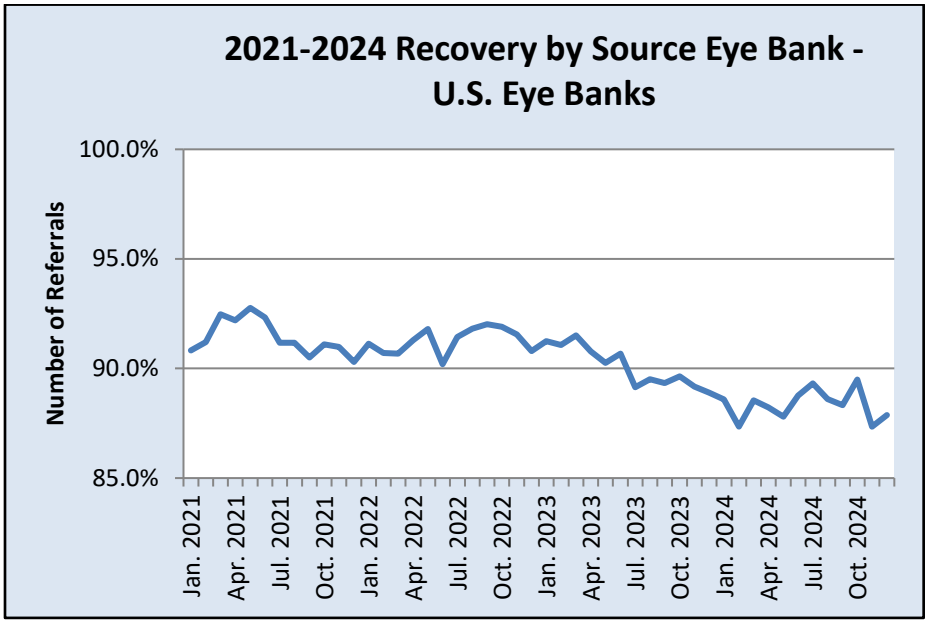
*** Reporting entities may not reflect the number of physical eye banks**

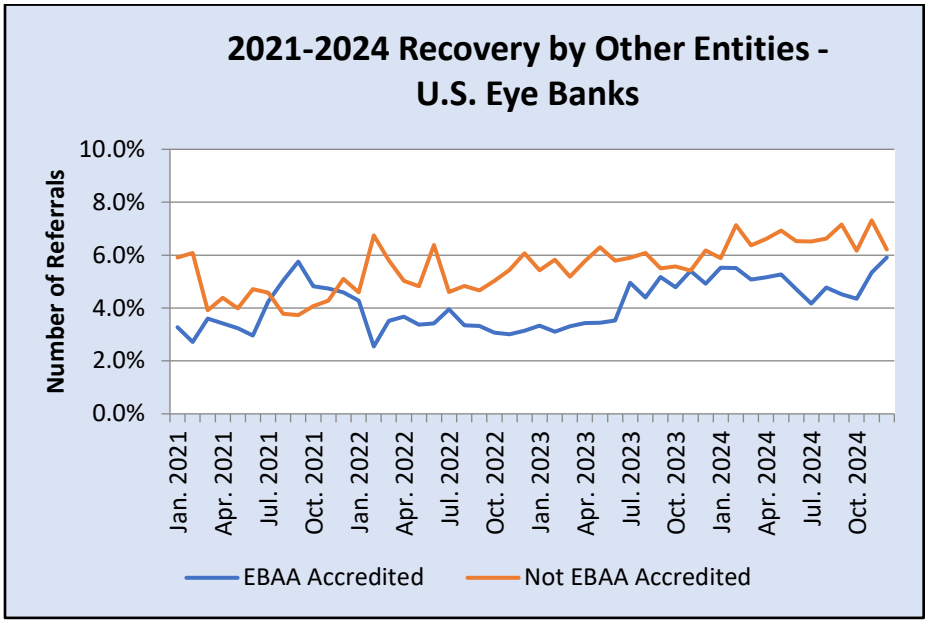
Death Referrals	2022	2023	2024
Total Death Referrals	885,772	800,356	782,014
Death referrals determined eligible	191,697	195,036	202,958
Tissue Recoveries			
Total Donors	61,747	69,637	71,778
Donors recovered not found on donor registry or known to have first person consent	23,160	25,492	25,061
Donors recovered found on donor registry or known to have first person consent	38,587	44,145	46,717
Eyes or Corneas Recovered with Intent for Surgical Use	112,155	127,097	130,662
Eyes or Corneas Recovered for Other Uses	10,317	10,600	11,073



2024 U.S. Eye Banking Statistics Reported by U.S. Banks

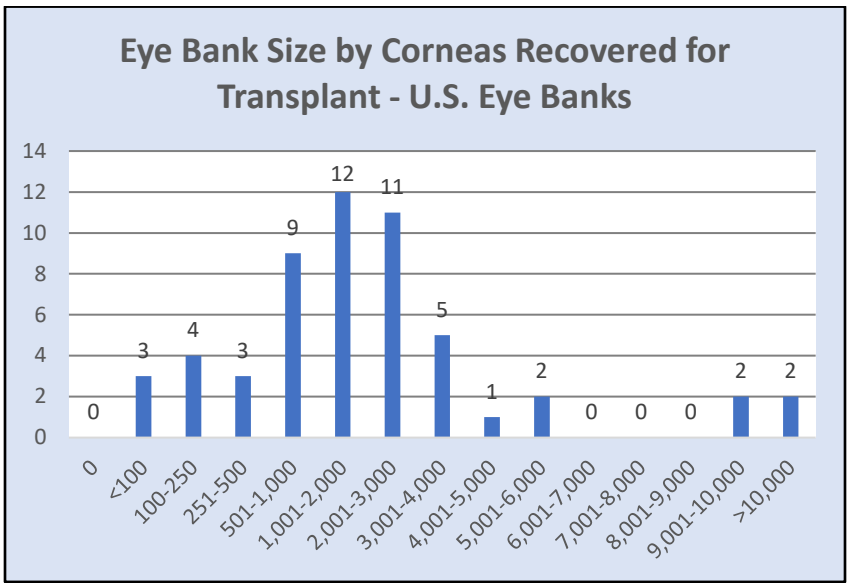
Recovery Entities

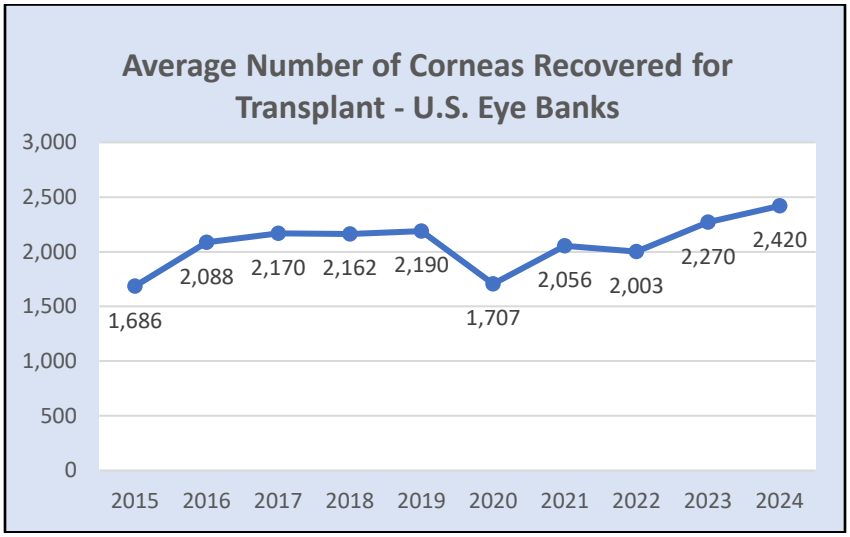


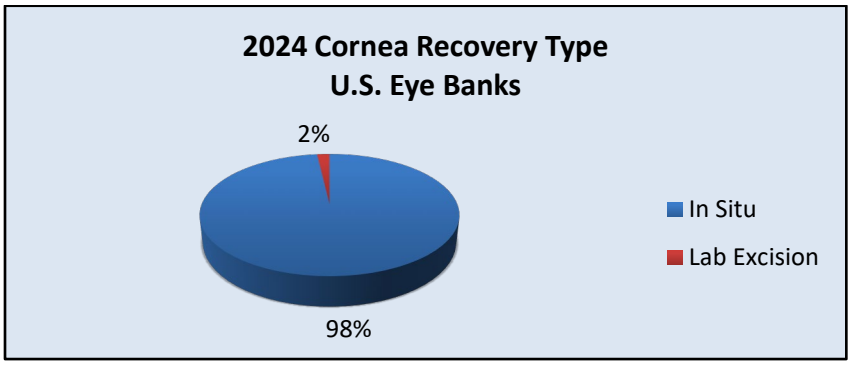


2024 U.S. Eye Banking Statistics Reported by U.S. Banks

Comparison of Eye Bank Cornea Recovery Rates





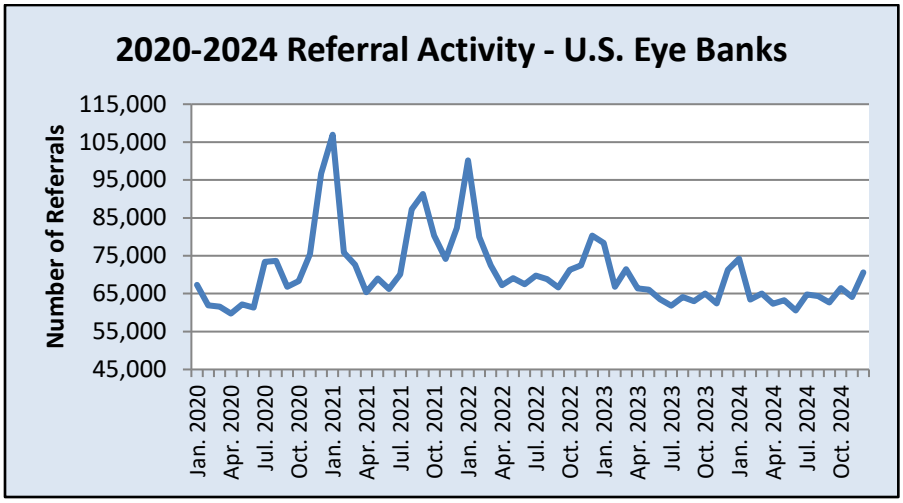


2024 Eye Banking Statistics Reported by U.S. Banks

Referral Trends, Transplant and Conversion Rates

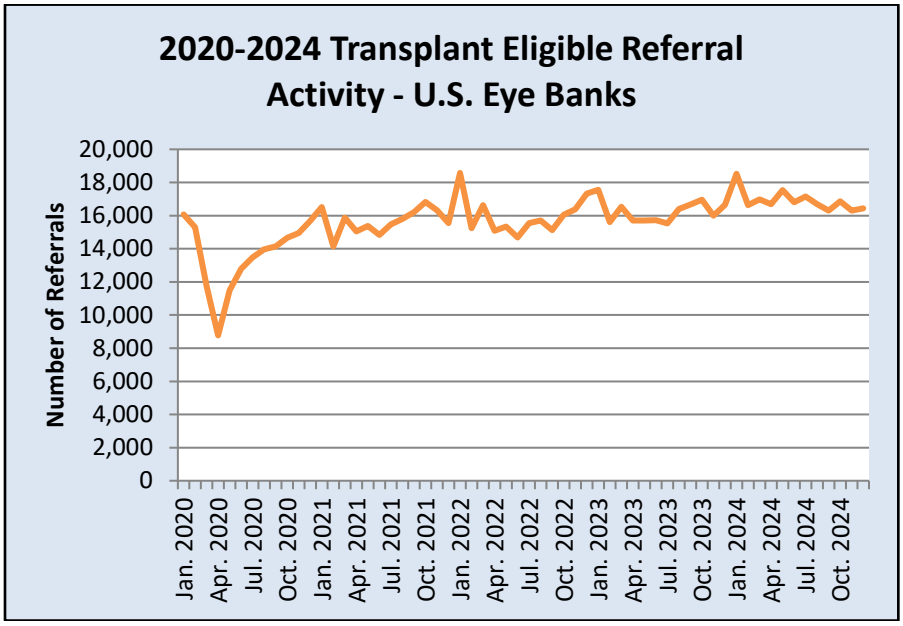
Transplant & Conversion Rates - U.S. Eye Banks					
Month	**Transplant Rate**	**Conversion Rate**	**Death Referrals**	**Transplant Eligible Referrals**	**Transplant Intended Corneas Recovered**
Jan. 2024	63.9%	32.7%	74,219	18,531	12,001
Feb. 2024	66.8%	33.2%	63,475	16,637	10,940
Mar. 2024	65.9%	33.5%	65,081	16,981	11,208
Apr. 2024	67.0%	33.2%	62,328	16,695	10,970
May 2024	65.4%	32.5%	63,265	17,535	11,240
Jun. 2024	65.5%	31.7%	60,581	16,801	10,504
Jul. 2024	65.2%	31.7%	64,827	17,159	10,709
Aug. 2024	66.0%	32.2%	64,327	16,690	10,570
Sep. 2024	66.8%	33.1%	62,664	16,303	10,671
Oct. 2024	66.2%	33.6%	66,463	16,872	11,241
Nov. 2024	67.0%	33.0%	64,148	16,307	10,598
Dec. 2024	65.6%	30.8%	70,636	16,447	10,010
2022 Total	70.7%	29.5%	885,772	191,697	112,155
2023 Total	68.6%	33.0%	800,356	195,036	127,097
2024 Total	65.9%	32.6%	782,014	202,958	130,662
2024 Avg.	N/A	N/A	65,168	16,913	10,889
Std. Dev.	0.9%	0.9%	3,781	619	503

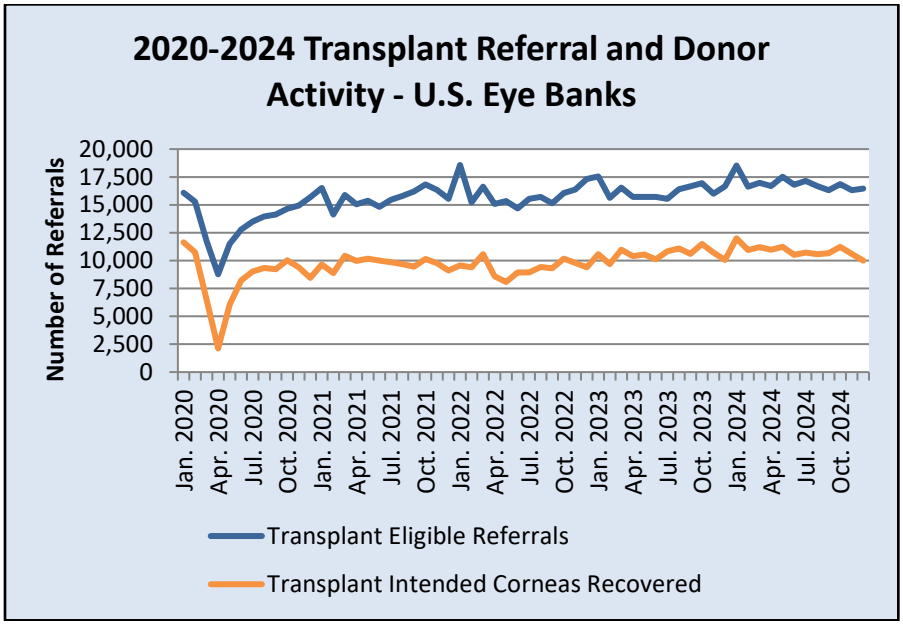
*__Transplant rate__ is the number of corneas used for transplant divided by the number recovered for transplant.
__Conversion rate__ is the number of transplant donors divided by the number of transplant eligible referrals.



2024 Eye Banking Statistics Reported by U.S. Banks

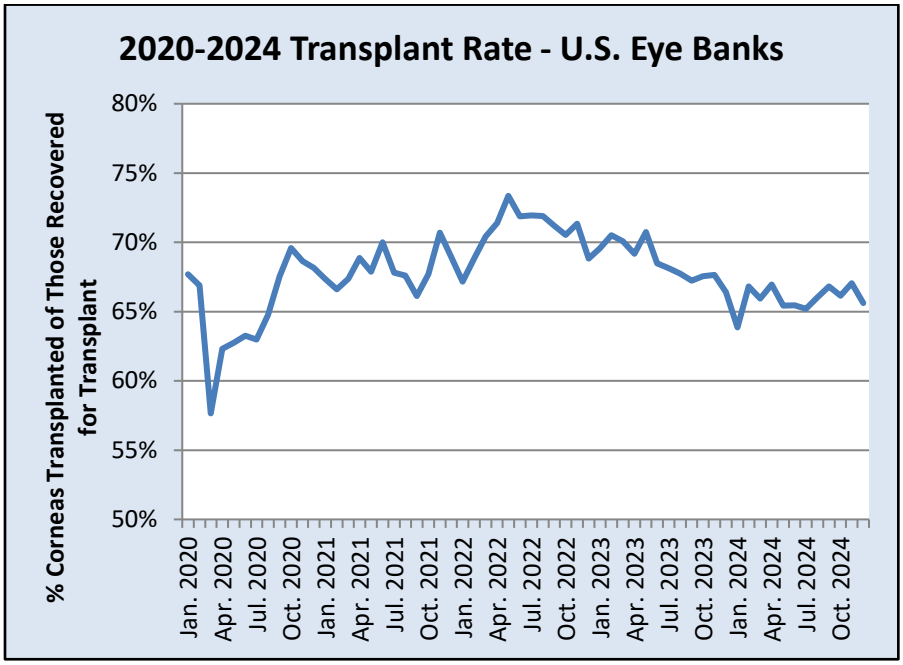
Referral Trends, Transplant and Conversion Rates



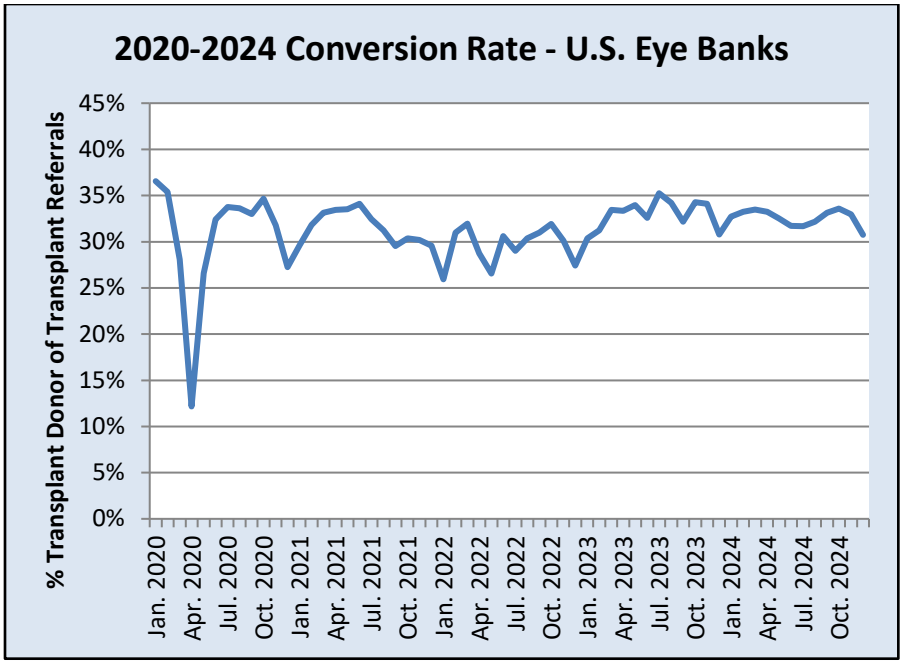


2024 Eye Banking Statistics Reported by U.S. Banks

Transplant and Conversion Rates



Transplant rate is the number of corneas used for transplant divided by the number recovered for transplant.

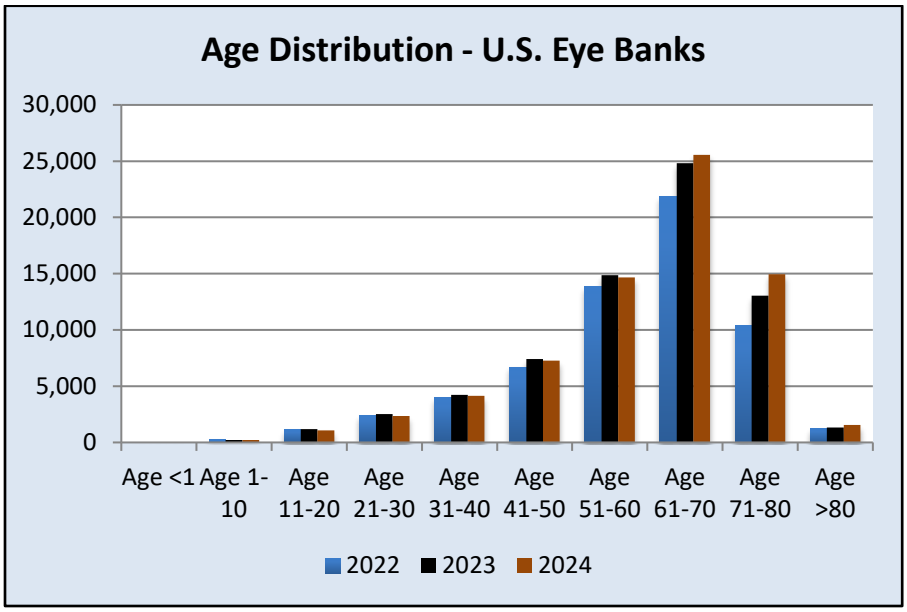


Conversion rate is the number of transplant donors divided by the number of transplant eligible referrals.

2024 U.S. Eye Banking Statistics Reported by U.S. Banks

Donors by Age Reported by U.S. Banks

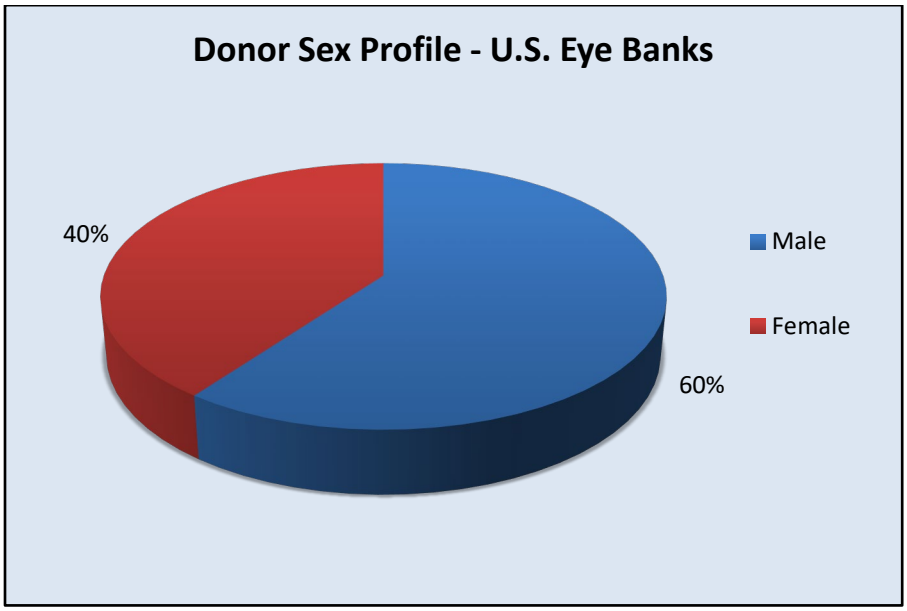
Age Demographics - U.S. Eye Banks										
Year	**Age <1**	**Age 1-10**	**Age 11-20**	**Age 21-30**	**Age 31-40**	**Age 41-50**	**Age 51-60**	**Age 61-70**	**Age 71-80**	**Age >80**
2022	2	227	1,147	2,414	3,992	6,695	13,817	21,841	10,373	1,239
2023	5	227	1,188	2,521	4,227	7,406	14,878	24,817	13,041	1,327
2024	5	230	1,063	2,341	4,147	7,262	14,663	25,553	14,959	1,555
2024 Percent	0.0%	0.3%	1.5%	3.3%	5.8%	10.1%	20.4%	35.6%	20.8%	2.2%
Monthly Avg	0	19	89	195	346	605	1,222	2,129	1,247	130
Std. Dev.	0.5	3.7	13.7	18.0	25.3	38.9	89.7	130.3	88.1	19.6



2024 Eye Banking Statistics Reported by U.S. Banks

Donors by Gender Reported by U.S. Banks

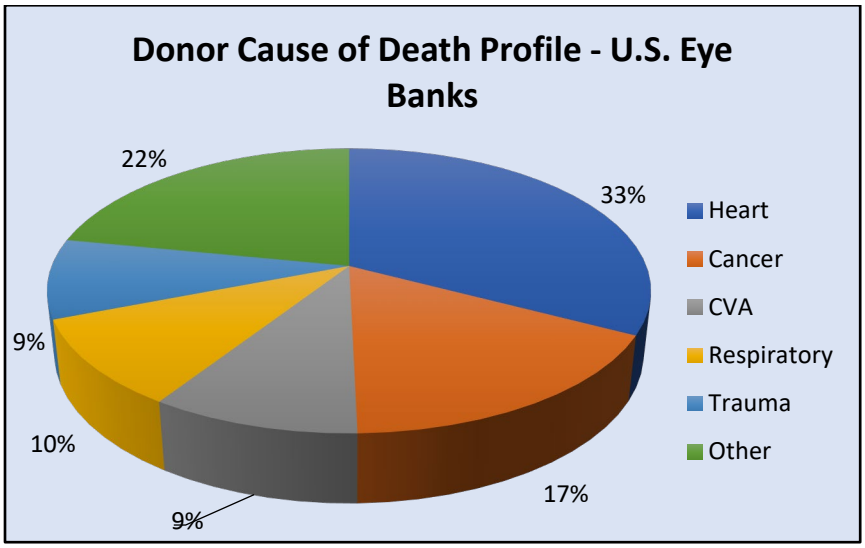
Donor Sex Demographics U.S. Eye Banks		
Year	**Male**	**Female**
2022 Total	37,703	24,044
2023 Total	42,282	27,355
2024 Total	43,111	28,667
2024 Percent	60.1%	39.9%
Monthly Avg.	3,593	2,389
Std. Dev.	137.8	153.2

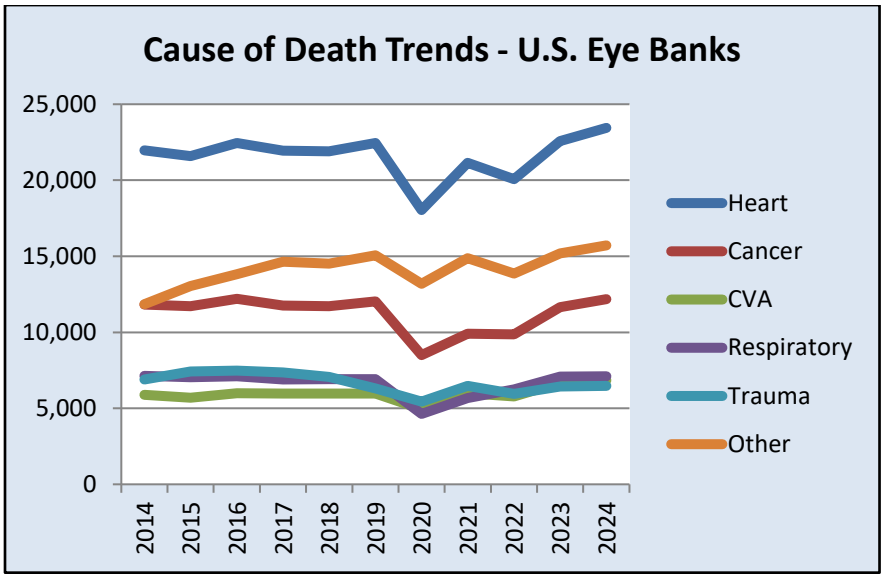


2024 U.S. Eye Banking Statistics Reported by U.S. Banks

Cause of Death Reported by U.S. Banks

Cause of Death Demographics - U.S. Eye Banks						
Year	**Heart**	**Cancer**	**CVA**	**Respiratory**	**Trauma**	**Other**
2022	20,065	9,855	5,781	6,239	5,945	13,862
2023	22,580	11,656	6,685	7,095	6,442	15,179
2024	23,445	12,179	6,843	7,116	6,480	15,715
2024 Percent	32.7%	17.0%	9.5%	9.9%	9.0%	21.9%
Monthly Avg.	1,954	1,015	570	593	540	1,310
Std. Dev.	94.6	72.3	35.8	79.4	56.5	78.8





2024 Eye Banking Statistics Reported by U.S. Banks

Reasons Tissue Intended for Surgery Was Not Released

There are several reasons why tissue intended for surgery may not ultimately be used for surgery. These include positive serology results, defects noted at the time of evaluation (scars, infiltrates, low cell counts, etc.) and/or medical or social history information, all of which occur subsequent to initial screening and procurement.

Contraindications for Transplant[1]	2022		2023		2024	
Positive or Reactive Test for Communicable Disease Agent or Disease	**12,416**	**39.3%**	**12,416**	**39.3%**	**11,664**	**33.0%**
HIV Antibody (HIV I/II Ab)	393	1.5%	571	1.8%	448	1.3%
HIV Nucleic Acid Test (HIV NAT)	93	0.3%	131	0.4%	89	0.3%
Hepatitis B Surface Antigen (HBsAg)	2,412	8.9%	3,554	11.3%	2,949	8.3%
Hepatitis B Core Antibody (HBcAb)	3,850	14.2%	4,122	13.1%	4,319	12.2%
Hepatitis B Nucleic Acid Test (HBV NAT)	607	2.2%	607	1.9%	667	1.9%
Hepatitis C Antibody (HCV Ab)	1,594	5.9%	2,039	6.5%	1,842	5.2%
Hepatitis C Nucleic Acid Test (HCV NAT)	651	2.4%	738	2.3%	628	1.8%
Syphilis	333	1.2%	239	0.8%	269	0.8%
HTLV Antibody (HTLV I/II Ab)	126	0.5%	116	0.4%	168	0.5%
West Nile Virus Nucleic Acid Test (WNV NAT)	8	0.0%	2	0.0%	6	0.0%
Other Positive or Reactive Test	416	1.5%	297	0.9%	279	0.8%
Other Communicable Disease Testing Issue	**593**	**2.2%**	**686**	**2.2%**	**761**	**2.2%**
Medical Record or Autopsy Findings	**6,847**	**25.3%**	**7,636**	**24.2%**	**10,783**	**30.5%**
Dementia / Neurological Issues	609	2.3%	810	2.6%	1,009	2.9%
Sepsis	3,320	12.3%	3,611	11.4%	5,574	15.8%
Sepsis - (determined by positive blood cultures)	1,479	5.5%	1,593	5.0%	1,802	5.1%
Sepsis - (determined by other indicators)	1,841	6.8%	2,018	6.4%	3,772	10.7%
Plasma Dilution	242	0.9%	245	0.8%	285	0.8%
Unknown Cause of Death	88	0.3%	94	0.3%	129	0.4%
Other	2,588	9.6%	2,876	9.1%	3,786	10.7%
Medical/Social Interview	**1,853**	**6.8%**	**2,224**	**7.0%**	**2,444**	**6.9%**
Travel	280	1.0%	364	1.2%	503	1.4%
Dementia / Neurological Issues	170	0.6%	187	0.6%	156	0.4%
Other	1,403	5.2%	1,673	5.3%	1,785	5.0%
Body Exam	**252**	**0.9%**	**237**	**0.8%**	**278**	**0.8%**
Total eyes/corneas intended for transplant but not released for transplant	**27,055**		**31,584**		**35,350**	

*Percentages read from this table should be read as "of the tissue not released for transplant."

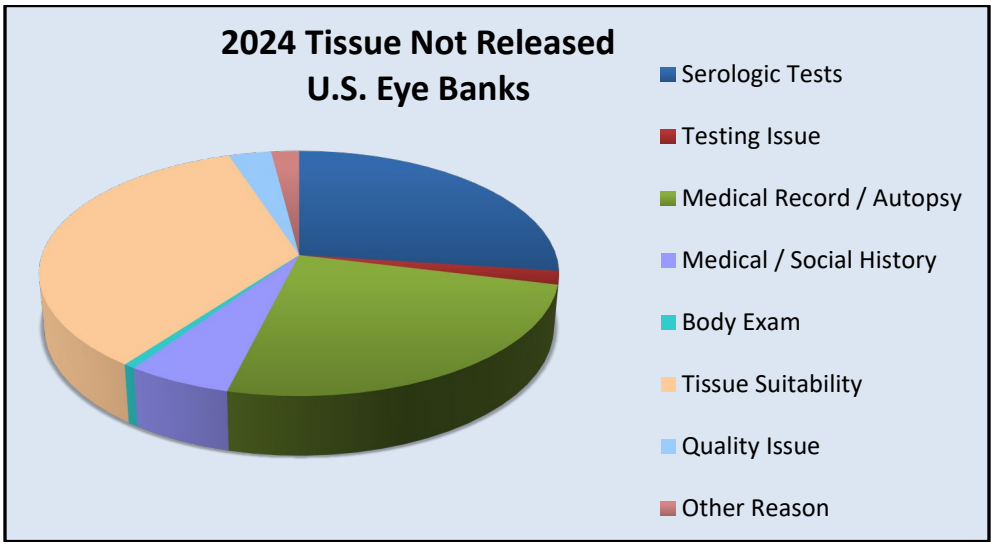
[1] Some tissues had multiple contraindications.

2024 Eye Banking Statistics Reported by U.S. Banks

Reasons Tissue Intended for Surgery Was Not Released

Contraindications for Transplant[2]	2022		2023		20243	
Tissue Suitability (e.g., slit lamp/spec eval)	**11,116**	**41.1%**	**12,838**	**40.6%**	**14,986**	**42.4**
Epithelium	126	0.5%	110	0.3%	111	0.3%
Stroma	7,193	26.6%	8,306	26.3%	9,251	26.2%
Prior reactive surgery	285	1.1%	297	0.9%	342	1.0%
Scar	1,160	4.3%	1,160	3.7%	1,575	4.5%
Infiltrate	3,407	12.6%	3,960	12.5%	4,480	12.7%
Foreign Body	125	0.5%	167	0.5%	186	0.5%
Other	2,216	8.2%	2,722	8.6%	2,668	7.5%
Descemet's membrane	106	0.4%	130	0.4%	182	0.5%
Endothelium	3,691	13.6%	4,292	13.6%	5,442	15.4%
Quality Issue	**769**	**2.8%**	**944**	**3.0%**	**1,318**	**3.7%**
Storage	329	1.2%	427	1.4%	387	1.1%
Labeling	13	0.0%	24	0.1%	36	0.1%
Processing	310	1.1%	368	1.2%	341	1.0%
Supply or Reagent	56	0.2%	57	0.2%	475	1.3%
Environmental Control	61	0.2%	68	0.2%	79	0.2%
Other Reason prior to Tissue Release	**1,191**	**4.4%**	**1,438**	**4.6%**	**864**	**2.4%**
Total eyes/corneas intended for transplant but not released for transplant	**27,055**		**31,584**		**35,350**	

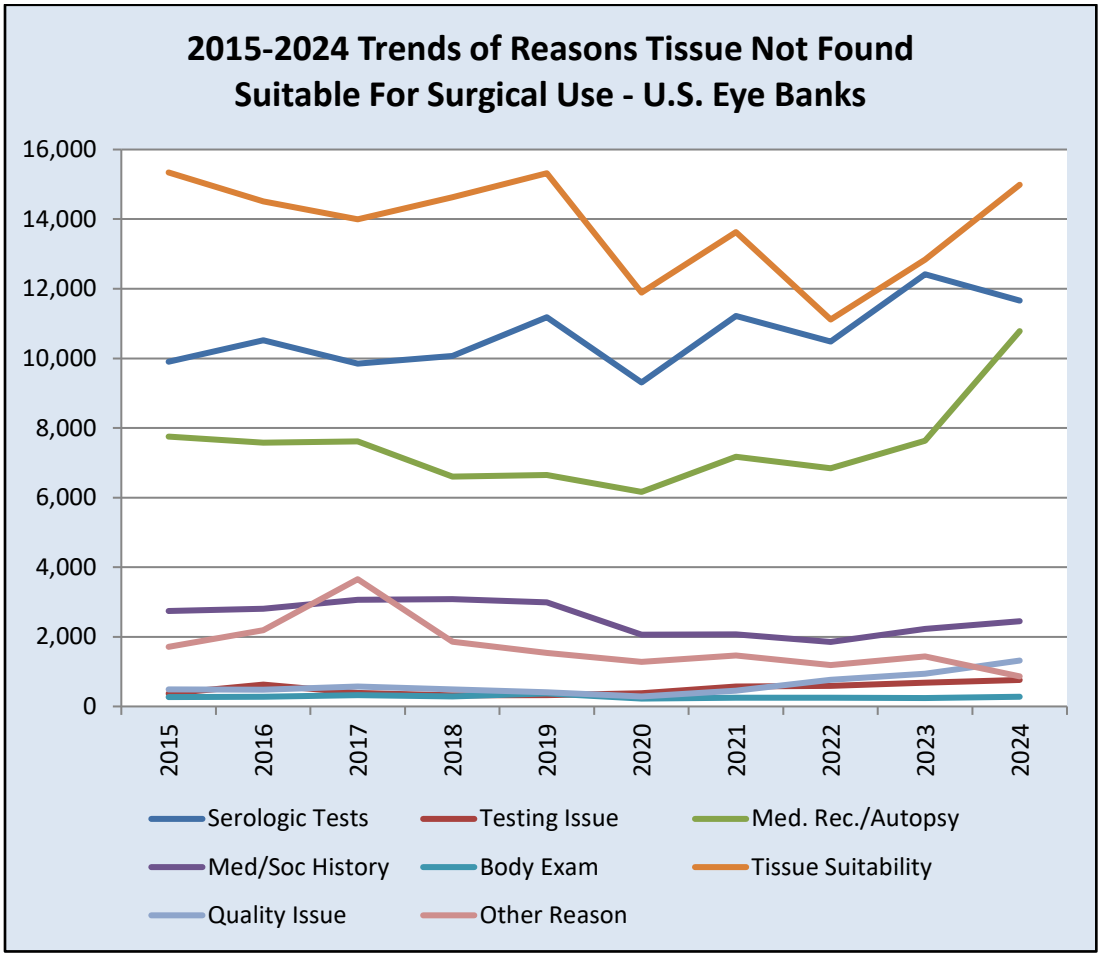
*Percentages read from this table should be read as "of the tissue not released for transplant."



[2] Some tissues had multiple contraindications.

2024 Eye Banking Statistics Reported by U.S. Banks

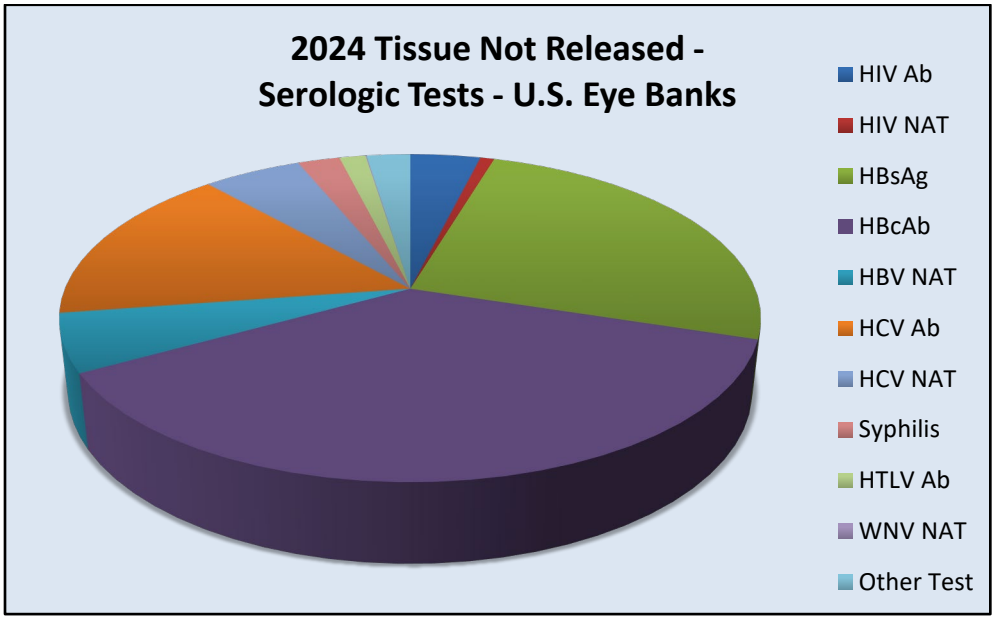
Reasons Tissue Intended for Surgery Was Not Released



Reasons Corneas Recovered for Transplant Were Not Released - U.S. Eye Banks											
Reasons Not Released	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Serology Tests	9,903	10,523	9,845	10,067	11,183	9,308	11,219	10,483	12,416	11,664	
Testing Issue	368	632	385	319	323	380	577	593	686	761	
Med. Rec./Autopsy	7,754	7,578	7,614	6,599	6,650	6,164	7,173	6,847	7,636	10,783	
Med Soc Hx	2,745	2,803	3,067	3,083	2,992	2,062	2,071	1,853	2,224	2,444	
Body Exam	266	280	325	292	374	226	252	252	237	278	
Tissue Suitability	15,341	14,511	13,994	14,631	15,319	11,887	13,625	11,116	12,838	14,986	
Quality Issue	486	477	575	493	405	286	455	769	944	1,318	
Other Reason	1,708	2,194	3,656	1,857	1,542	1,279	1,468	1,191	1,438	864	

2024 Eye Banking Statistics Reported by U.S. Banks

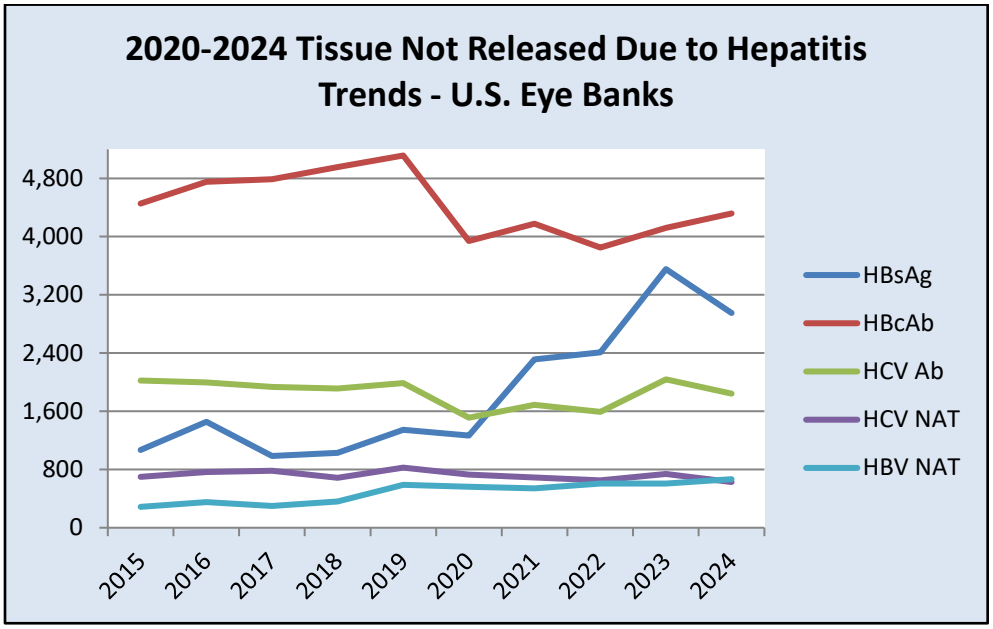
Reasons Tissue Intended for Surgery Was Not Released

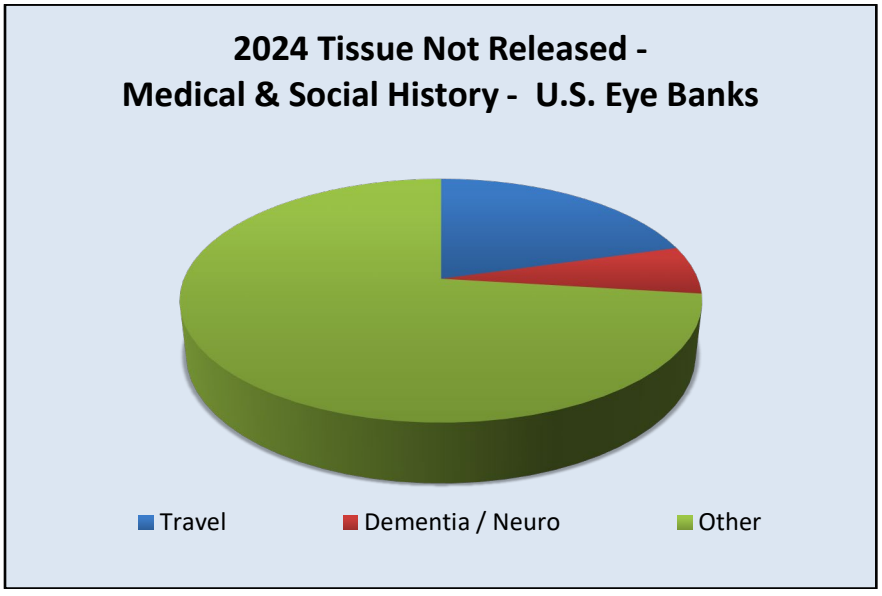


Corneas Not Released for Transplant (Serologic Testing) - U.S. Eye Banks											
Not Released - Serology	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trend**
HIV	300	283	310	370	432	325	399	486	702	537	
HIV I/II Ab	220	185	216	274	265	177	309	393	571	448	
HIV NAT	80	98	94	96	167	148	90	93	131	89	
HBV	5,810	6,565	6,075	6,346	7,047	5,772	7,030	6,869	8,283	7,935	
HBsAg	1,070	1,457	986	1,028	1,344	1,267	2,314	2,412	3,554	2,949	
HBcAb	4,453	4,755	4,789	4,956	5,115	3,940	4,176	3,850	4,122	4,319	
HBV NAT	287	353	300	362	588	565	540	607	607	667	
HCV	2,725	2,762	2,719	2,596	2,812	2,240	2,378	2,245	2,777	2,470	
HCV Ab	2,025	1,996	1,936	1,911	1,986	1,512	1,687	1,594	2,039	1,842	
HCV NAT	700	766	783	685	826	728	691	651	738	628	
Syphilis	358	468	357	383	331	206	286	333	239	269	
HTLV	234	143	80	109	103	139	80	126	116	168	
WNV	10	3	22	8	20	0	11	8	2	6	
Other	466	299	282	255	438	626	1,035	416	297	279	

2024 Eye Banking Statistics Reported by U.S. Banks

Reasons Tissue Intended for Surgery Was Not Released

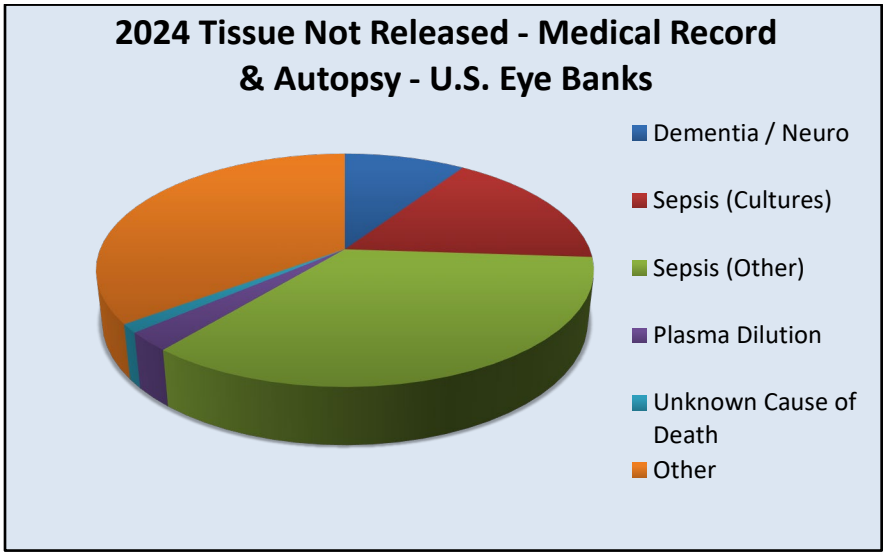




Corneas Not Released for Transplant (Med Soc Hx) - U.S. Eye Banks											
Not Released - Med Soc	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Travel	467	418	435	507	383	327	369	280	364	503	
Dementia/Neuro	180	216	256	312	171	162	182	170	187	156	
Other	2,098	2,169	2,376	2,264	2,438	1,573	1,520	1,403	1,673	1,785	

2024 Eye Banking Statistics Reported by U.S. Banks

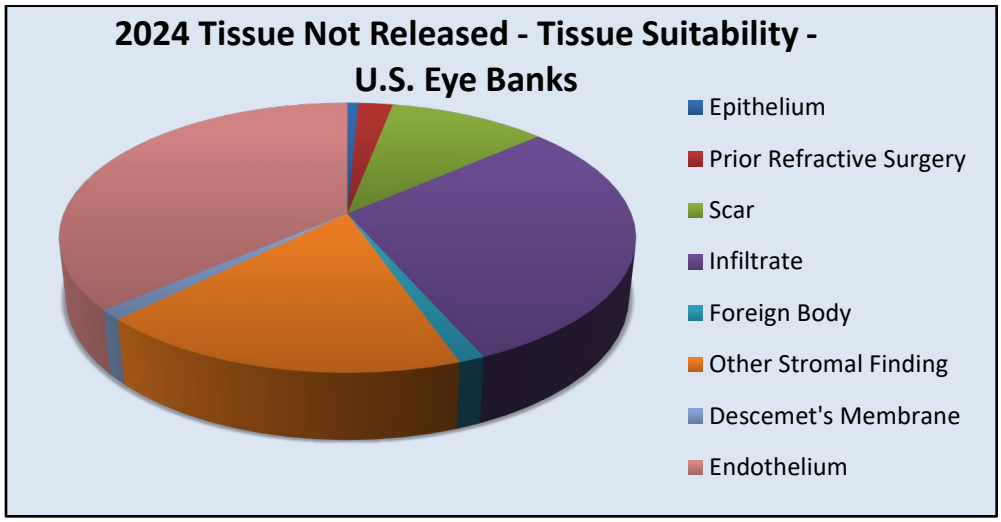
Reasons Tissues Were Not Released



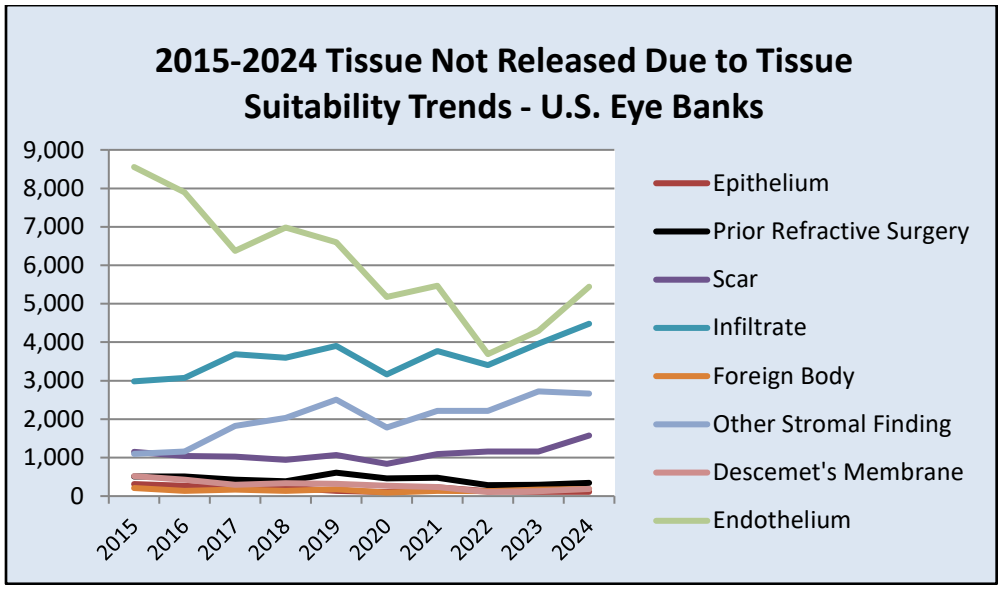
Corneas Not Released for Transplant (Medical Records) - U.S.Eye Banks											
Not Released - Med Rec / Autopsy	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Dementia/Neuro	827	778	723	732	791	566	698	609	810	1,009	
Sepsis (Cultures)	1,078	1,249	1,355	1,337	1,352	1,063	1,416	1,479	1,593	1,802	
Sepsis (Other)	2,443	2,262	1,949	1,853	1,762	1,277	1,750	1,841	2,018	3,772	
Plasma Dilution	381	346	407	315	261	160	242	242	245	285	
Unknown COD	326	192	179	132	165	98	131	88	94	129	
Other	2,699	2,751	3,001	2,230	2,319	3,000	2,936	2,588	2,876	3,786	

2024 Eye Banking Statistics Reported by U.S. Banks

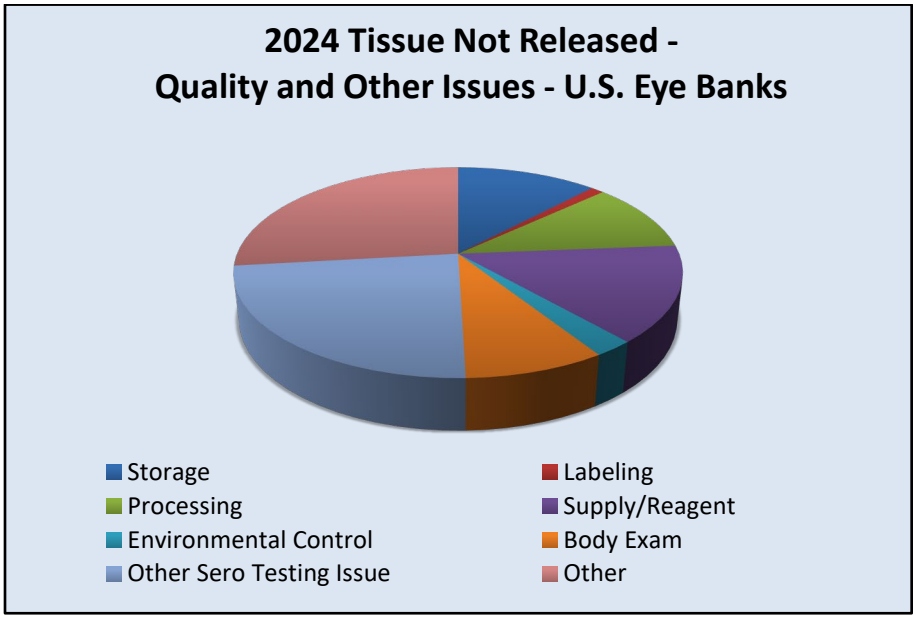
Tissue Suitability Reasons Tissues Were Not Released



Corneas Not Released for Transplant (Tissue Suitability) - U.S. Eye Banks											
Not Released - Tissue Suitability	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Epithelium	313	272	192	218	133	105	230	126	110	111	
Prior Refractive Surgery	512	508	424	383	609	458	474	285	297	342	
Scar	1,151	1,040	1,030	943	1,069	838	1,094	1,160	1,160	1,575	
Infiltrate	2,983	3,076	3,686	3,600	3,906	3,167	3,773	3,407	3,960	4,480	
Foreign Body	210	135	170	133	178	91	139	125	167	186	
Other Stromal Finding	1,098	1,162	1,825	2,033	2,503	1,780	2,219	2,216	2,722	2,668	
Descemet's Membrane	520	425	293	338	321	269	232	106	130	182	
Endothelium	8,554	7,893	6,374	6,983	6,600	5,179	5,464	3,691	4,292	5,442	



2024 Eye Banking Statistics Reported by U.S. Banks
Quality Issues for Tissue Not Released

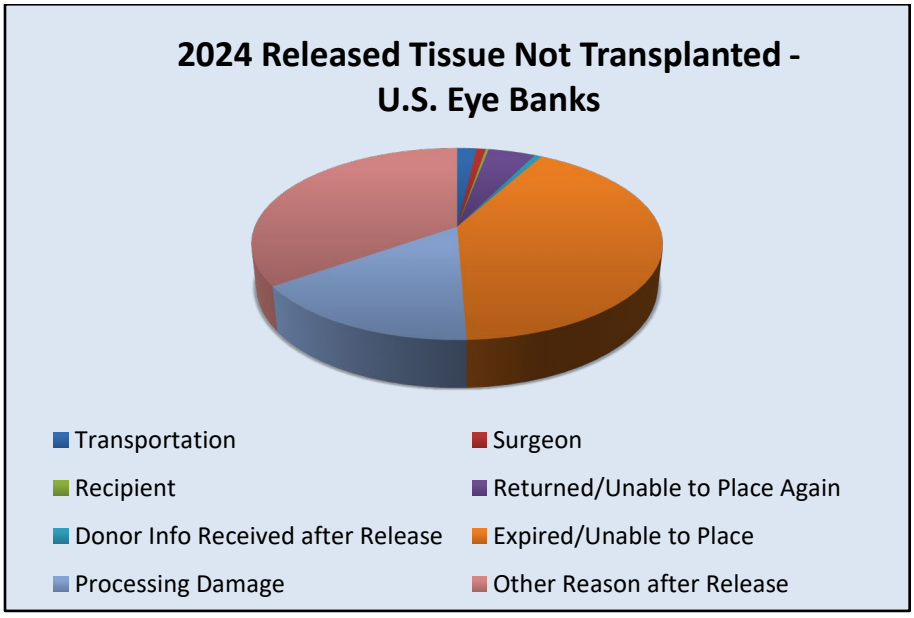


Corneas Not Released for Transplant (Quality) - U.S. Eye Banks											
Not Released - Quality Issues /	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Storage Issue	135	131	93	108	128	103	172	329	427	387	
Labeling Issue	9	16	9	21	3	7	15	13	24	36	
Processing Issue (not released)	252	251	403	303	157	107	142	310	368	341	
Supply / Reagent Issue	58	57	51	37	86	43	51	56	57	475	
Environmental Control Issue	32	22	19	24	31	26	75	61	68	79	
Body Exam	266	280	325	292	374	226	252	252	237	278	
Other Sero Testing Issue	368	632	385	319	323	380	577	593	686	761	
Other Issue	1,708	2,194	3,656	1,857	1,542	1,279	1,468	1,191	1,438	864	

2024 Eye Banking Statistics Reported by U.S. Banks
Reasons Released Tissues Were Not Transplanted

Reasons Released Tissues Were Not Transplanted	2022		2023		2024	
Transportation Issue	247	4.1%	192	2.3%	234	2.5%
Surgeon Issue	80	1.4%	82	1.0%	111	1.2%
Recipient Issue	38	0.6%	33	0.4%	33	0.4%
Returned and Unable to Place Again	432	7.2%	590	6.9%	572	6.1%
Donor Information Not Available at the Time of Tissue Release	20	0.3%	58	0.7%	85	0.9%
Expired or Unable to Place Tissue	2,922	48.9%	4,584	53.8%	5,334	56.8%
Tissue Damaged During Processing	1,529	25.6%	1,927	22.6%	2,042	21.8%
Other Reason After Release of Tissue	2,985	50.0%	4,079	47.8%	4,487	47.8%
Total eyes/corneas released for transplant but not used for transplant	**5,974**		**8,527**		**9,386**	

*Percentages read from this table should be read as "of the tissue not released for transplant."



Corneas Released but Not Transplanted - U.S. Eye Banks											
Released but Not Transplanted	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Transport Issue	226	139	147	175	192	132	469	247	192	234	
Surgeon Issue	140	103	108	115	116	83	124	80	82	111	
Recipient Issue	35	41	52	36	39	32	36	38	33	33	
Returned, Unable to Place Again	511	475	453	467	516	524	507	432	590	572	
Donor Info Received After Release	50	28	21	14	17	17	54	20	58	85	
Expired, Unable to Place	3,958	4,176	2,679	2,473	3,176	4,615	3,539	2,922	4,584	5,334	
Processing Damage After Release	764	1,030	1,113	1,454	1,414	1,226	1,416	1,529	1,927	2,042	
Other Reason After Release	1,359	1,511	2,007	977	686	808	1,096	2,985	4,079	4,487	

2024 Eye Banking Statistics Reported by U.S. Banks
Outcomes of Tissue Recovered for Transplant

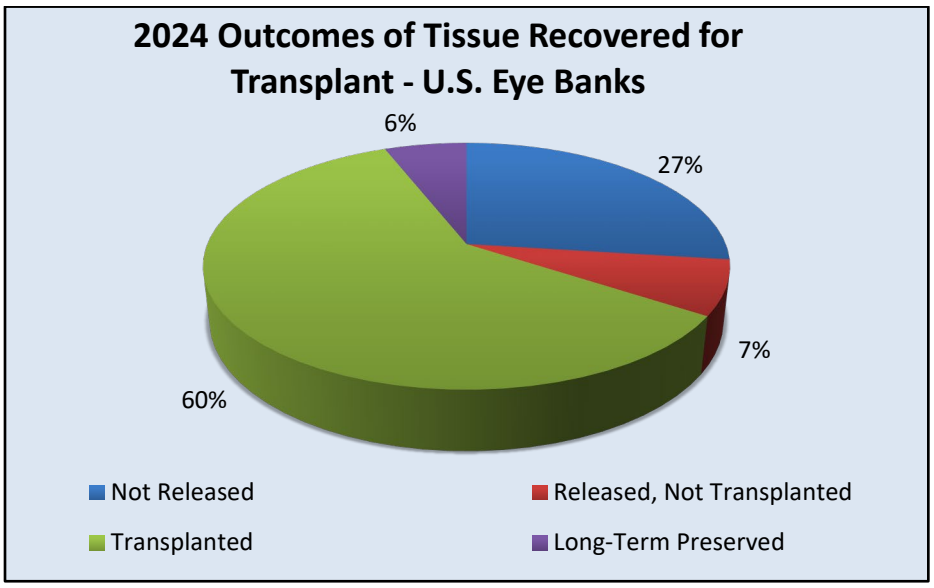
Donations	**2022**	**2023**	**2024**	**% Change**
Eye Banks Reported	56	56	54	(3.6%)
Total Whole Globes and Corneas Donated	122,472	137,697	141,735	2.9%
Total Number of Donors	61,747	69,637	71,778	3.1%
Distribution	**2022**	**2023**	**2024**	**% Change**
Intermediate-Term Preserved Corneas	71,835	78,112	78,291	0.2%
Sclera	2,247	2,195	4,151	89.1%
Long-Term Preserved Corneas	4,580	5,362	7,182	33.9%
Research	13,943	13,983	13,169	(5.8%)
Training	6,614	8,239	9,190	11.5%

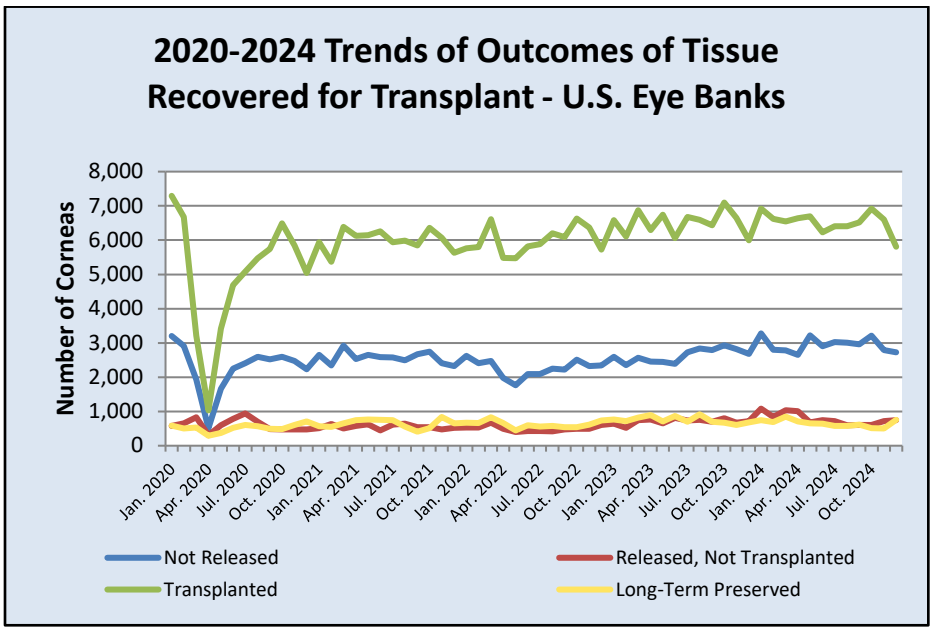
Outcomes of Corneas Recovered for Transplant Use - U.S. Eye Banks											
Month	**Corneas Recovered for Transplant**	**Corneas Segmented**	**Corneal Segments Produced**	**Not Released**		**Released but Not Transplanted**		**Whole Corneas and Segments Transplanted**		**Preserved Long-Term**	
Jan. 2024	12,001	22	44	3,278	27.3%	1,082	9.0%	6,915	57.5%	748	6.2%
Feb. 2024	10,940	14	28	2,801	25.6%	843	7.7%	6,617	60.4%	693	6.3%
Mar. 2024	11,208	6	11	2,784	24.8%	1,039	9.3%	6,545	58.4%	845	7.5%
Apr. 2024	10,970	29	58	2,647	24.1%	1,007	9.2%	6,635	60.3%	710	6.5%
May 2024	11,240	11	22	3,218	28.6%	678	6.0%	6,698	59.5%	657	5.8%
Jun. 2024	10,504	28	56	2,908	27.7%	749	7.1%	6,230	59.2%	645	6.1%
Jul. 2024	10,709	14	28	3,026	28.3%	716	6.7%	6,403	59.7%	578	5.4%
Aug. 2024	10,570	10	20	3,006	28.4%	595	5.6%	6,403	60.5%	576	5.4%
Sep. 2024	10,671	21	42	2,958	27.7%	603	5.7%	6,515	60.9%	616	5.8%
Oct. 2024	11,241	11	22	3,210	28.6%	606	5.4%	6,920	61.5%	516	4.6%
Nov. 2024	10,598	19	36	2,792	26.3%	718	6.8%	6,599	62.2%	506	4.8%
Dec. 2024	10,010	30	59	2,722	27.2%	750	7.5%	5,811	57.9%	756	7.5%
2022 Total	112,155	140	279	27,055	24.1%	5,974	5.3%	71,835	64.0%	7,430	6.6%
2023 Total	127,097	189	377	31,584	24.9%	8,527	6.7%	78,112	61.4%	9,062	7.1%
2024 Total	130,662	215	426	35,350	27.1%	9,386	7.2%	78,291	59.8%	7,846	6.0%
2024 Avg.	10,889	18	36	2,946	N/A	782	N/A	6,524	N/A	654	N/A
Std. Dev.	503	8.14	16.3	208	1.5%	173	1.4%	300	1.4%	102	0.9%

*Percentages read from this table should be read as "of the tissue recovered with transplant intent"

2024 Eye Banking Statistics Reported by U.S. Banks

Outcomes of Tissue Recovered for Transplant

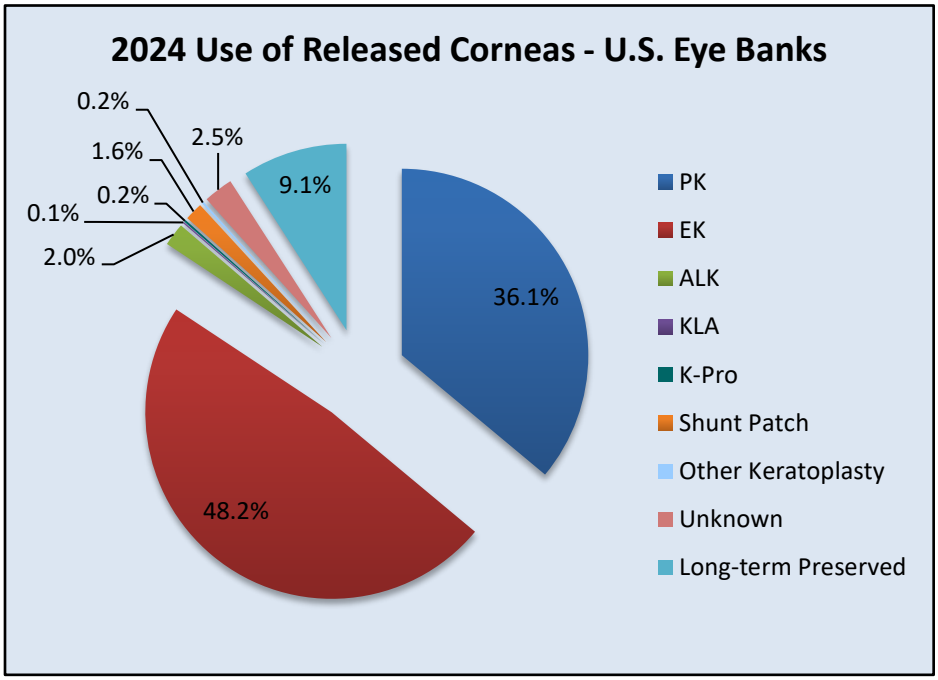




General Outcomes of Corneas Recovered for Transplant Use - U.S. Eye Banks											
Outcome	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trend**
Not Released	33,577	34,126	33,310	32,225	33,258	27,304	30,902	27,055	31,584	35,350	
Released, Not	6,806	7,529	6,109	5,556	5,984	7,297	6,634	5,974	8,527	9,386	
Transplanted	74,624	75,926	77,579	79,207	79,738	59,996	72,038	71,835	78,112	78,291	
Long-Term Preserved	4,681	7,068	6,718	6,263	6,067	6,282	7,752	7,430	9,062	7,846	

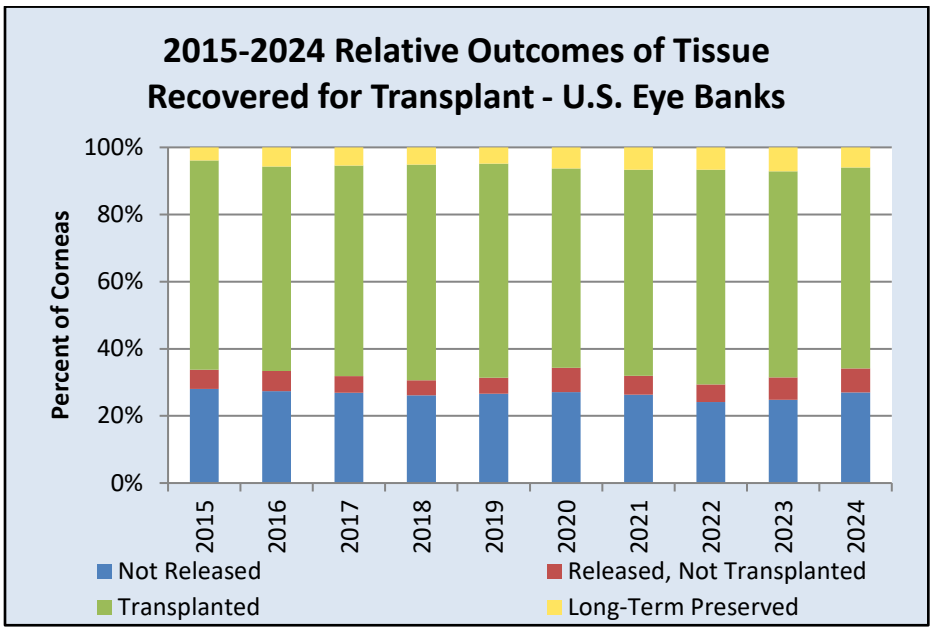
2024 Eye Banking Statistics Reported by U.S. Banks
Use of Donated Tissues

Use of Donated Tissue	2020	2021	2022	2023	2024
Corneal Grafts Total	66,278	79,641	79,126	86,986	85,926
Penetrating Keratoplasty	25,023	30,412	28,728	31,001	31,060
Anterior Lamellar Keratoplasty	1,072	1,307	1,230	1,398	1,711
Endothelial Keratoplasty	29,947	35,532	36,173	39,883	41,558
Keratolimbal Allograft	119	134	122	109	106
Keratoprosthesis (K-Pro)	174	175	136	156	154
Glaucoma Shunt Patch or other non-keratoplasty use	873	839	920	1,082	1,346
Other keratoplasty (experimental surgery)	11	25	31	27	161
Unknown or Unspecified	2,777	3,614	4,495	4,456	2,195
Sclera	3,151	5,614	2,247	2,195	4,151
Long-Term Preserved Corneas	9,093	12,626	4,580	5,362	7,182
Keratoplasty	125	82	134	306	1,927
Glaucoma Shunt Patching	7,037	10,283	4,444	5,045	5,215
Other Surgical Uses	1,931	2,261	2	11	40
Research	11,336	14,222	13,943	13,983	13,169
Training	6,504	7,425	6,614	8,239	9,190



2024 Eye Banking Statistics Reported by U.S. Banks

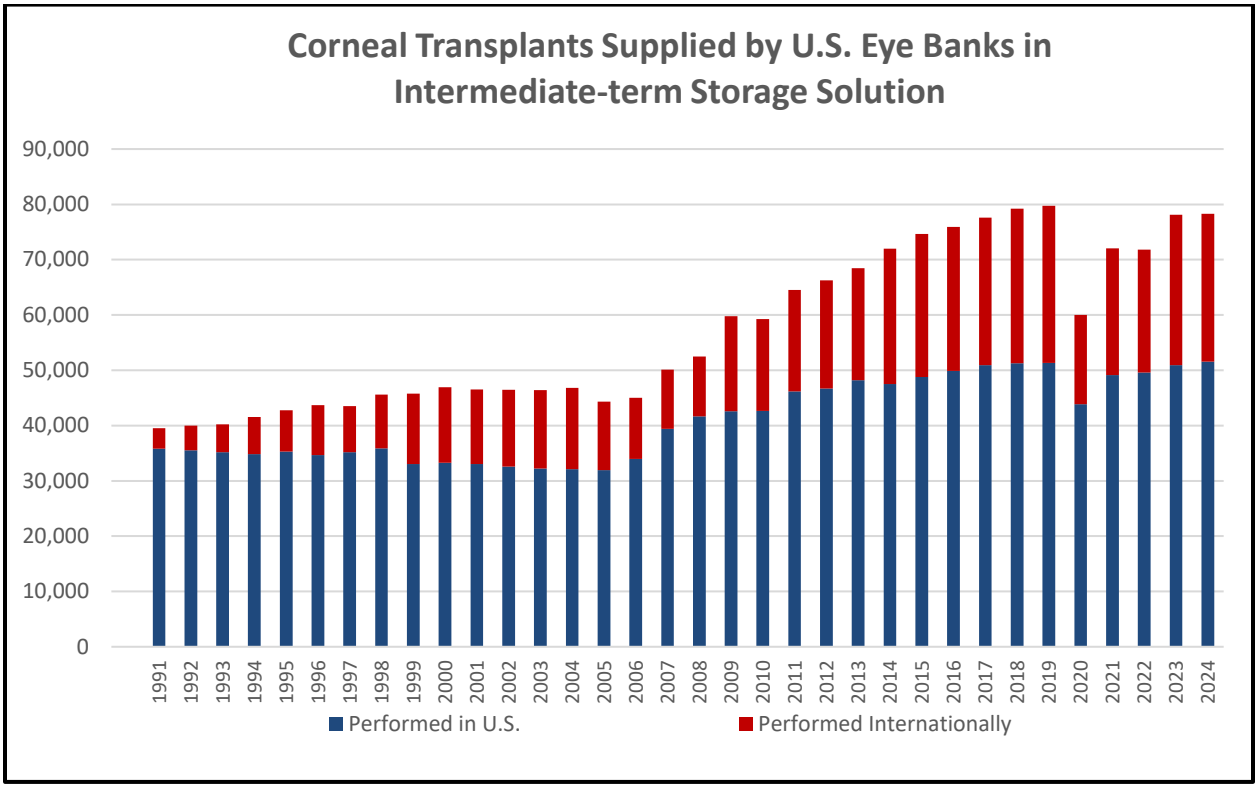
Use of Donated Tissues

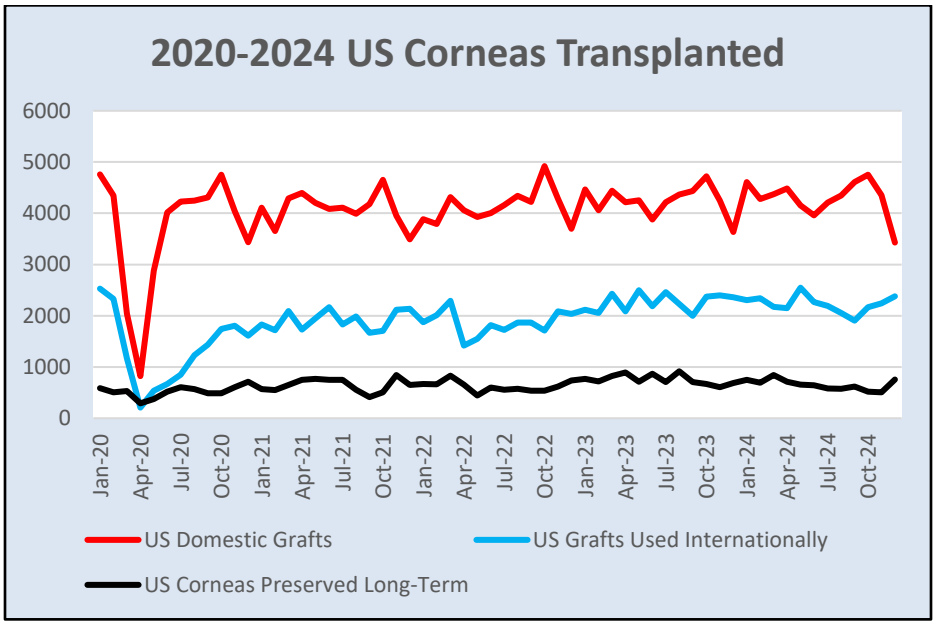


Surgical Outcomes of Corneas Recovered for Transplant Use - U.S. Eye Banks											
Surgery Type	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trend**
PK	39,554	38,413	38,025	36,028	35,919	25,023	30,412	28,728	31,001	31,060	
EK	30,710	32,221	33,397	35,071	35,555	29,947	35,532	36,173	39,883	41,558	
ALK	2,201	2,386	2,541	2,355	2,146	1,072	1,307	1,230	1,398	1,711	
KLA	107	97	104	87	110	119	134	122	109	106	
K-Pro	364	313	344	243	267	174	175	136	156	154	
Shunt Patch	527	917	1,368	1,058	1,018	873	839	920	1,082	1,346	
Other Keratoplasty	19	65	232	64	44	11	25	31	27	161	
Unknown	1,142	1,514	1,568	4,301	4,679	2,777	3,614	4,495	4,456	2,195	
Long-term Preserved	4,681	7,068	6,718	6,263	6,067	6,282	7,752	7,430	9,062	7,846	

2024 Eye Banking Statistics Reported by U.S. Banks

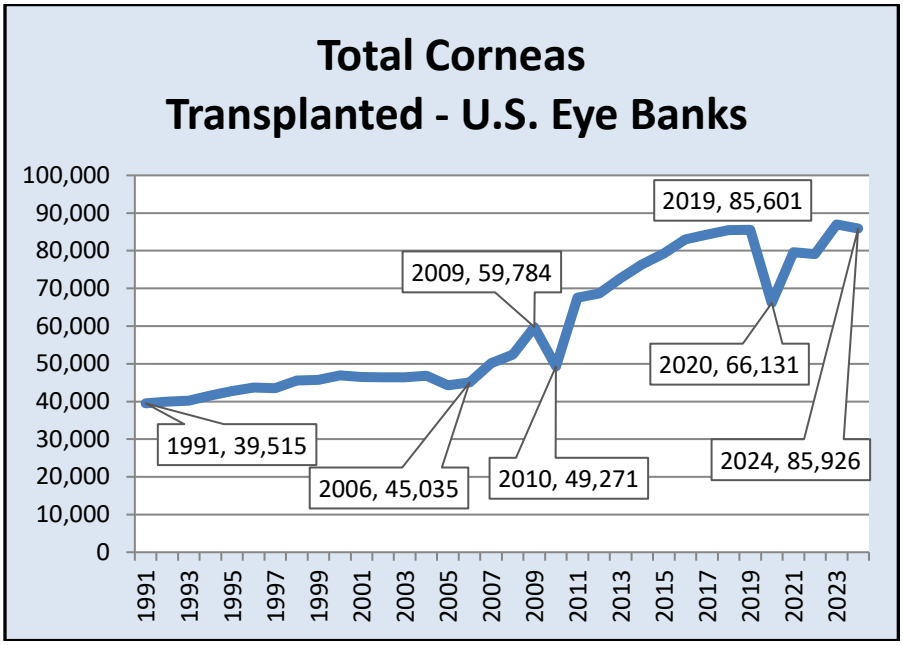
Annual Number of Corneal Transplants Supplied by U.S. Banks

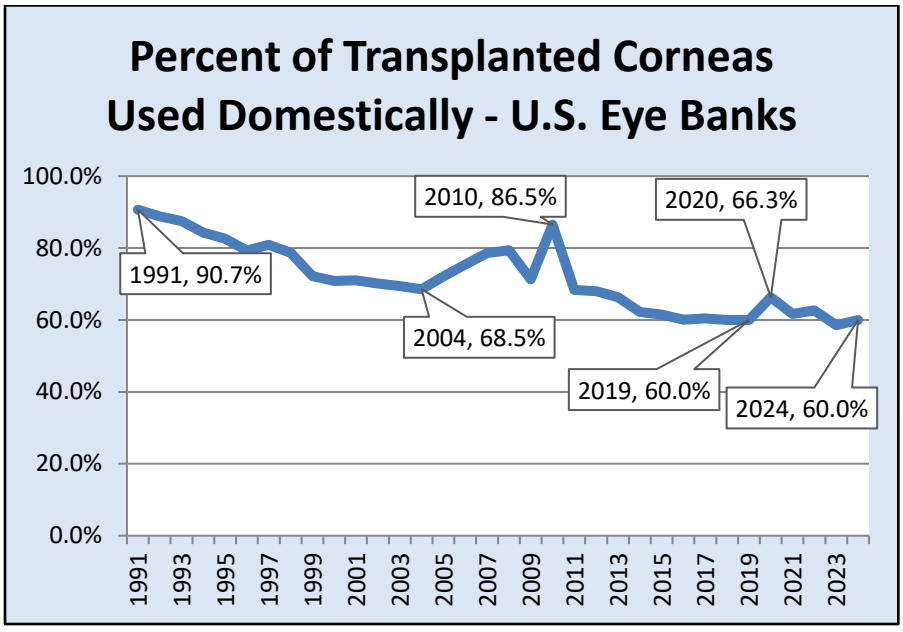




2024 Eye Banking Statistics Reported by U.S. Banks

Transplant Activity

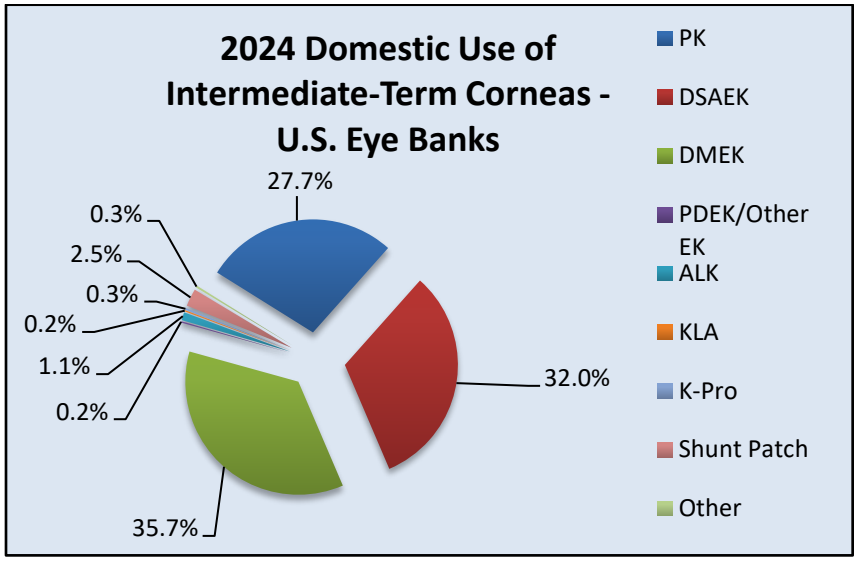




2024 Eye Banking Statistics Reported by U.S. Banks

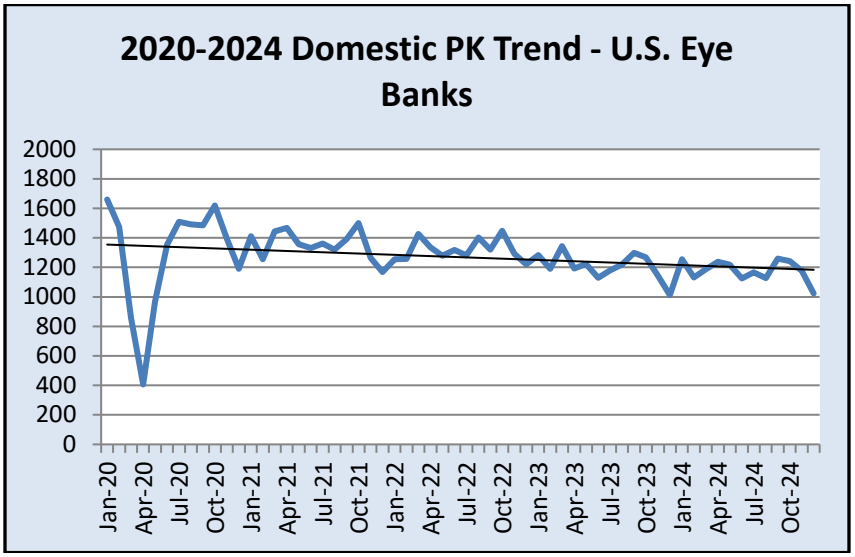
Domestic Surgery Use of Intermediate-Term Preserved Tissue

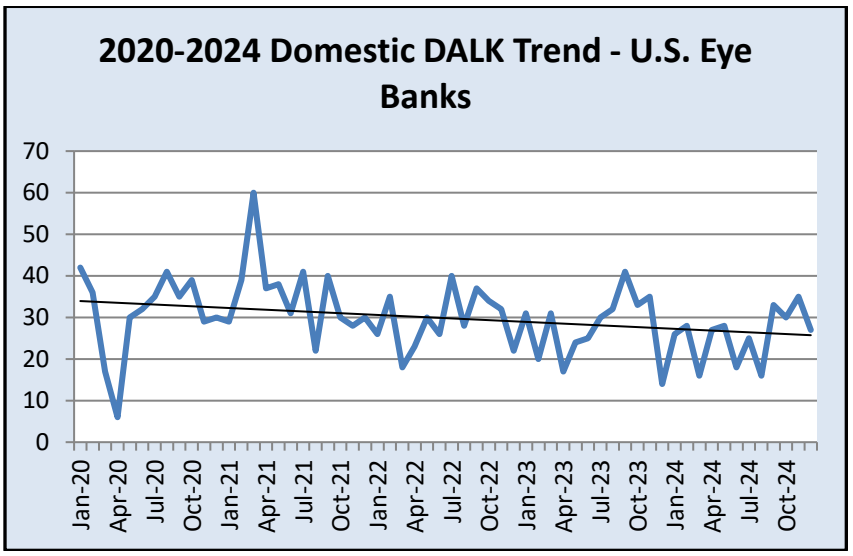
	2022	2023	2024
Intermediate-term preserved corneas processed into corneal segments	140	189	215
Number of intermediate-term preserved corneas segments produced	279	377	426
Intermediate-term preserved corneas, corneal segments or whole eyes transplanted in the U.S for:	**49,597**	**50,925**	**51,559**
PK	**15,835**	**14,486**	**14,143**
EK	**30,812**	**33,715**	**34,700**
DSEK, DSAEK, DLEK	15,544	16,207	16,345
DMEK or DMAEK	15,248	17,116	18,256
PDEK	5	3	6
Other EK	15	389	93
ALK	**476**	**598**	**584**
DALK (Deep Anterior Lamellar Keratoplasty)	351	333	309
SALK (Superficial Anterior Lamellar Keratoplasty)	14	15	29
Other ALK (e.g., peripheral, eccentric, etc.)	111	250	246
KLA	107	89	88
Keratoprosthesis (K-Pro)	122	148	142
Glaucoma shunt patch or other non-keratoplasty use	875	1,043	1,287
Other Keratoplasty (e.g., experimental surgery type)	18	18	144
Unknown or Unspecified	1,352	828	471



2024 Eye Banking Statistics Reported by U.S. Banks

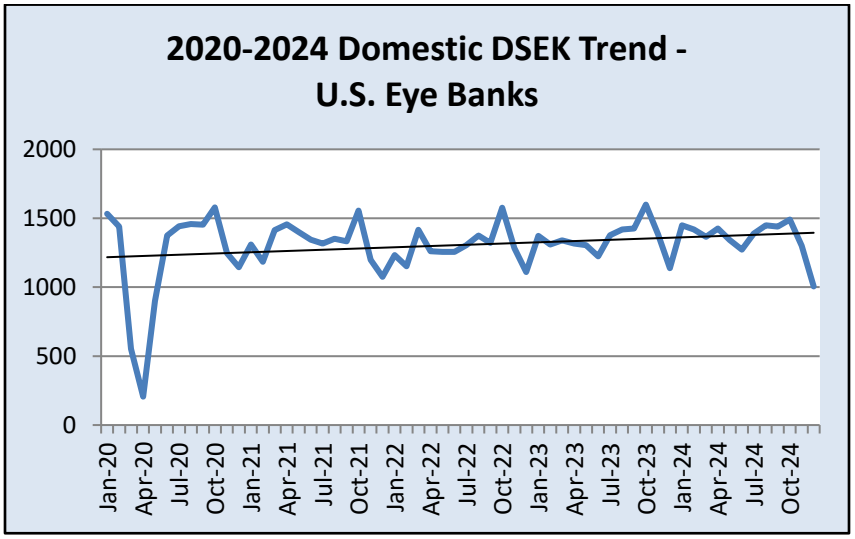
Domestic Surgery Use of Intermediate-Term Preserved Tissue

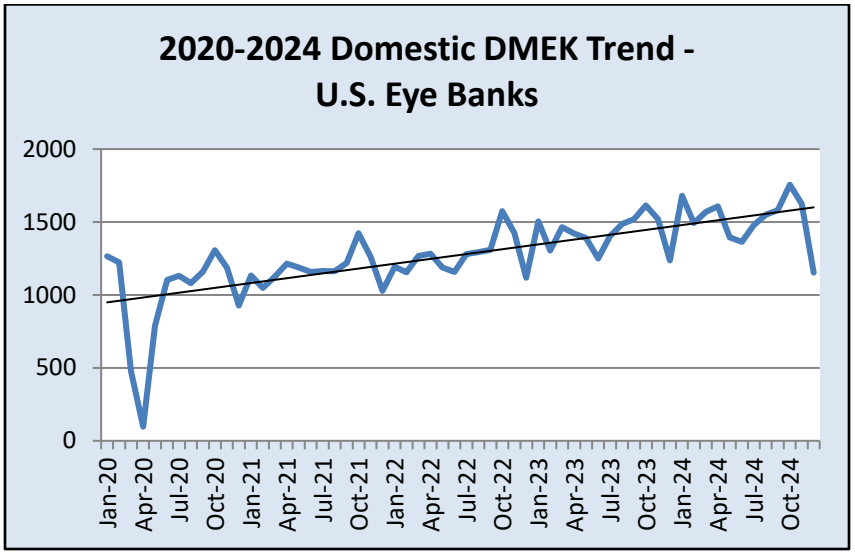




2024 Eye Banking Statistics Reported by U.S. Banks

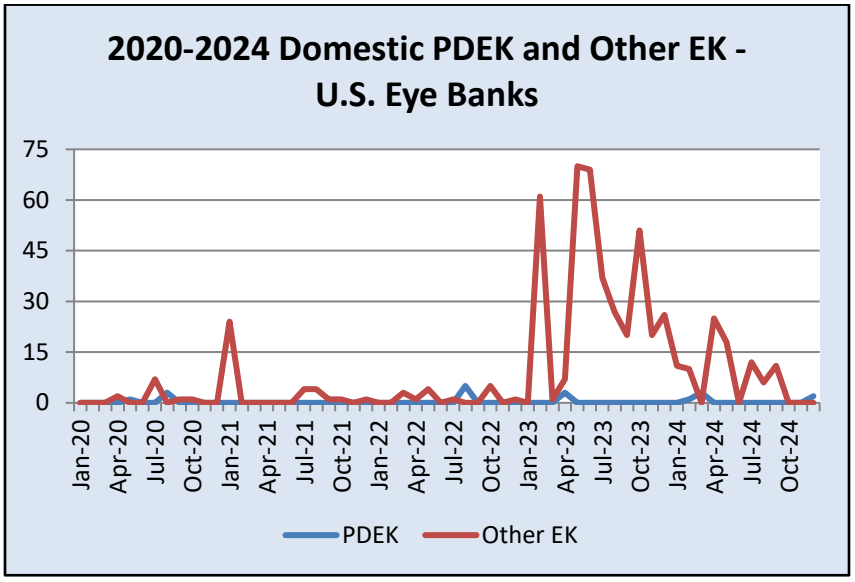
Domestic Surgery Use of Intermediate-Term Preserved Tissue

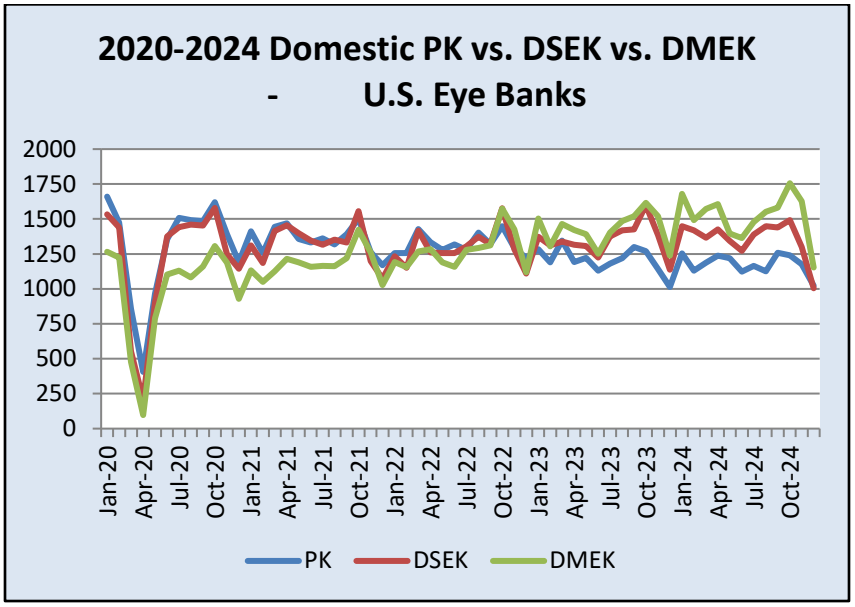




2024 Eye Banking Statistics Reported by U.S. Banks

Domestic Surgery Use of Intermediate-Term Preserved Tissue



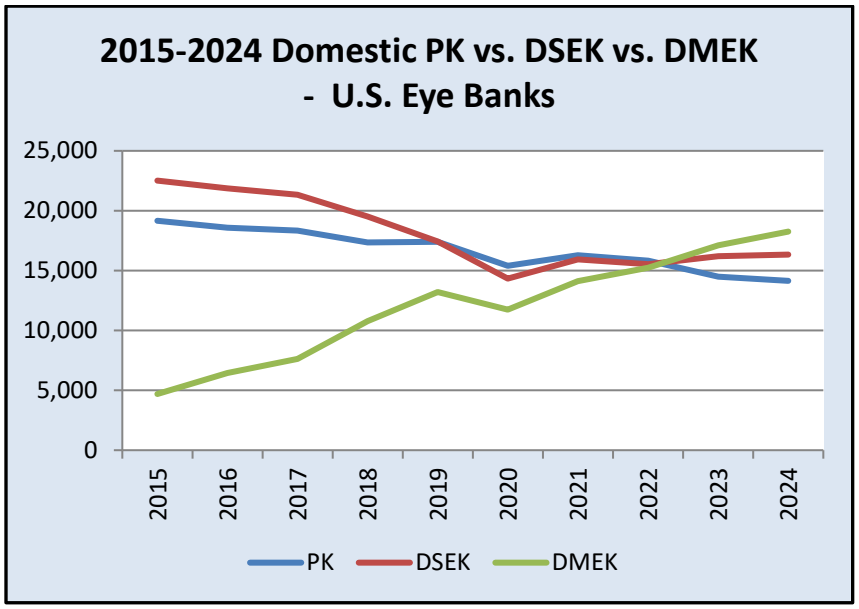


Eye Banking Statistics Reported by U.S. Banks

Domestic Use of Intermediate-Term Preserved Tissues

Annual Comparison 2015 – 2024

Domestic Surgery Use	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Penetrating Keratoplasty	19,160	18,579	18,346	17,347	17,409	15,402	16,269	15,835	14,486	14,143
Endothelial Keratoplasty	27,208	28,327	28,993	30,336	30,650	26,095	30,098	30,812	33,715	34,700
Anterior Lamellar Keratoplasty	1,115	1,232	1,027	884	745	505	544	476	598	584
Keratolimbal Allograft	97	82	93	68	95	109	124	107	89	88
K-Pro	323	279	304	225	251	161	167	122	148	142



2024 Eye Banking Statistics Reported by U.S. Banks
Domestic Surgery Use of Intermediate-Term Preserved Tissue

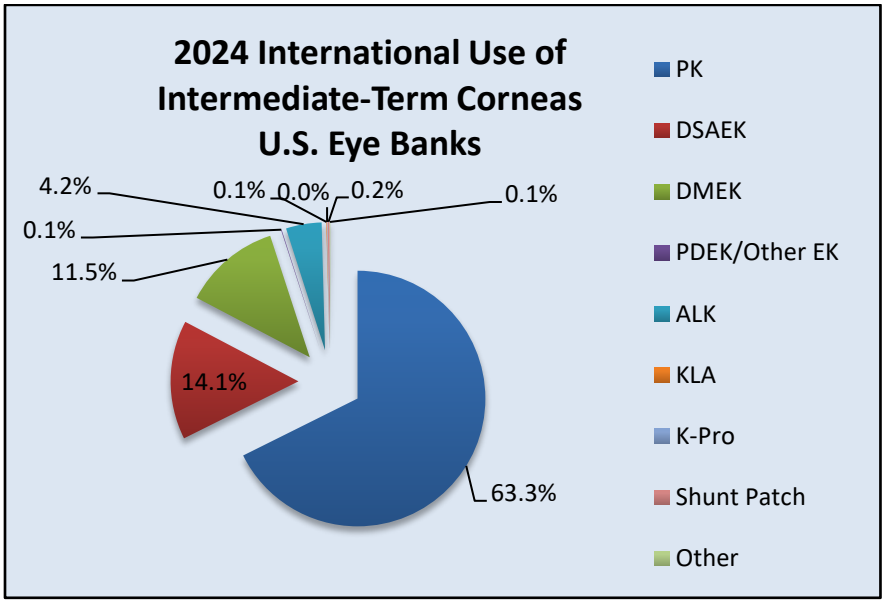
Surgery Type (Domestically Distributed Corneas) - U.S. Eye Banks												
Month	PK	EK (DSEK)	EK (DMEK)	EK (Other)	ALK (DALK)	ALK (SALK)	ALK (Other)	KLA	K-Pro	Shunt Patch	Other	Unknown
Jan. 2024	27.2%	31.4%	36.4%	0.2%	0.6%	0.0%	0.5%	0.2%	0.3%	2.3%	0.1%	0.7%
Feb. 2024	26.4%	33.2%	34.9%	0.3%	0.7%	0.0%	0.4%	0.1%	0.2%	2.5%	0.1%	1.3%
Mar. 2024	27.2%	31.2%	35.9%	0.1%	0.4%	0.1%	0.4%	0.3%	0.4%	2.6%	0.1%	1.5%
Apr. 2024	27.6%	31.8%	35.8%	0.6%	0.6%	0.0%	0.2%	0.2%	0.2%	1.3%	0.1%	1.7%
May 2024	29.4%	32.4%	33.6%	0.4%	0.7%	0.1%	0.7%	0.1%	0.4%	1.8%	0.0%	0.5%
Jun. 2024	28.4%	32.1%	34.4%	0.0%	0.5%	0.0%	0.5%	0.2%	0.3%	1.8%	0.0%	1.8%
Jul. 2024	27.7%	33.0%	35.1%	0.3%	0.6%	0.0%	0.7%	0.2%	0.4%	1.9%	0.0%	0.3%
Aug. 2024	25.9%	33.3%	35.7%	0.1%	0.4%	0.0%	0.6%	0.1%	0.3%	2.0%	0.6%	1.0%
Sep. 2024	27.3%	31.3%	34.3%	0.2%	0.7%	0.1%	0.6%	0.1%	0.3%	3.2%	0.5%	1.3%
Oct. 2024	26.1%	31.4%	36.9%	0.0%	0.6%	0.2%	0.4%	0.3%	0.1%	2.8%	0.5%	0.6%
Nov. 2024	27.0%	29.9%	37.3%	0.0%	0.8%	0.1%	0.4%	0.2%	0.3%	3.4%	0.5%	0.1%
Dec. 2024	29.8%	29.3%	33.6%	0.1%	0.8%	0.0%	0.4%	0.1%	0.2%	4.7%	0.9%	0.1%
2022 Avg.	31.9%	31.3%	30.7%	0.0%	0.7%	0.0%	0.2%	0.2%	0.2%	1.8%	0.0%	2.7%
2023 Avg.	28.4%	31.8%	33.6%	0.8%	0.7%	0.0%	0.5%	0.2%	0.3%	2.0%	0.0%	1.6%
2024 Avg.	27.4%	31.7%	35.4%	0.2%	0.6%	0.1%	0.5%	0.2%	0.3%	2.5%	0.3%	0.9%
Std. Dev.	1.2%	1.2%	1.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.9%	0.3%	0.6%
2024 Total	14,143	16,345	18,256	99	309	29	246	88	142	1,287	144	471

*Percentages read from this table should be read as "of the tissue distributed for transplant use domestically"

Domestic PK vs. DSAEK vs. DMEK - U.S. Eye Banks											
Surgery Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trend
PK	19,160	18,579	18,344	17,347	17,409	15,402	16,269	15,835	14,486	14,143	
DSEK	22,514	21,868	21,336	19,526	17,428	14,331	15,935	15,544	16,207	16,345	
DMEK	4,694	6,459	7,627	10,773	13,215	11,749	14,128	15,248	17,116	18,256	
Other EK	N/A	N/A	28	37	7	15	35	20	392	99	
DALK	1,018	1,101	564	544	586	372	425	351	333	309	
SALK	26	14	43	19	10	29	17	14	15	29	
Other ALK	71	117	420	321	149	104	102	111	250	246	
KLA	97	82	93	68	95	109	124	107	89	88	
K-Pro	323	279	304	225	251	161	167	122	148	142	
Shunt Patch	458	813	1,326	979	971	854	817	875	1,043	1,287	
Other	12	54	222	62	40	7	20	18	18	144	
Unknown	419	503	623	1,393	1,175	740	1,071	1,352	828	471	

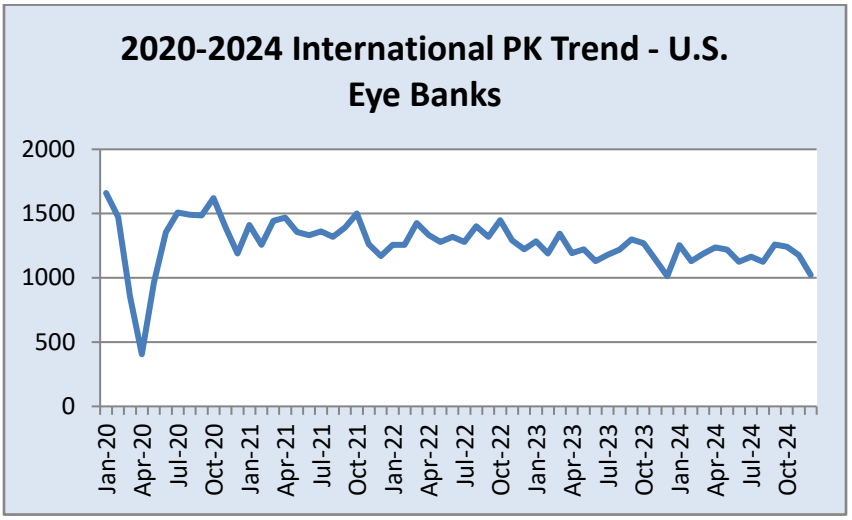
2024 Eye Banking Statistics Reported by U.S. Banks
International Surgery Use of Intermediate-Term Preserved Tissue

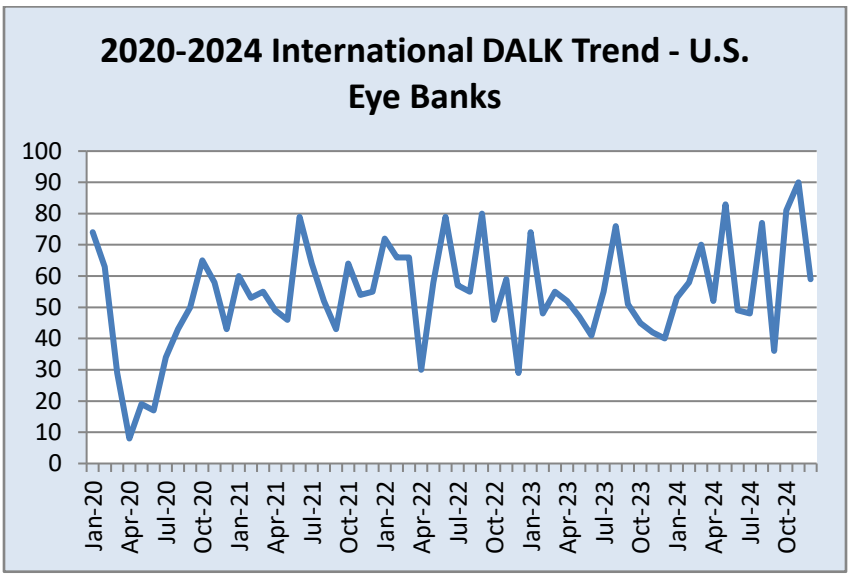
International Use of Intermediate-Term Corneas – U.S. Eye Banks	2022	2023	2024
Intermediate-term preserved corneas, corneal segments or whole eyes transplanted internationally for:	**22,238**	**27,187**	**26,732**
PK	**12,893**	**16,515**	**16,917**
EK	**5,361**	**6,168**	**6,858**
DSEK, DSAEK, DLEK	3,434	3,615	3,766
DMEK or DMAEK	1,886	2,529	3,071
PDEK	10	2	5
Other EK	31	22	16
ALK	**754**	**800**	**1,127**
DALK (Deep Anterior Lamellar Keratoplasty)	697	626	756
SALK (Superficial Anterior Lamellar Keratoplasty)	7	25	81
Other ALK (e.g., peripheral, eccentric, etc.)	50	149	290
KLA	15	20	18
Keratoprosthesis (K-Pro)	14	8	12
Glaucoma shunt patch or other non-keratoplasty use	45	39	59
Other Keratoplasty (e.g., experimental surgery type)	13	9	17
Unknown or Unspecified	3,143	3,628	1,724
Total intermediate-term preserved corneas, corneal segments, and whole eyes used for KERATOPLASY	**70,915**	**77,030**	**76,945**
Total intermediate term preserved corneas, corneal segments, and whole eyes used for TRANSPLANT	**71,696**	**77,924**	**78,080**



2024 Eye Banking Statistics Reported by U.S. Banks

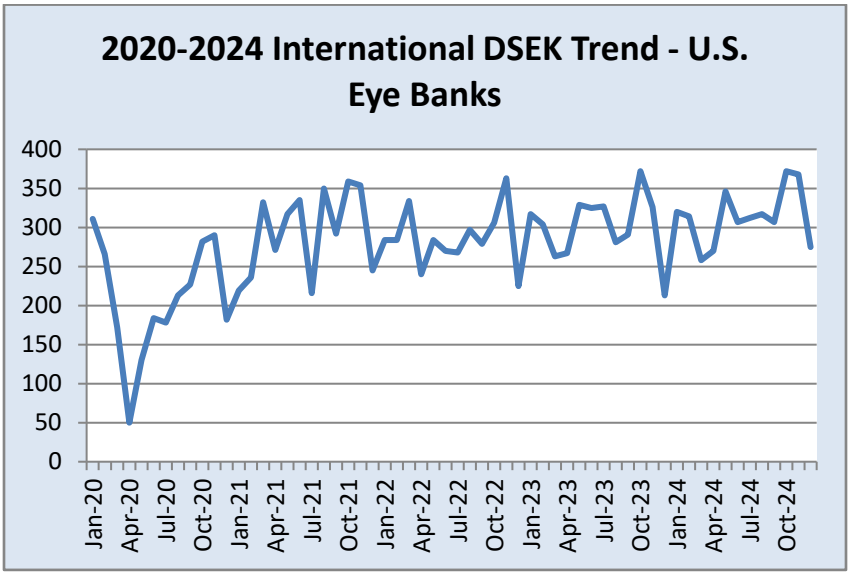
International Surgery Use of Intermediate-Term Preserved Tissue

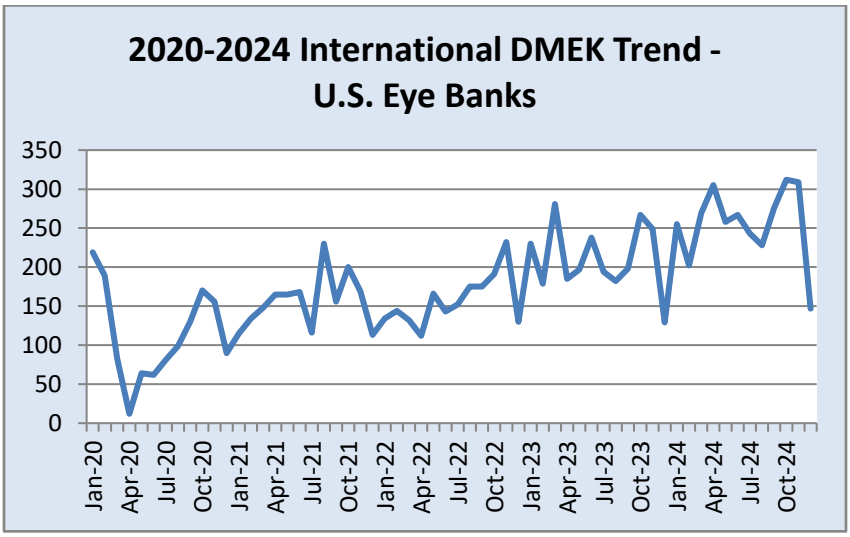




2024 Eye Banking Statistics Reported by U.S. Banks

International Surgery Use of Intermediate-Term Preserved Tissue



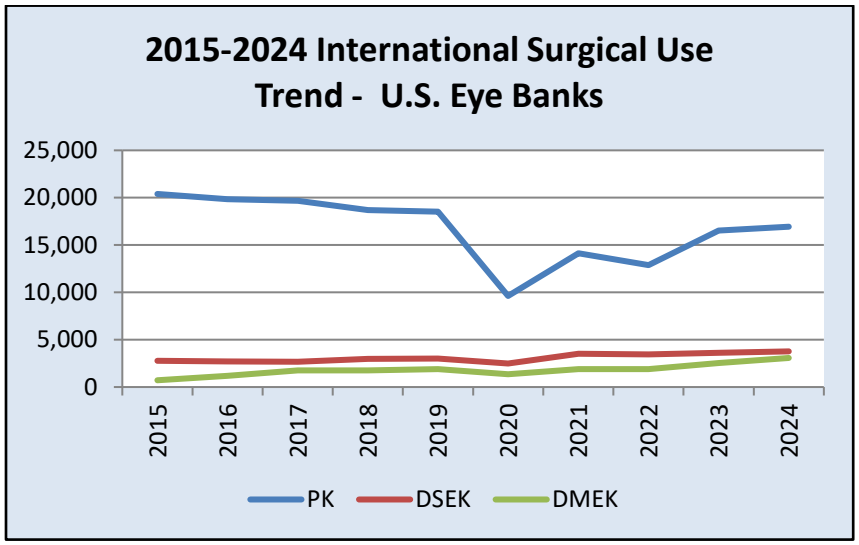


2024 Eye Banking Statistics Reported by U.S. Banks

International Surgery Use of Intermediate-Term Preserved Tissue

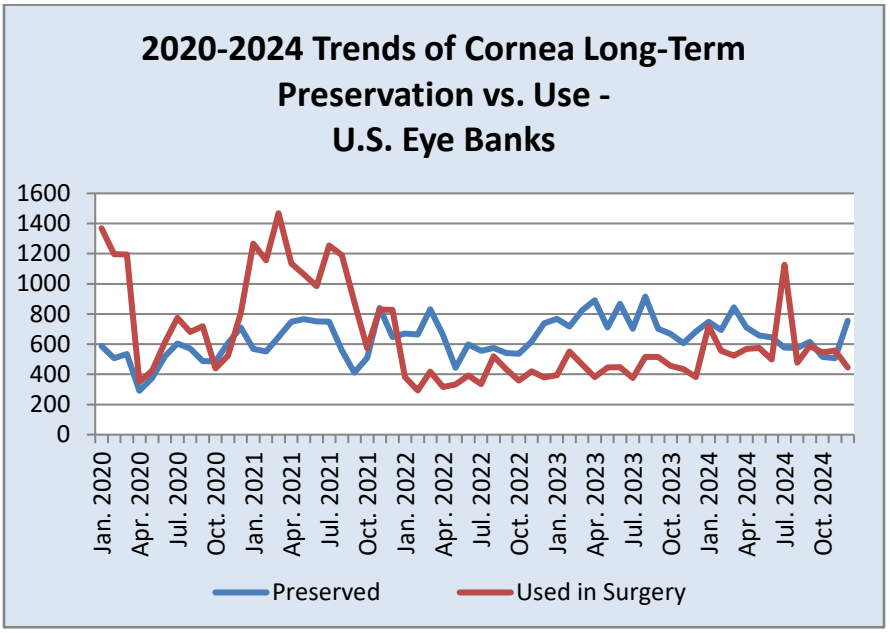
Surgery Type (Internationally Distributed Corneas) - U.S. Eye Banks												
Month	PK	EK (DSEK)	EK (DMEK)	EK (Other)	ALK (DALK)	ALK (SALK)	ALK (Other)	KLA	K-Pro	Shunt Patch	Other	Unknown
Jan. 2024	60.2%	13.9%	11.1%	0.2%	2.3%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	11.2%
Feb. 2024	63.0%	13.4%	8.6%	0.0%	2.5%	0.3%	1.6%	0.0%	0.1%	0.0%	0.2%	10.2%
Mar. 2024	58.6%	11.9%	12.4%	0.2%	3.2%	0.2%	0.6%	0.1%	0.1%	0.3%	0.0%	12.4%
Apr. 2024	62.3%	12.6%	14.2%	0.3%	2.4%	0.1%	0.7%	0.2%	0.1%	0.0%	0.0%	7.1%
May 2024	66.9%	13.6%	10.1%	0.1%	3.3%	0.2%	0.9%	0.1%	0.0%	0.5%	0.1%	4.3%
Jun. 2024	67.6%	13.5%	11.8%	0.0%	2.2%	0.3%	0.7%	0.0%	0.0%	0.1%	0.0%	3.8%
Jul. 2024	65.7%	14.2%	11.1%	0.0%	2.2%	0.4%	1.6%	0.0%	0.0%	0.3%	0.0%	4.5%
Aug. 2024	63.5%	15.4%	11.1%	0.0%	3.7%	0.1%	0.9%	0.0%	0.1%	0.3%	0.0%	4.8%
Sep. 2024	59.3%	16.1%	14.5%	0.1%	1.9%	0.7%	1.5%	0.2%	0.1%	0.1%	0.0%	5.7%
Oct. 2024	57.7%	17.2%	14.4%	0.0%	3.7%	0.9%	1.3%	0.0%	0.0%	0.0%	0.0%	4.6%
Nov. 2024	59.0%	16.4%	13.8%	0.0%	4.0%	0.2%	1.3%	0.0%	0.0%	0.5%	0.3%	4.4%
Dec. 2024	73.6%	11.5%	6.2%	0.0%	2.5%	0.0%	1.0%	0.0%	0.0%	0.3%	0.2%	4.5%
2022 Avg.	58.0%	15.4%	8.5%	0.2%	3.1%	0.0%	0.2%	0.1%	0.1%	0.2%	0.1%	14.1%
2023 Avg.	60.7%	13.3%	9.3%	0.1%	2.3%	0.1%	0.5%	0.1%	0.0%	0.1%	0.0%	13.3%
2024 Avg.	63.3%	14.1%	11.5%	0.1%	2.8%	0.3%	1.1%	0.1%	0.0%	0.2%	0.1%	6.4%
Std. Dev.	4.7%	1.8%	2.5%	0.1%	0.7%	0.3%	0.3%	0.1%	0.0%	0.2%	0.1%	3.1%
2024 Total	16,917	3,766	3,071	21	756	81	290	18	12	59	17	1,724

*Percentages read from this table should be read as "of the tissue distributed for transplant use internationally"



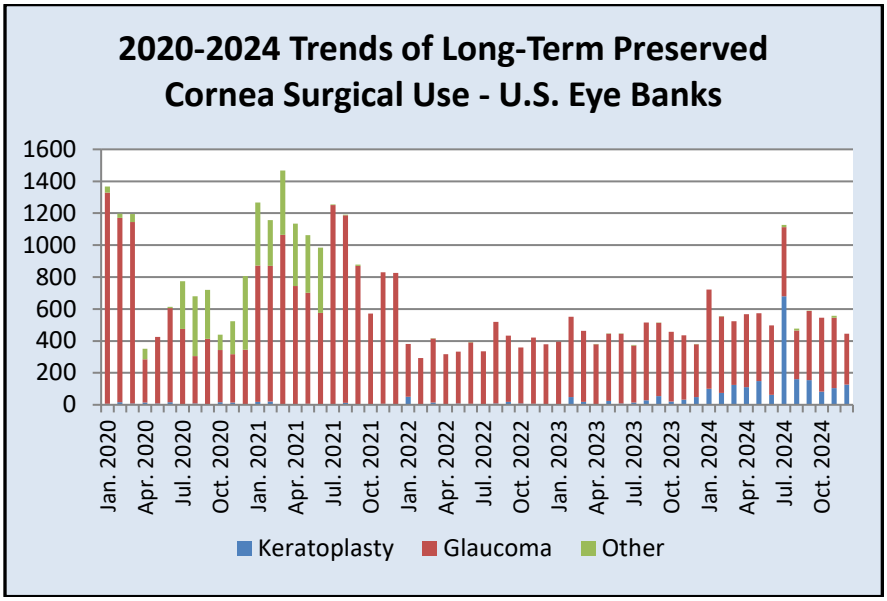
2024 Eye Banking Statistics Reported by U.S. Banks
Long-Term Preserved Tissue Distribution

Long-Term Preserved Tissue Preservation and Distribution	2022	2023	2024
Long-term preserved corneas or whole globes PRESERVED for transplant	7,430	9,062	7,846
Long-term preserved corneas, corneal segments, or whole globes DISTRIBUTED for:	4,580	5,362	7,182
Keratoplasty	134	306	1,927
Glaucoma Shunt patching	4,444	5,045	5,215
Other Surgical Uses	2	11	40
Long-term preserved corneas, corneal segments, or whole globes FORWARDED to another entity for final distribution	438	283	206
Sclera or sclera segments PRESERVED for transplantation	5,950	5,774	11,499
Sclera or sclera segments DISTRIBUTED for:	2,247	2,195	4,151
Prosthesis following enucleation	216	274	277
Glaucoma shunt patching	1,518	1,464	3,327
Other surgical uses	513	457	547
Sclera or sclera segments FORWARDED to another entity for final distribution	195	106	47



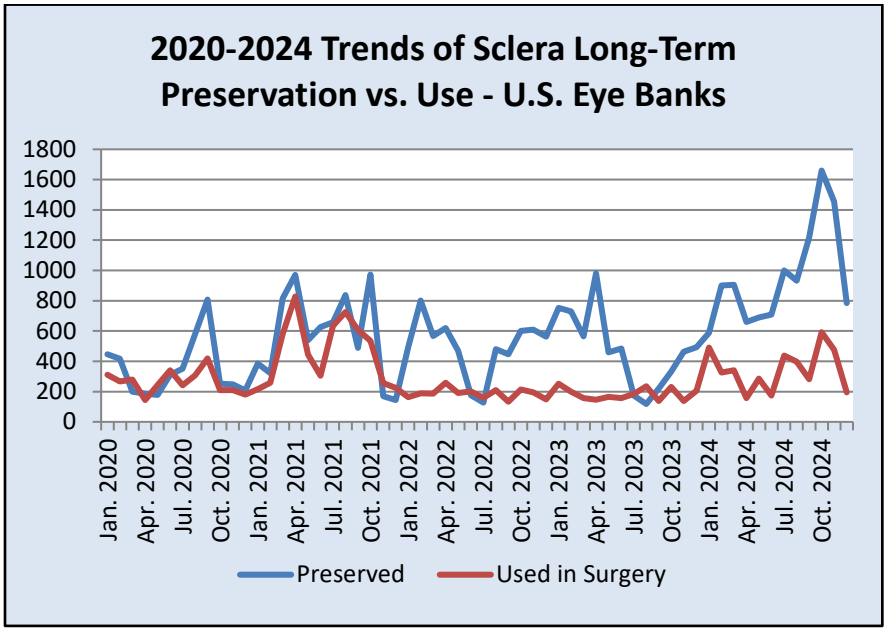
2024 Eye Banking Statistics Reported by U.S. Banks
Long-Term Preserved Tissue Distribution

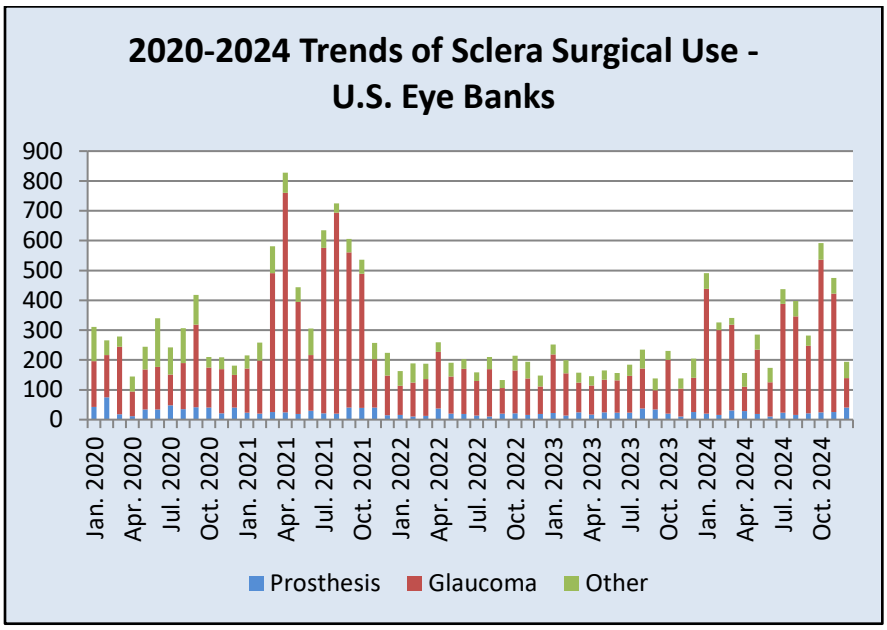
Long-Term Tissue Trends - U.S. Eye Banks								
Month	Long-Term Preserved Corneas	Long-Term Cornea Use - Keratoplasty	Long-Term Cornea Use - Glaucoma	Long-Term Cornea Use - Other	Scleral Segments Preserved	Sclera Use - Prosthesis	Sclera Use - Glaucoma	Sclera Use - Other
Jan. 2024	748	100	622	0	587	20	418	53
Feb. 2024	693	75	479	1	900	16	284	26
Mar. 2024	845	125	399	0	906	31	287	23
Apr. 2024	710	110	458	0	659	29	81	46
May 2024	657	149	425	0	689	19	216	50
Jun. 2024	645	62	436	0	709	11	114	49
Jul. 2024	578	679	434	14	1000	23	365	49
Aug. 2024	576	160	305	13	932	16	330	52
Sep. 2024	616	154	433	1	1218	21	226	35
Oct. 2024	516	82	464	0	1660	24	512	56
Nov. 2024	506	104	442	11	1455	26	396	53
Dec. 2024	756	127	318	0	784	41	98	55
2022 Total	7,430	134	4,444	2	5,950	216	1,518	513
2023 Total	9,062	306	5,045	11	5,774	274	1,464	467
2024 Total	7,846	1,927	5,215	40	11,499	277	3,327	547
2024 Avg.	654	161	435	3	958	23	277	46
Std. Dev.	102	166	80	6	331	8	136	11



2024 Eye Banking Statistics Reported by U.S. Banks

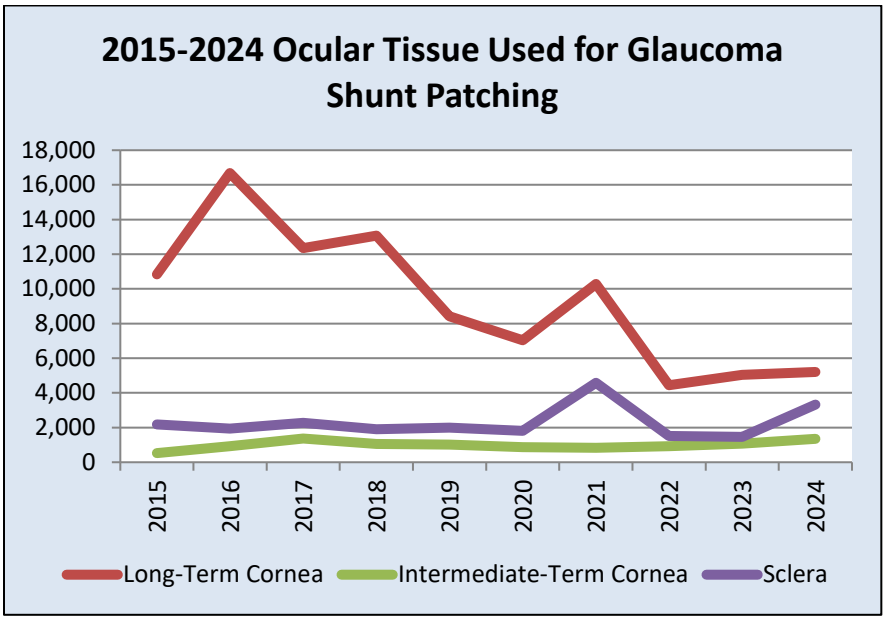
Long-Term Preserved Tissue Distribution

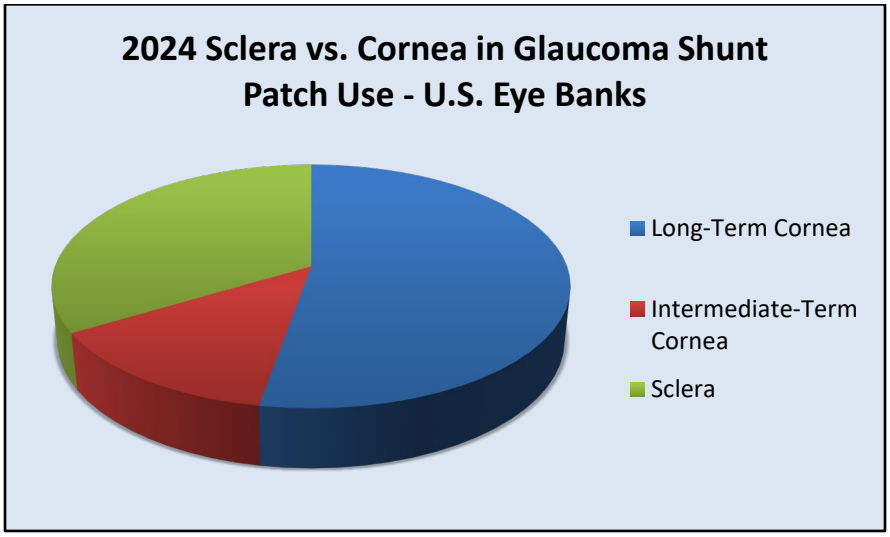




2024 Eye Banking Statistics Reported by U.S. Banks
Long-Term Preserved Tissue Distribution

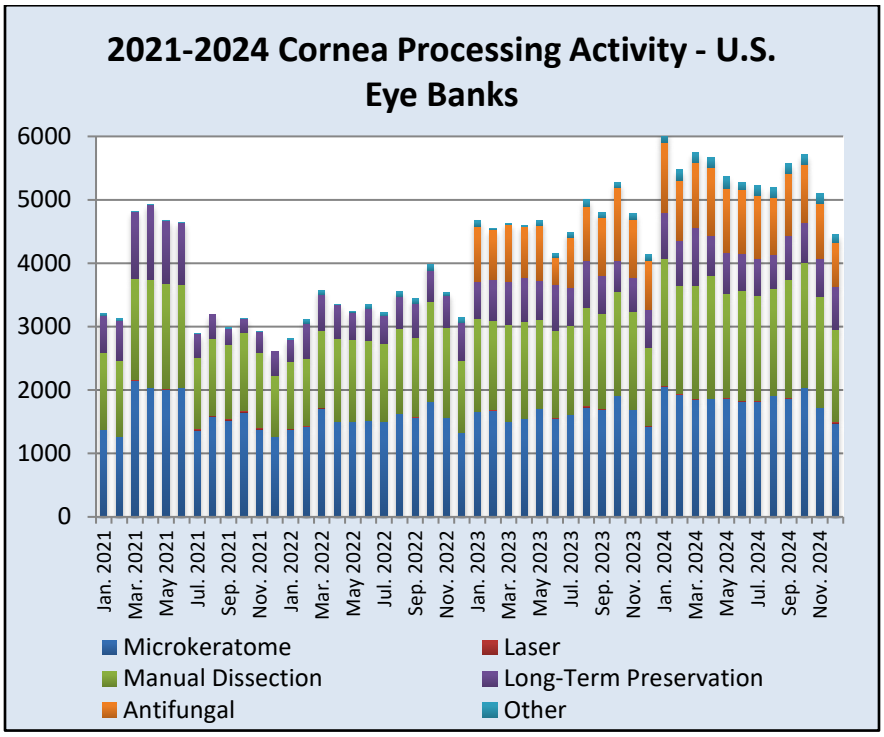
Ocular Tissue Used for Glaucoma Shunt Patching - U.S. Eye Banks											
Ocular Tissue Used for Glaucoma Shunt Patching	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Long-Term Cornea	10,843	16,683	12,345	13,066	8,420	7,037	10,283	4,444	5,045	5,215	
Intermediate-Term Cornea	527	917	1,368	1,058	1,018	873	839	920	1,082	1,346	
Sclera	2,175	1,944	2,266	1,900	1,989	1,804	4,583	1,518	1,464	3,327	
Total	13,545	19,544	15,979	16,024	11,427	9,714	15,705	6,882	7,591	9,888	





2024 Eye Banking Statistics Reported by U.S. Banks
Tissue Processing for Transplant

Tissue Processing for Transplant	2022	2023	2024
Eye Processing (does not include in situ excision)	**3,544**	**2,788**	**2,397**
Processed for corneal preservation only	1,326	479	296
Processed for sclera preservation	2,108	2,138	2,089
Processed for other ocular materials	110	171	12
Cornea Processing	**40,339**	**55,750**	**64,871**
Processed by microkeratome	18,468	19,728	22,226
Preloaded into a device following microkeratome processing	1,020	1,709	2,246
Processed by laser	52	88	128
Processed by hand dissection	15,141	17,572	21,187
Preloaded into a device following manual dissection processing	12,956	14,439	17,319
Processed by transfer into long-term preservation	5,990	7,501	7,918
Processing included use of an antifungal in the storage media		10,032	11,507
Processed by other methods	688	829	1,905



2024 Eye Banking Statistics Reported by U.S. Banks
Tissue Processing for Transplant

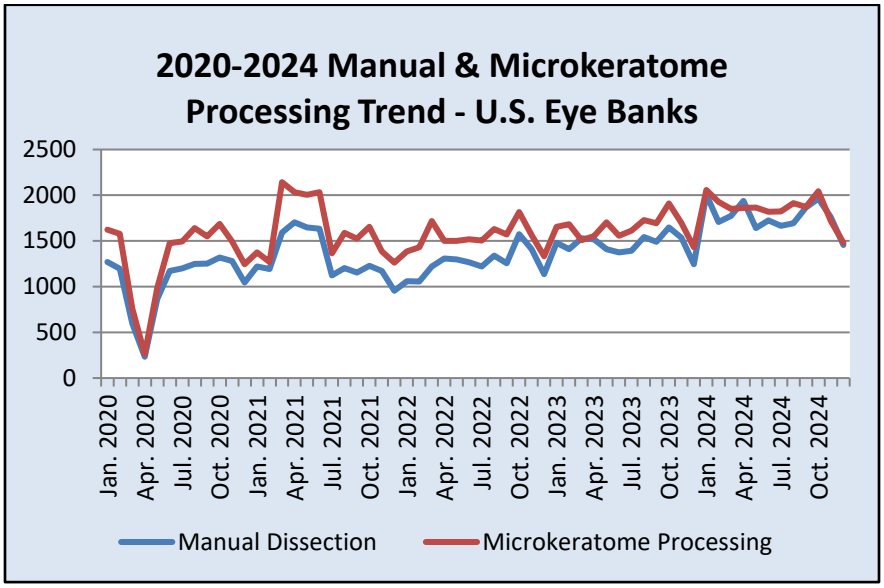
Cornea Processing - U.S. Eye Banks										
Month	Microkeratome Processing	Pre-loaded after Microkeratome Processing	Percent DSAEK Pre-load	Laser Processing	Manual Processing (e.g. DMEK)	Pre-loaded after Manual Processing	Percent DMEK Pre-load	Long-term Preservation	Antifungal Supplementation	Other Cornea Processing
Jan. 2024	2,058	185	9.0%	13	2,006	1,569	78.2%	720	1,106	176
Feb. 2024	1,926	190	9.9%	12	1,706	1,413	82.8%	717	951	159
Mar. 2024	1,849	194	10.5%	23	1,775	1,487	83.8%	910	1,026	166
Apr. 2024	1,860	175	9.4%	5	1,938	1,627	84.0%	628	1,079	161
May 2024	1,863	190	10.2%	17	1,641	1,350	82.3%	644	1,016	182
Jun. 2024	1,820	214	11.8%	22	1,723	1,385	80.4%	585	1,005	125
Jul. 2024	1,824	176	9.6%	6	1,665	1,362	81.8%	575	997	162
Aug. 2024	1,914	180	9.4%	1	1,692	1,396	82.5%	528	894	163
Sep. 2024	1,872	197	10.5%	4	1,866	1,517	81.3%	697	971	166
Oct. 2024	2,043	213	10.4%	1	1,961	1,611	82.2%	636	913	154
Nov. 2024	1,719	176	10.2%	0	1,759	1,445	82.1%	597	867	155
Dec. 2024	1,478	156	10.6%	24	1,455	1,157	79.5%	681	682	136
2022 Total	18,468	1,020	5.5%	52	15,141	12,956	85.6%	5,990		688
2023 Total	19,728	1,709	8.7%	88	17,572	14,439	82.2%	7,501	10,032	829
2024 Total	22,226	2,246	10.1%	128	21,187	17,319	81.7%	7,918	11,507	1905
2024 Avg.	1,852	187	10.1%	11	1,766	1,443	81.7%	660	959	159
Std. Dev.	150	16	0.7%	9	156	131	1.7%	99	112	16

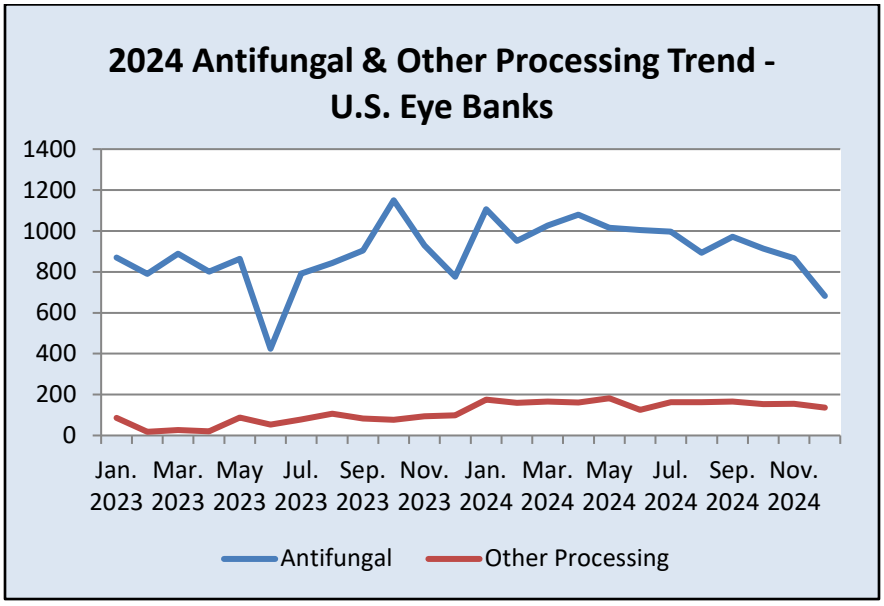
Cornea Processing Efficiency and Preload Rates - U.S. Eye Banks											
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Processing Events	28,660	38,180	40,167	42,650	42,968	36,962	53,540	54,316	71,899	84,437	
Failed Processing	1,016	1,281	1,516	1,757	1,571	1,333	1,558	1,839	2,295	2,383	
Success Rate	96.5%	96.6%	96.2%	95.9%	96.3%	96.4%	97.1%	96.6%	96.8%	97.2%	
% of DSAEK Pre-Loaded							3.5%	5.5%	8.7%	10.1%	
% of DMEK Pre-Loaded							61.6%	85.6%	82.2%	81.7%	

Cornea Recovery Methods - U.S. Eye Banks											
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
In Situ	117,250	121,971	120,861	121,001	122,001	98,568	109,939	108,611	124,309	128,265	
Lab Excision	2,437	2,678	2,855	2,221	2,842	2,164	7,238	3,544	2,788	2,397	
Percent In Situ	98.0%	97.9%	97.7%	98.2%	97.7%	97.9%	93.8%	96.8%	97.8%	98.2%	

2024 Eye Banking Statistics Reported by U.S. Banks

Tissue Processing for Transplant

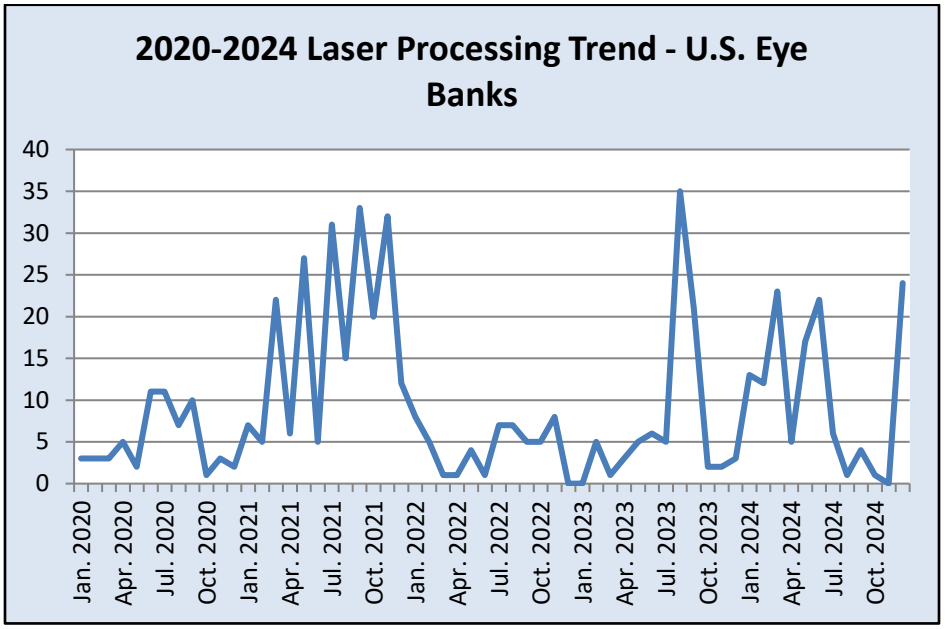


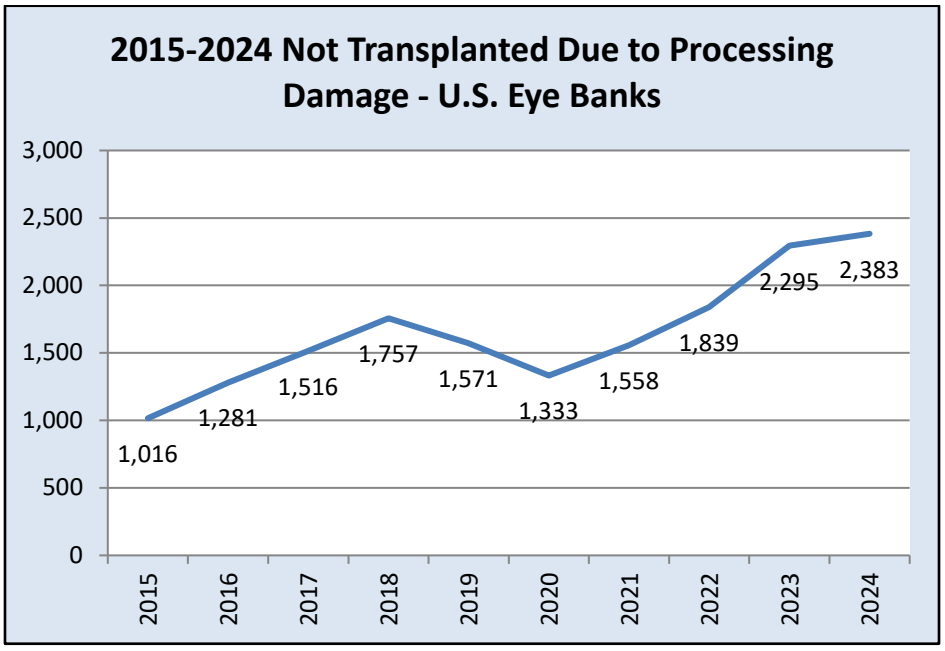


The 2023 EBAA Statistical Report was published in March 2024 with an errant data point. As published, the corneal processing type "antifungal supplementation" was reported as 5,943. However, some eye banks had omitted imported corneas processed at their banks from the data collection and reporting. The corrected data for antifungal supplementation shows that 10,032 corneas were stored with antifungal supplements. This correction is significant, as the Medical Review Subcommittee compares adverse reactions reported via the Online Adverse Reaction Report System (OARRS) in corneas with antifungal supplementation against the number of corneas reported as stored without antifungal supplements to derive a rate of adverse reactions for corneas subject to this processing.

2024 Eye Banking Statistics Reported by U.S. Banks

Tissue Processing for Transplant





2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

Country	US Eye Banks Transplanted Corneas	International Member Eye Banks Transplanted Corneas	All EBAA Member Eye Banks Transplanted Corneas	Δ (2024 – 2023)
Afghanistan	7	0	7	(5)
Albania	0	0	0	(5)
Algeria	257	0	257	(31)
Antigua and Barbuda	0	0	0	(2)
Argentina	505	0	505	(36)
Armenia	89	0	89	(13)
Australia	0	0	0	(1)
Azerbaijan	130	0	130	38
Bahamas	1	0	1	0
Bahrain	59	0	59	16
Bangladesh	248	0	248	(147)
Barbados	23	0	23	7
Bolivia	63	0	63	(3)
Brazil	60	0	60	19
Bulgaria	29	0	29	8
Cabo Verde	5	0	5	5
Canada	665	3,055	3,720	151
Cayman Islands	5	0	5	4
Chile	438	0	438	(127)
China	9	2	11	(100)
Colombia	6	0	6	(3)
Congo	12	0	12	12
Costa Rica	96	8	104	(11)
Cote d'Ivoire	2	0	2	2
Cyprus	71	0	71	(31)
Djibouti	1,424	0	1,424	63
Dominican Republic	473	12	485	47
Ecuador	265	0	265	(15)
Egypt	3,569	0	3,569	(444)
El Salvador	124	0	124	41
Equatorial Guinea	1	0	1	1

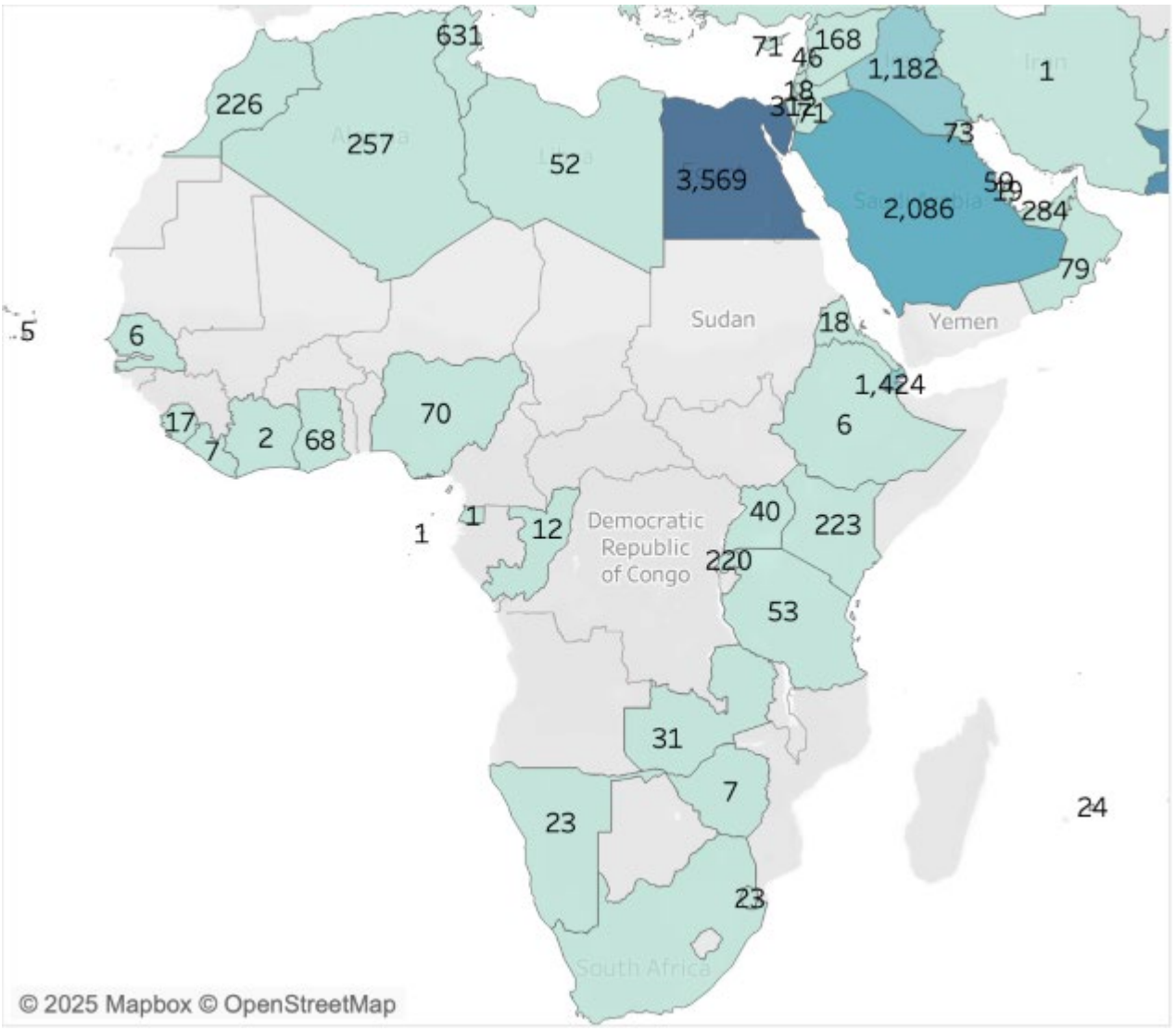
Country	US Eye Banks Transplanted Corneas	International Member Eye Banks Transplanted Corneas	All EBAA Member Eye Banks Transplanted Corneas	Δ (2024 – 2023)
Eritrea	18	0	18	17
Ethiopia	6	0	6	(14)
France	0	0	0	(1)
Georgia	51	0	51	3
Germany	803	57	860	16
Ghana	68	0	68	24
Greece	227	0	227	0
Guatemala	40	0	40	20
Guinea	0	0	0	(19)
Honduras	192	0	192	22
Hong Kong	73	161	234	44
Iceland	0	0	0	(1)
India	10	0	10	10
Indonesia	90	0	90	10
Iran	1	0	1	1
Iraq	1,182	0	1,182	569
Ireland	145	0	145	28
Israel	309	3	312	(200)
Italy	1	0	1	1
Jamaica	9	0	9	(26)
Japan	2,070	56	2,126	(132)
Jordan	71	0	71	17
Kazakhstan	113	0	113	44
Kenya	223	0	223	(23)
Korea, Republic of	920	0	920	(53)
Kuwait	73	0	73	(46)
Kyrgyzstan	9	0	9	1
Latvia	14	0	14	7
Lebanon	46	0	46	(33)
Liberia	7	0	7	6
Libya	52	0	52	(229)
Macedonia	7	0	7	4
Malaysia	159	0	159	(16)
Mali	0	0	0	(18)
Marshall Islands	2	0	2	2
Mauritius	24	0	24	19

Country	US Eye Banks Transplanted Corneas	International Member Eye Banks Transplanted Corneas	All EBAA Member Eye Banks Transplanted Corneas	Δ (2024 – 2023)
Mexico	778	0	778	(289)
Micronesia	0	0	0	(1)
Mongolia	12	0	12	(7)
Morocco	226	0	226	(63)
Mozambique	0	0	0	(10)
Namibia	23	0	23	1
New Zealand	84	0	84	19
Nicaragua	0	0	0	(2)
Nigeria	70	0	70	6
Norway	25	0	25	(23)
Oman	79	0	79	40
Pakistan	2,426	0	2,426	128
Palestine	18	0	18	(40)
Panama	43	0	43	7
Paraguay	0	0	0	(15)
Peru	260	0	260	(21)
Philippines	7	0	7	(8)
Qatar	19	0	19	0
Romania	80	0	80	39
Rwanda	220	0	220	(26)
Saint Vincent	7	0	7	(2)
São Tomé and Príncipe	1	0	1	1
Saudi Arabia	2,062	24	2,086	454
Senegal	6	0	6	6
Serbia	133	0	133	49
Sierra Leone	17	0	17	8
Singapore	450	0	450	(72)
South Africa	596	0	596	(292)
Sudan	0	0	0	(36)
Suriname	7	0	7	0
Swaziland	23	0	23	12
Switzerland	222	0	222	144
Syrian Arab Republic	168	0	168	(74)
Taiwan	271	0	271	38
Tajikistan	10	0	10	2
Tanzania	53	0	53	39

Country	US Eye Banks Transplanted Corneas	International Member Eye Banks Transplanted Corneas	All EBAA Member Eye Banks Transplanted Corneas	Δ (2024 – 2023)
Thailand	176	0	176	(35)
Trinidad and Tobago	43	0	43	(20)
Tunisia	631	0	631	(131)
Turkey	389	0	389	(109)
Uganda	40	0	40	(3)
Ukraine	0	0	0	(1)
United Arab Emirates	284	0	284	8
United Kingdom	746	0	746	463
United States	51,559	0	51,559	634
Uruguay	34	0	34	1
Uzbekistan	90	0	90	11
Venezuela	88	0	88	(41)
Viet Nam	126	0	126	87
Yemen	0	0	0	(1)
Zambia	31	0	31	9
Zimbabwe	7	0	7	0

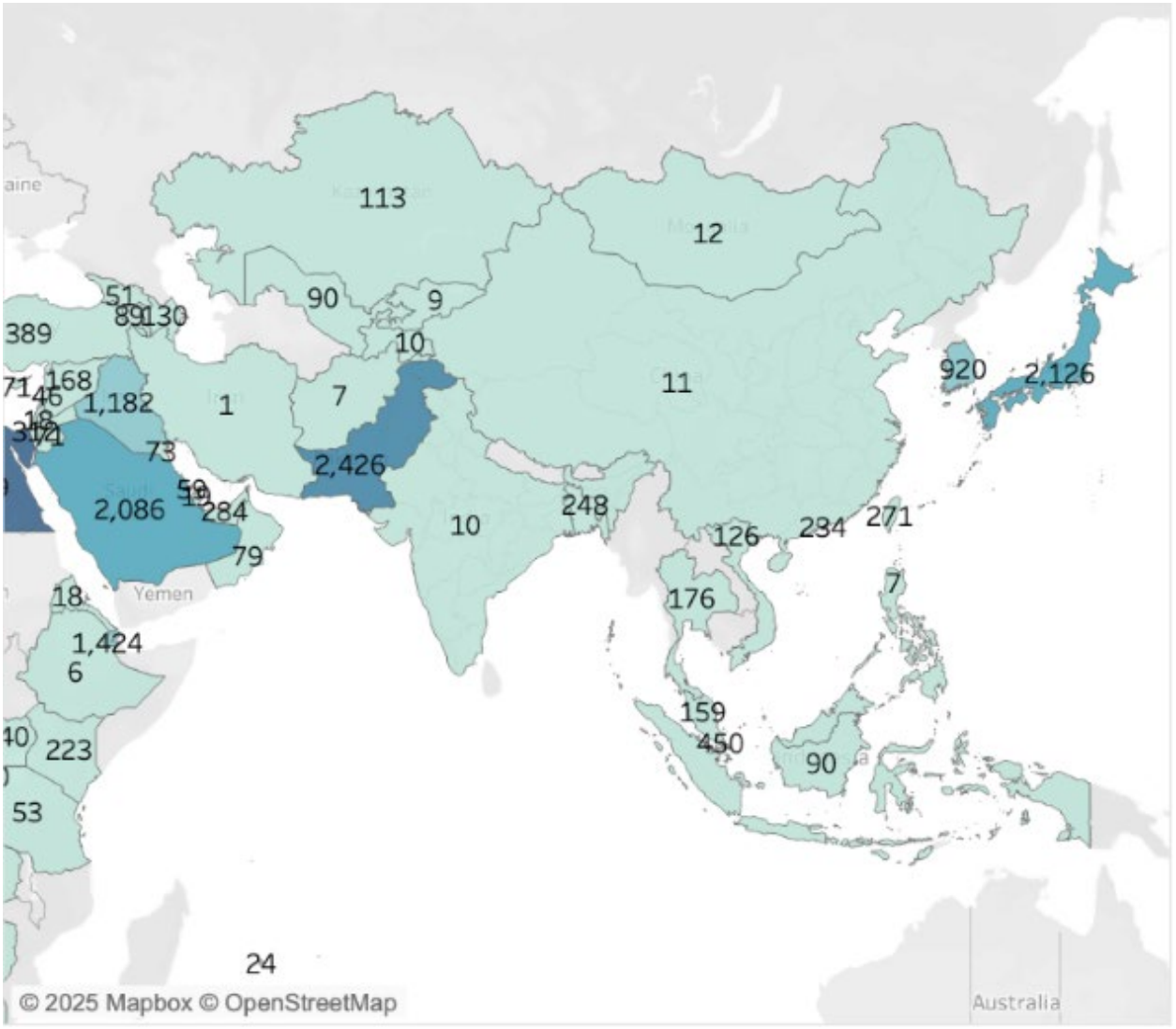
2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

Africa Region



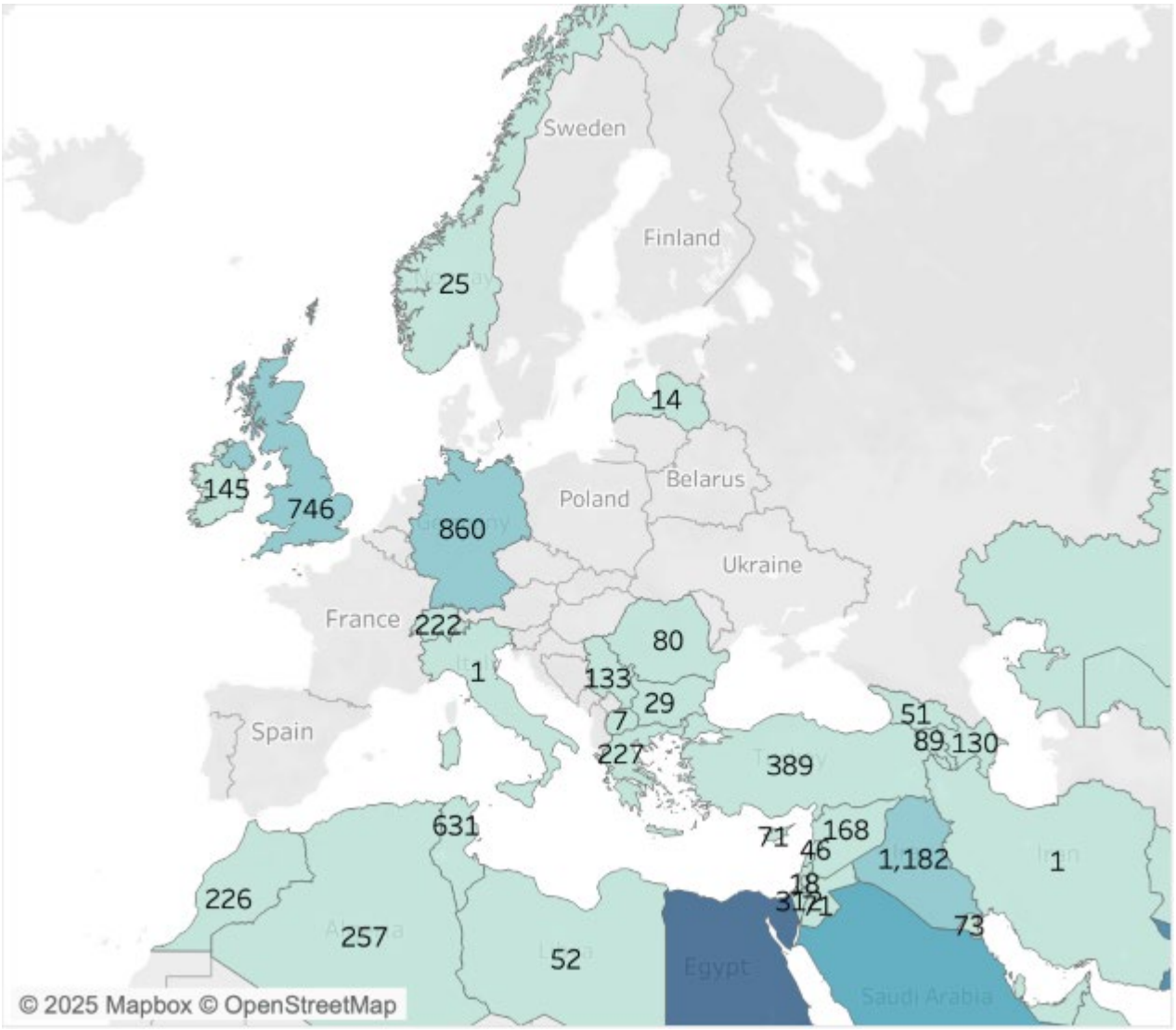
2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

Asia



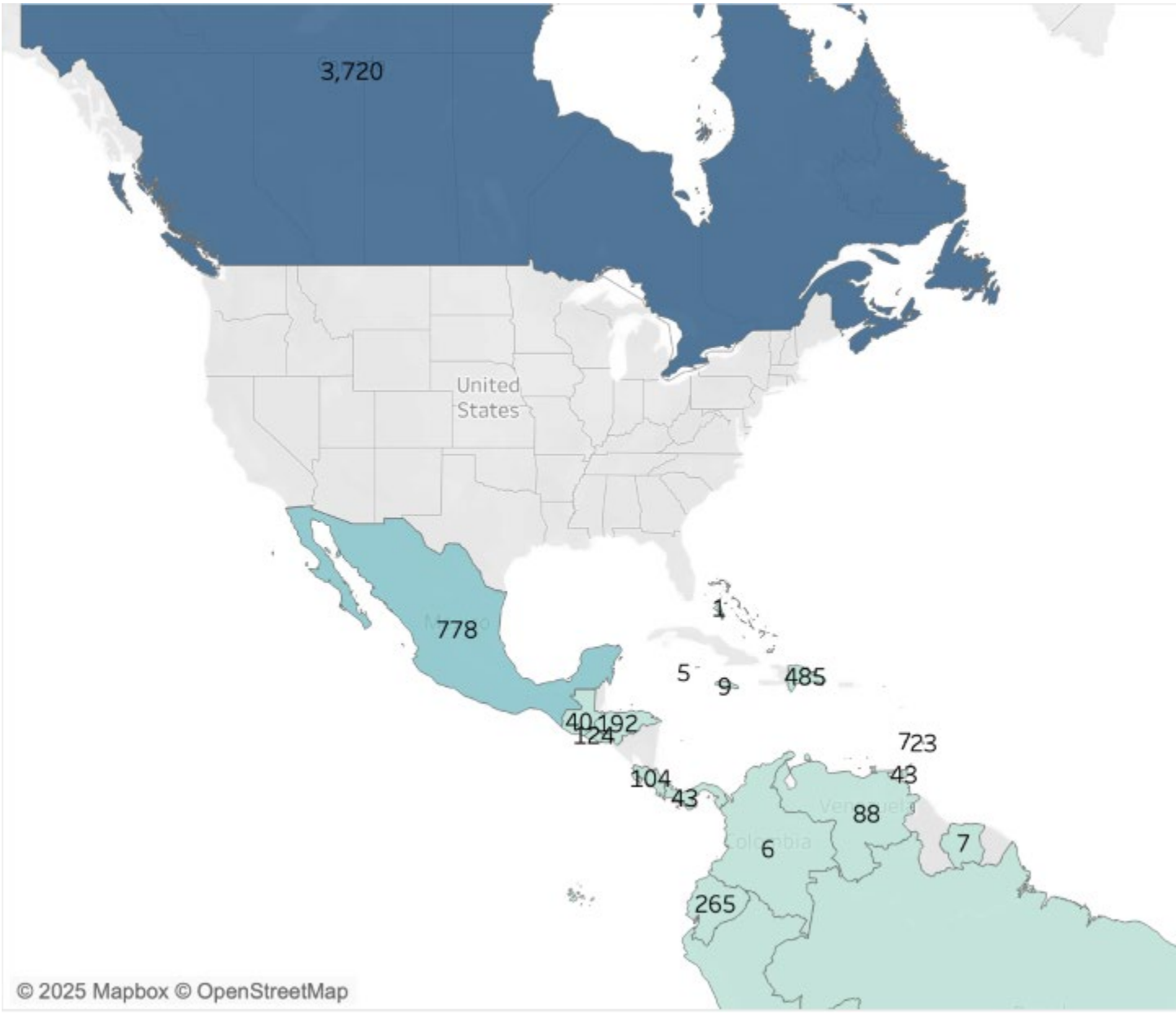
2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

Europe



2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

North and Central America



2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

South America

2024 Eye Banking Statistics Reported by EBAA Members
Countries of Destination

Oceana

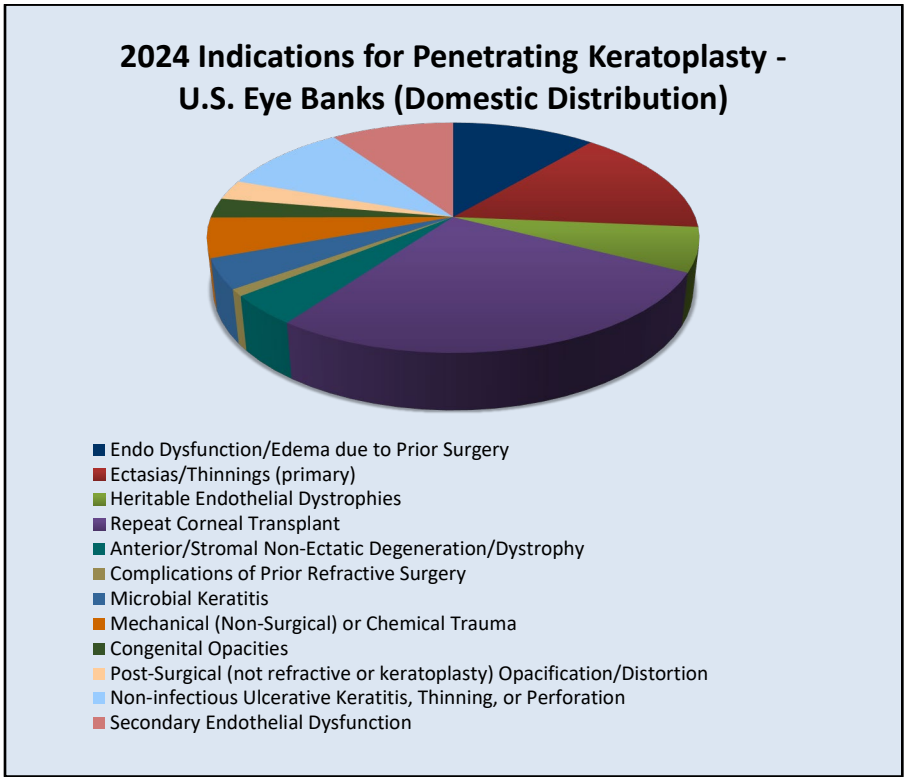
2024 Eye Banking Statistics Reported by U.S. Banks

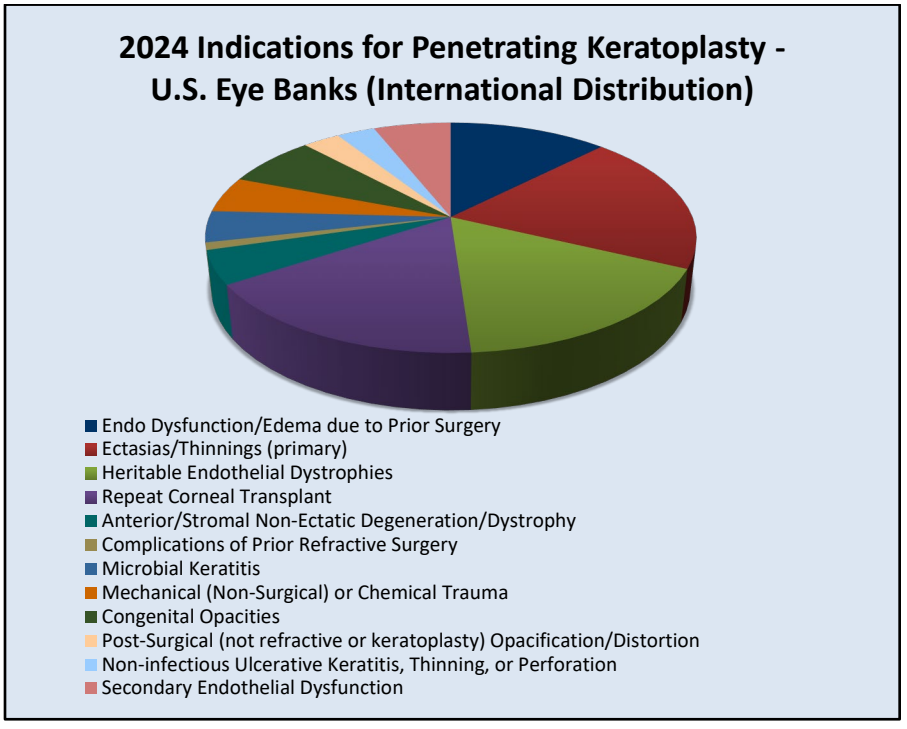
Indications for Corneal Transplant Reported by U.S. Banks

Indications for Penetrating Keratoplasty 2024	Domestic Use		International Use		TOTAL
A. Endo Dysfunction or Corneal Edema due to Prior Surgery	1,320	9.3%	593	3.5%	1,913
B. Ectasias/Thinning (primary)	1,793	12.7%	939	5.6%	2,732
C. Heritable Endothelial Dystrophies	730	5.2%	802	4.7%	1,532
D. Repeat Corneal Transplant	3,229	22.8%	805	4.8%	4,034
E. Anterior/Stromal Non-Ectatic Degenerations or Dystrophies	496	3.5%	225	1.3%	721
F. Complications of Prior Refractive Surgery	114	0.8%	49	0.3%	163
G. Microbial Keratitis	498	3.5%	209	1.2%	707
H. Mechanical (non-surgical) or Chemical Trauma	658	4.7%	240	1.4%	898
I. Congenital Opacities	328	2.3%	342	2.0%	670
J. Post-Surgical (not refractive or keratoplasty) Opacification/Distortion	328	2.3%	139	0.8%	467
K. Non-Infectious Ulcerative Keratitis, Thinning, or Perforation	1,170	8.3%	143	0.8%	1,313
L. Secondary Endothelial Dysfunction	1,131	8.0%	289	1.7%	1,420
Z. Unknown, Unreported, or Unspecified	2,348	16.6%	12,142	71.8%	14,490
Total Indications for Penetrating Keratoplasty	**14,143**		**16,917**		**31,060**
Indications for Anterior Lamellar Keratoplasty	**Domestic use**		**International Use**		**TOTAL**
B. Ectasias/Thinning (primary)	174	29.8%	125	11.1%	299
D. Repeat Corneal Transplant	42	7.2%	13	1.2%	55
E. Anterior/Stromal Non-Ectatic Degenerations or Dystrophies	79	13.5%	25	2.2%	104
F. Complications of Prior Refractive Surgery	8	1.4%	2	0.2%	10
G. Microbial Keratitis	22	3.8%	11	1.0%	33
H. Mechanical (non-surgical) or Chemical Trauma	33	5.7%	13	1.2%	46
I. Congenital Opacities	43	7.4%	16	1.4%	59
J Post-surgical (not refractive or keratoplasty) Opacification/Distortion	21	3.6%	19	1.7%	40
K. Non-Infectious Ulcerative Keratitis, Thinning, or Perforation	63	10.8%	14	1.2%	77
Z. Unknown, Unreported, or Unspecified	99	17.0%	889	78.9%	988
Total for Anterior Keratoplasty	**584**		**1,127**		**1,711**
Indications for Endothelial Keratoplasty	**Domestic Use**		**International Use**		**TOTAL**
A. Endo Dysfunction or Corneal Edema due to Prior Surgery	5,387	15.5%	772	11.3%	6,159
C. Heritable Endothelial Dystrophies	16,661	48.0%	837	12.2%	17,498
D. Repeat Corneal Transplant	4,315	12.4%	470	6.9%	4,785
L. Secondary Endothelial Dysfunction	5,895	17.0%	1,886	27.5%	7,781
Z. Unknown, Unreported, or Unspecified	2,442	7.0%	2,893	42.2%	5,335
Total for Endothelial Keratoplasty	**34,700**		**6,858**		**41,558**
Total Number of PK, ALK, and EK Procedures	**49,427**		**24,902**		**74,329**

2024 Eye Banking Statistics Reported by U.S. Banks

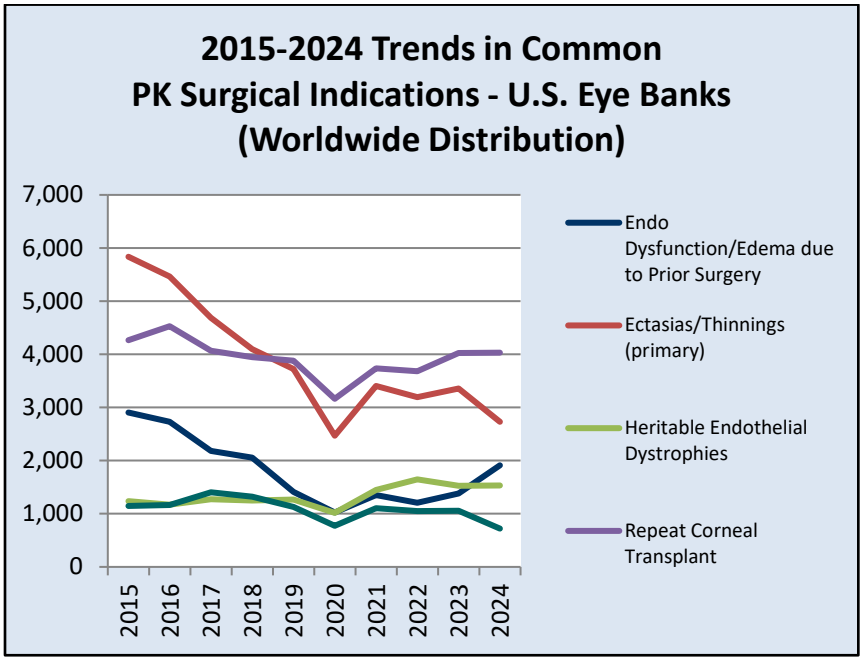
Indications for Corneal Transplant Reported by U.S. Banks

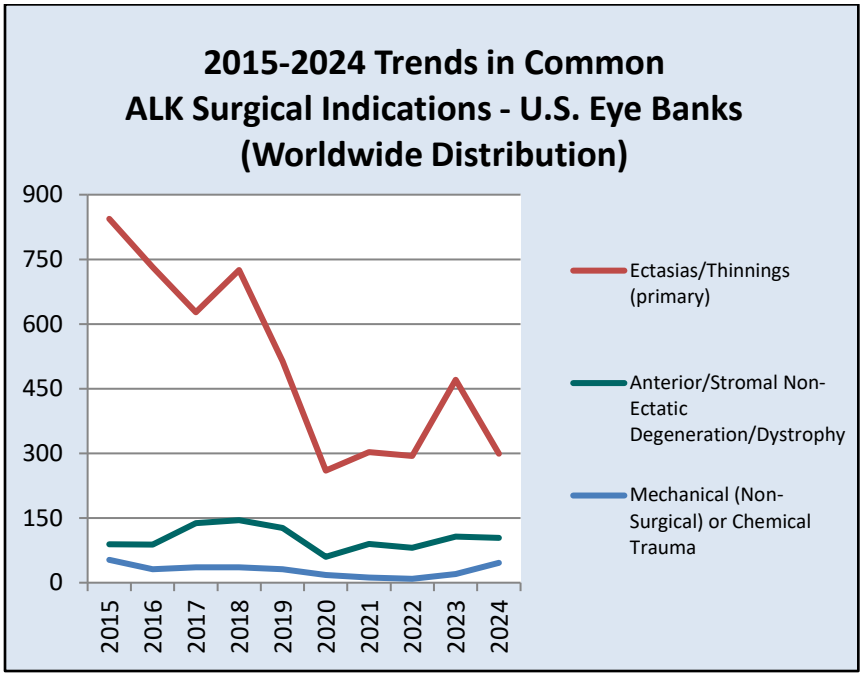




2024 Eye Banking Statistics Reported by U.S. Banks

Indications for Corneal Transplant Reported by U.S. Banks

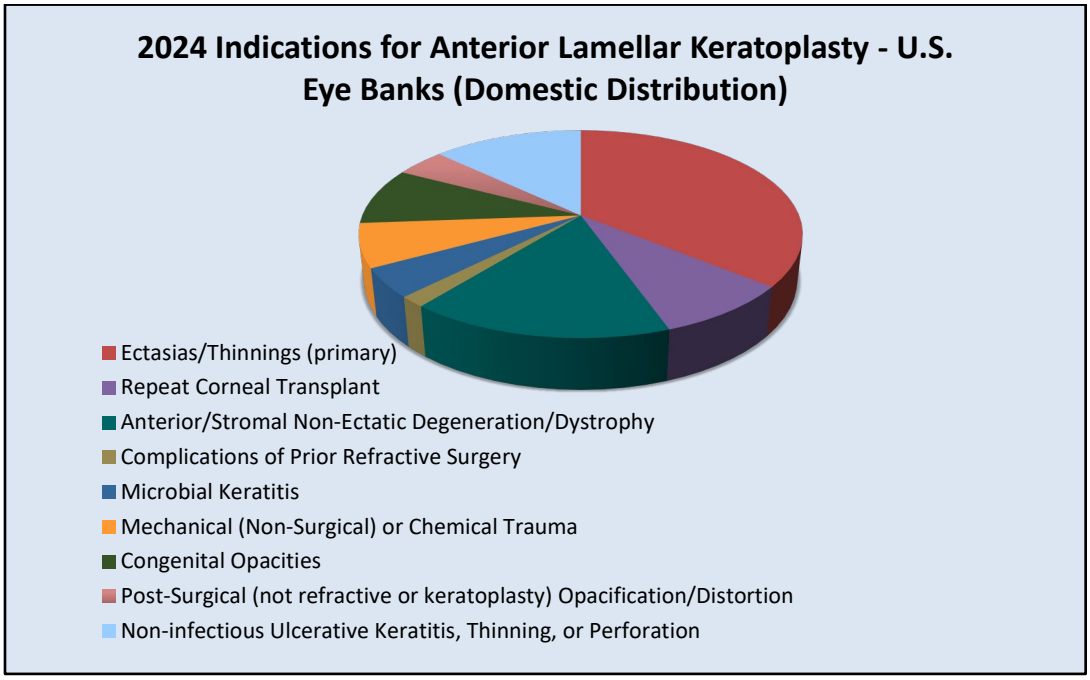


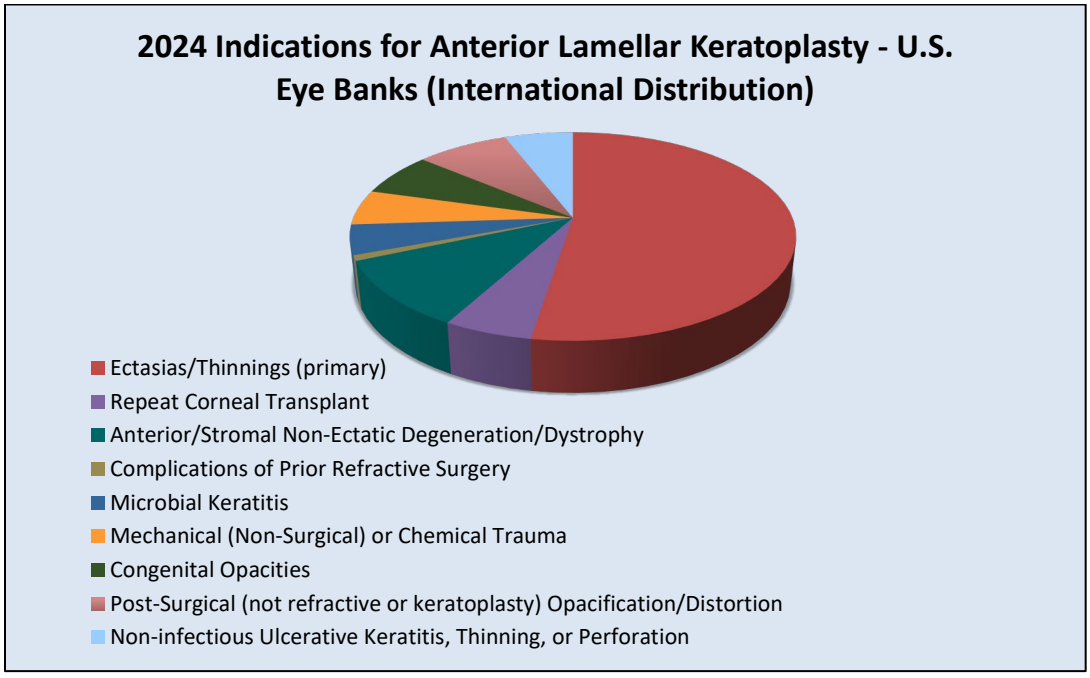


***Worldwide Distribution = Combined Domestic and International Distribution**

2024 Eye Banking Statistics Reported by U.S. Banks

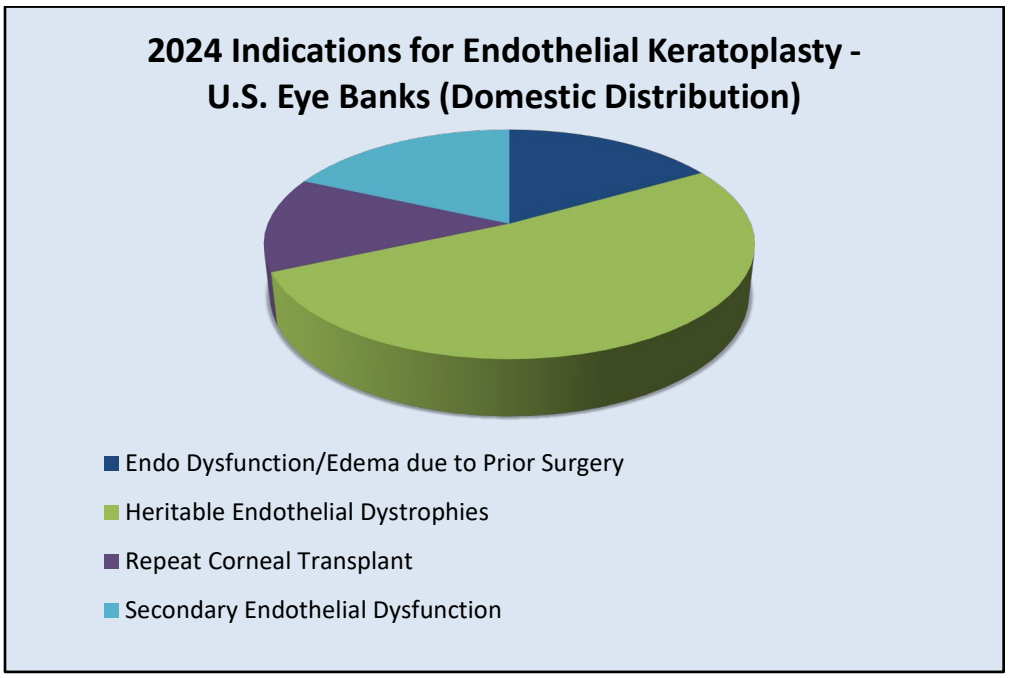
Indications for Corneal Transplant Reported by U.S. Banks

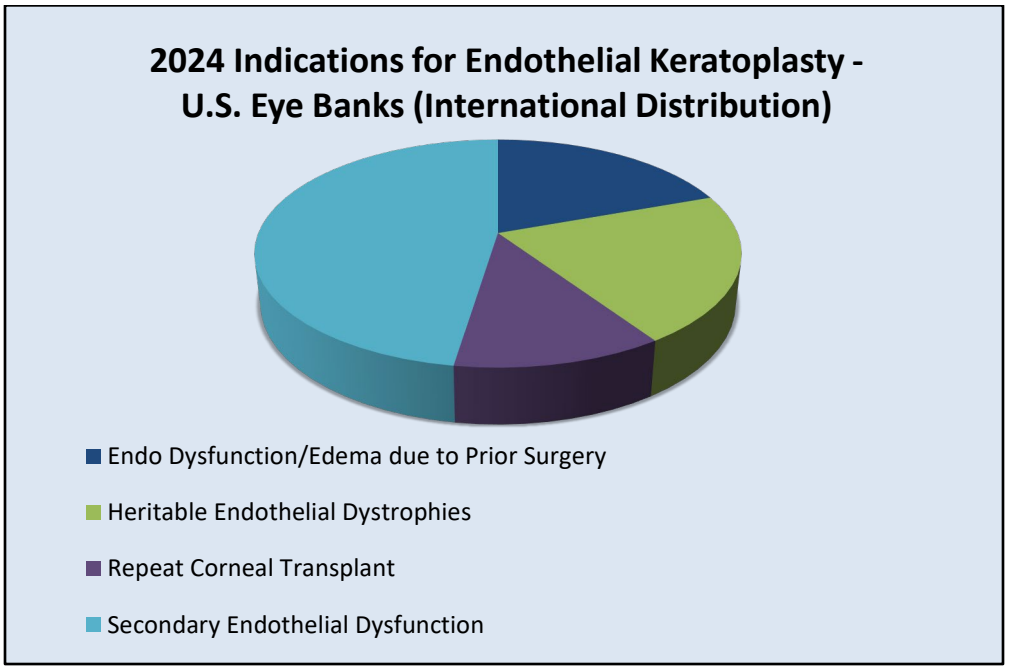




2024 Eye Banking Statistics Reported by U.S. Banks

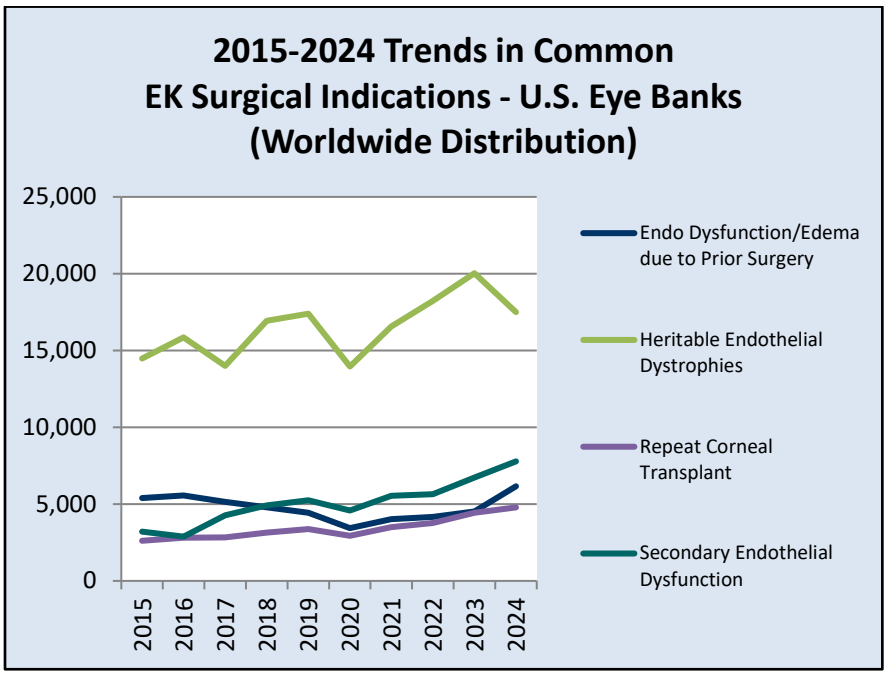
Indications for Corneal Transplant Reported by U.S. Banks





2024 Eye Banking Statistics Reported by U.S. Banks

Indications for Corneal Transplant Reported by U.S. Banks



***Worldwide Distribution = Combined Domestic and International Distribution**

2024 Eye Banking Statistics Reported by U.S. Banks

Indications for Corneal Transplant Reported by U.S. Banks

2024 (Domestically Distributed Corneas Only) - U.S. Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	1,320	1,793	730	3,229	496	114	498	658	328	328	1,170	1,131	2,348
EK	5,387		16,661	4,315								5,895	2,442
ALK		174		42	79	8	22	33	43	21	63		99

2024 (Internationally Distributed Corneas Only) - U.S. Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	593	939	802	805	225	49	209	240	342	139	143	289	12,142
EK	772		837	470								1,886	2,893
ALK		125		13	25	2	11	13	16	19	14		889

2024 (Combined Domestic & International Distributed Corneas) - U.S. Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	1,913	2,732	1,532	4,034	721	163	707	898	670	467	1,313	1,420	14,490
EK	6,159		17,498	4,785								7,781	5,335
ALK		299		55	104	10	33	46	59	40	77		988

A - Endo Dysfunction/Edema due to Prior Surgery

B - Ectasias/Thinnings (primary)

C - Heritable Endothelial Dystrophies

D - Repeat Corneal Transplant

E - Anterior/Stromal Non-Ectatic Degeneration/Dystrophy

F - Complications of Prior Refractive Surgery

G - Microbial Keratitis

H - Mechanical (Non-Surgical) or Chemical Trauma

I - Congenital Opacities

J - Post-surgical (not refractive or keratoplasty) Opacification/Distortion

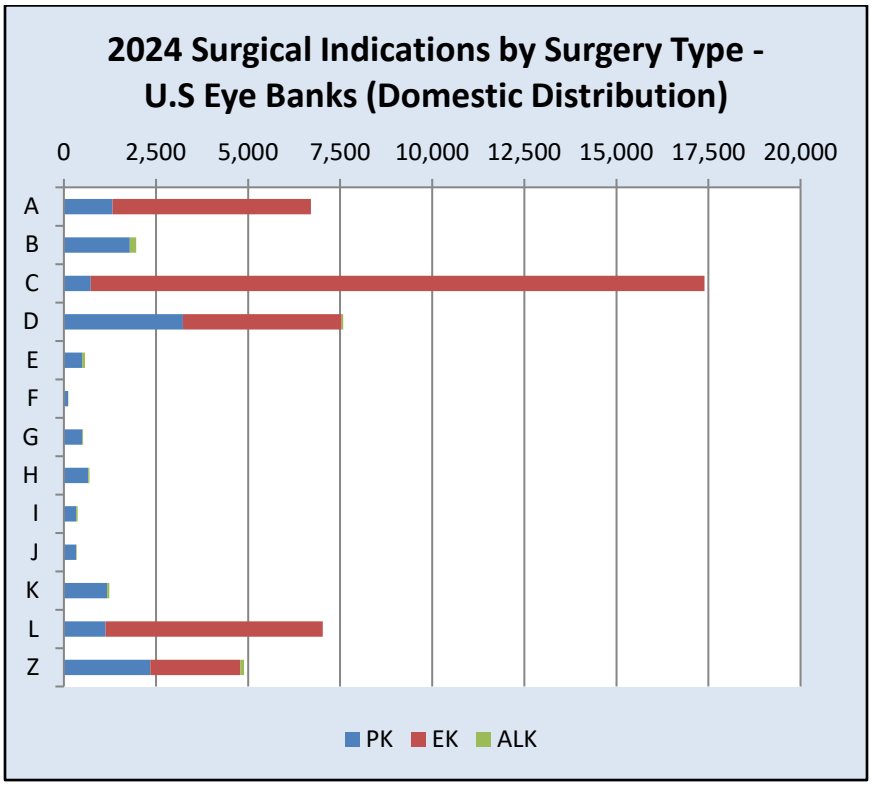
K - Non-infectious Ulcerative Keratitis, Thinning, or Perforation

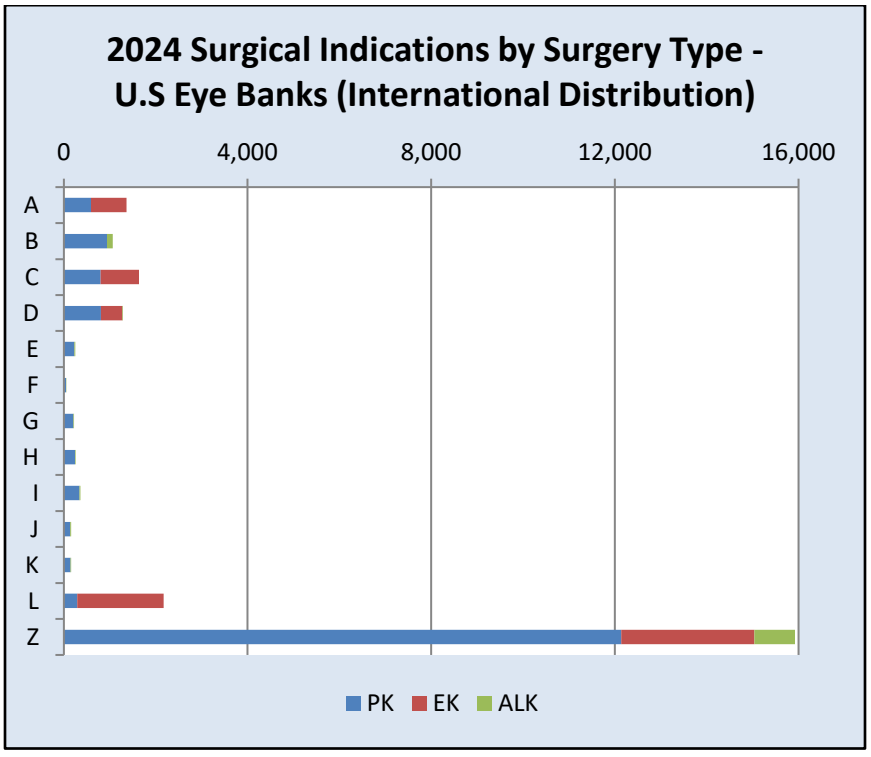
L - Secondary Endothelial Dysfunction

Z – Unknown or Unreported

2024 Eye Banking Statistics Reported by U.S. Banks

Indications for Corneal Transplant Reported by U.S. Banks



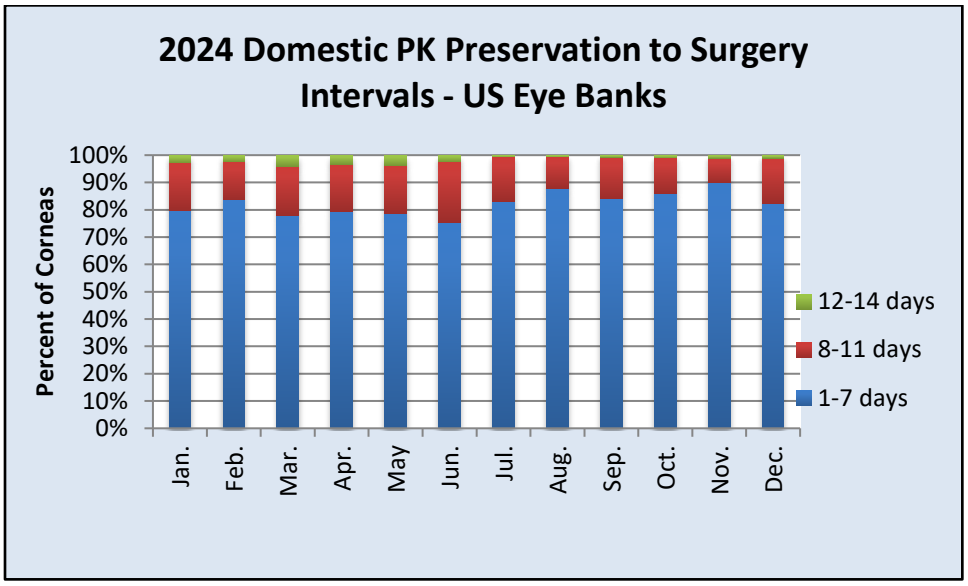


2024 Eye Banking Statistics Reported by U.S. Banks

Preservation Time Reported by U.S. Banks

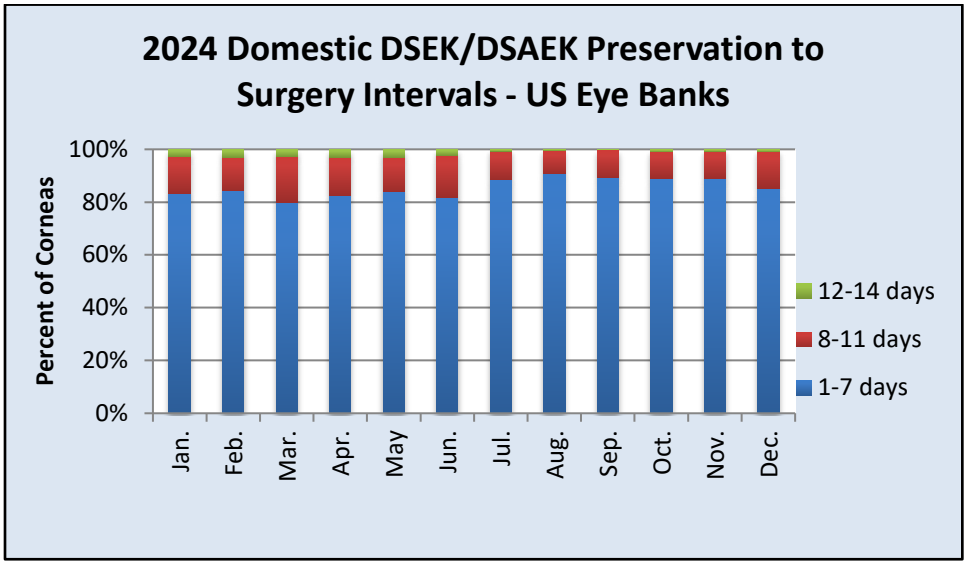
Preservation to Surgery - U.S. Eye Banks (Tissue used domestically only)									
Month	PK: 1-7 days	PK: 8-11 days	PK: 12-14 days	DSEK/DSAEK: 1-7 days	DSEK/DSAEK: 8-11 days	DSEK/DSAEK: 12-14 days	DMEK: 1-7 days	DMEK: 8-11 days	DMEK: 12-14 days
Jan. 2024	79.7%	17.5%	2.8%	83.2%	14.1%	2.7%	84.3%	13.5%	2.2%
Feb. 2024	83.7%	13.9%	2.4%	84.3%	12.6%	3.1%	85.7%	12.3%	2.0%
Mar. 2024	77.8%	18.1%	4.1%	80.0%	17.2%	2.8%	81.5%	16.4%	2.1%
Apr. 2024	79.5%	17.1%	3.3%	82.5%	14.6%	2.9%	83.0%	14.9%	2.1%
May 2024	78.6%	17.6%	3.8%	83.9%	13.0%	3.1%	83.8%	15.4%	0.8%
Jun. 2024	75.3%	22.3%	2.4%	81.9%	15.8%	2.3%	84.2%	15.2%	0.6%
Jul. 2024	83.1%	16.3%	0.6%	88.6%	10.7%	0.6%	87.6%	11.3%	1.1%
Aug. 2024	87.9%	11.5%	0.6%	90.7%	9.0%	0.3%	90.0%	9.5%	0.5%
Sep. 2024	84.0%	15.3%	0.7%	89.2%	10.6%	0.2%	90.1%	9.5%	0.4%
Oct. 2024	85.9%	13.1%	1.0%	89.0%	10.2%	0.8%	89.4%	10.3%	0.3%
Nov. 2024	90.0%	8.9%	1.1%	88.8%	10.5%	0.7%	90.7%	9.0%	0.3%
Dec. 2024	82.4%	16.5%	1.1%	85.3%	13.9%	0.8%	85.0%	14.5%	0.5%
2022 Avg.	88.7%	10.5%	0.9%	90.2%	9.4%	0.4%	90.2%	9.6%	0.2%
2023 Avg.	83.4%	15.6%	0.9%	86.5%	13.3%	0.3%	86.0%	13.5%	0.5%
2024 Avg.	82.3%	15.7%	2.0%	85.7%	12.6%	1.7%	86.4%	12.5%	1.1%
Std. Dev.	4.3%	3.5%	1.3%	3.5%	2.5%	1.2%	3.2%	2.7%	0.8%

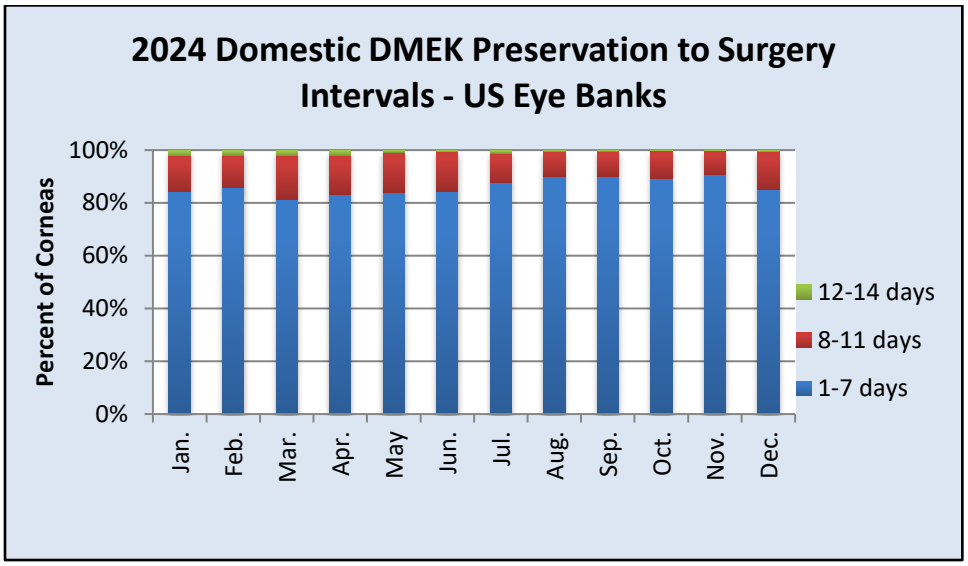
*Percentages read from this table should be read as "of the domestically distributed tissue used (for PK, DSEK, or DMEK, respectively)"



2024 Eye Banking Statistics Reported by U.S. Banks

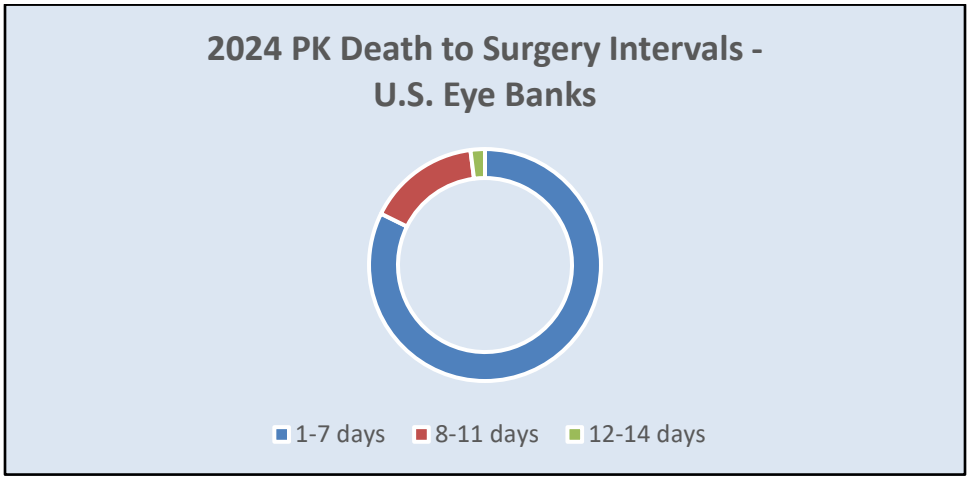
Preservation Time Reported by U.S. Banks

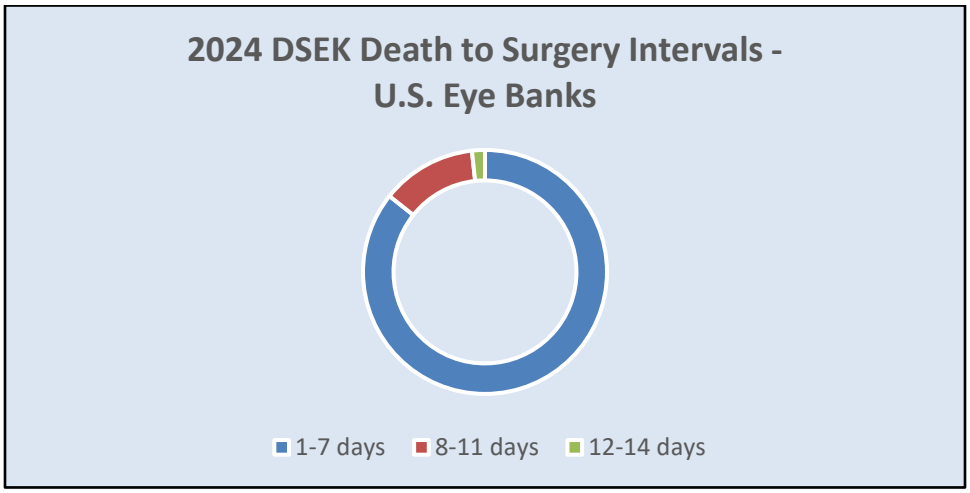


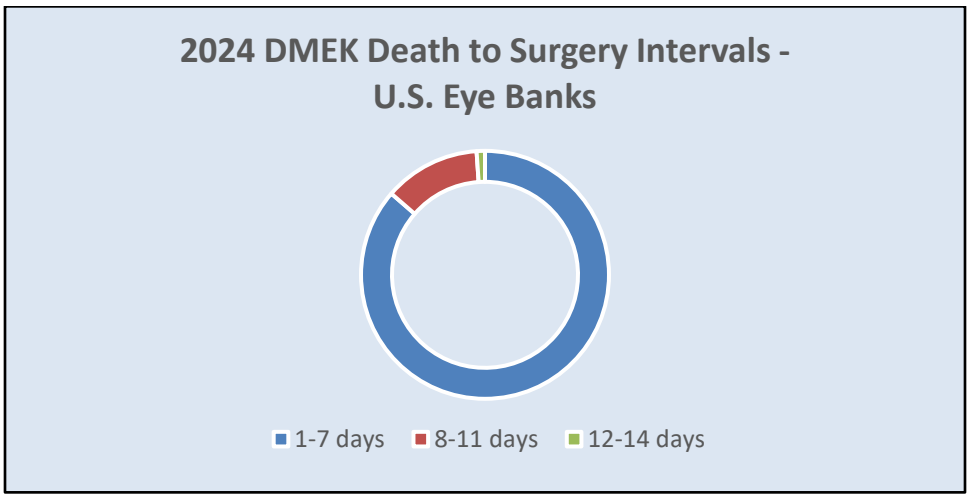


2024 Eye Banking Statistics Reported by U.S. Banks

Preservation Time Reported by U.S. Banks





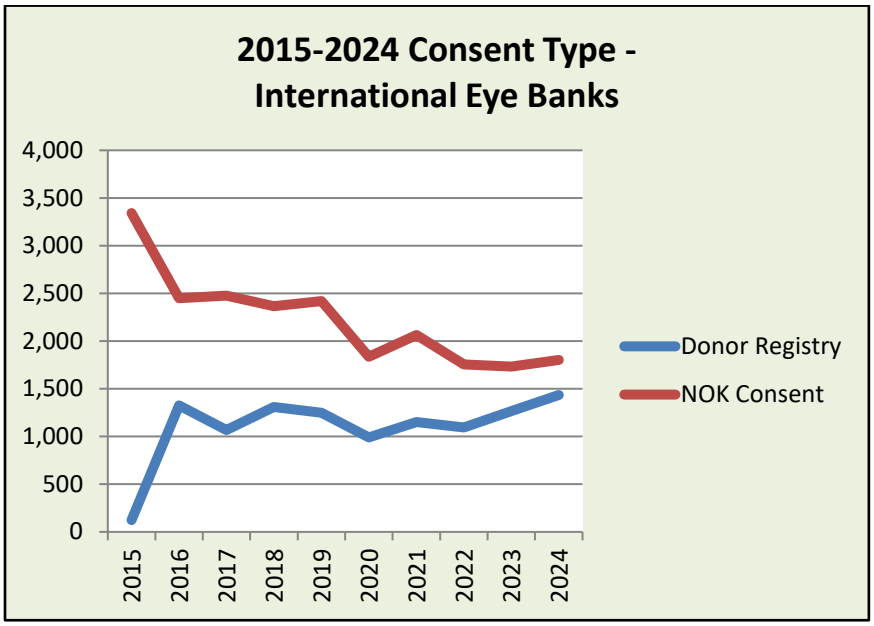


STATISTICS FROM INTERNATIONAL EYE BANKS

EYE BANK ASSOCIATION OF AMERICA®

2024 International Eye Banking Statistics
Donations and Tissue Recoveries

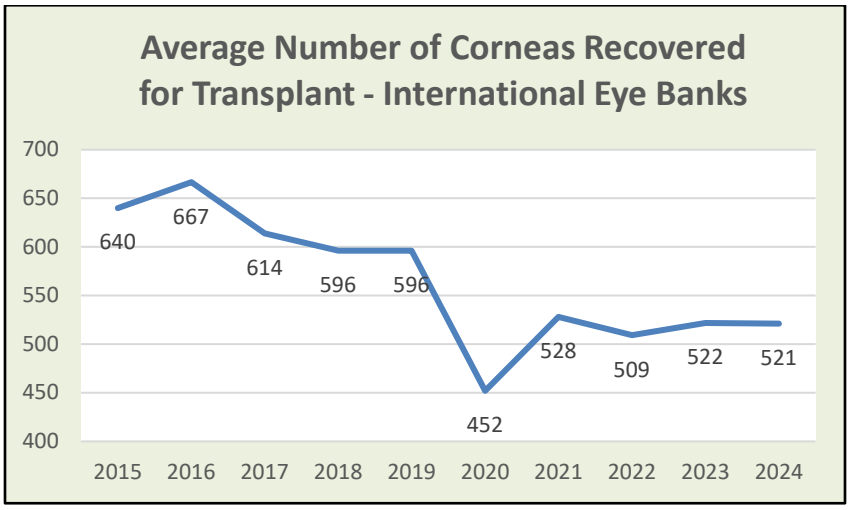
Donations	**2022**	**2023**	**2024**
Number of Eye Banks Reporting	11	11	12
Total Whole Eyes and Corneas Donated	5,669	5,960	6,433
Total Number of Donors	2,851	3,000	3,237
Death Referrals	**2022**	**2023**	**2024**
Total Death Referrals	78,823	75,891	76,554
Death referrals Determined Eligible	12,051	13,046	14,327
Tissue Recoveries	**2022**	**2023**	**2024**
Total Donors	2,851	3,000	3,237
Donors recovered not found on donor registry or known to have first person consent	1,756	1,733	1,802
Donors recovered found on donor registry or known to have first person consent	1,095	1,267	1,435
Eyes or Corneas Recovered with Intent for Surgical Use	5,601	5,740	6,255
Eyes or Corneas Recovered for Other Uses	68	220	178



2024 International Eye Banking Statistics
Referral Trends, Transplant and Conversion Rates

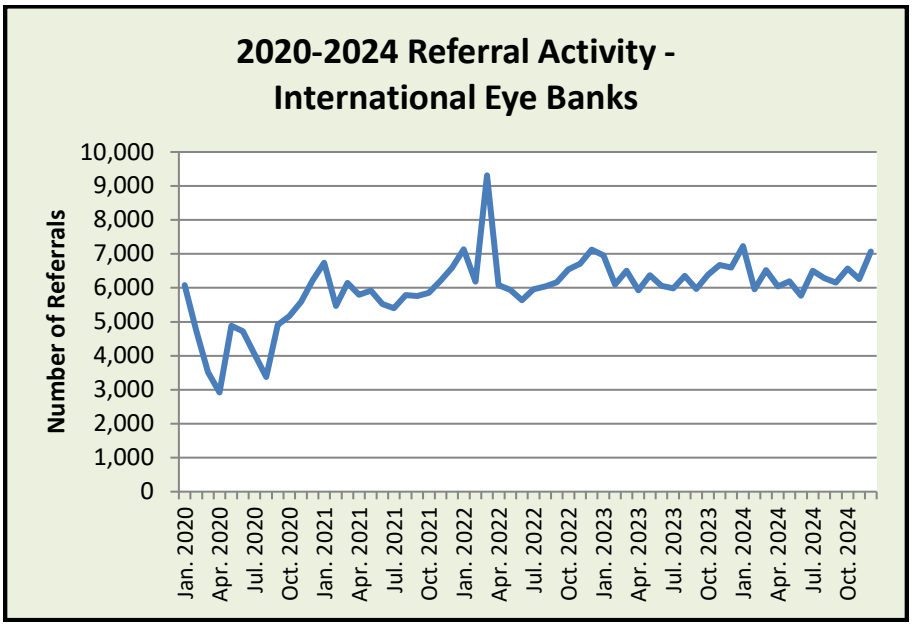
Transplant & Conversion Rates - International Eye Banks					
Month	**Transplant Rate**	**Conversion Rate**	**Death Referrals**	**Transplant Eligible Referrals**	**Transplant Intended Corneas Recovered**
Jan. 2024	68.6%	16.9%	7,233	1,308	600
Feb. 2024	67.0%	23.0%	5,958	1,071	483
Mar. 2024	67.9%	22.7%	6,518	1,176	523
Apr. 2024	55.6%	22.4%	6,041	1,205	602
May 2024	58.1%	25.0%	6,194	1,200	526
Jun. 2024	58.7%	22.0%	5,773	1,082	472
Jul. 2024	60.4%	22.1%	6,499	1,160	475
Aug. 2024	56.6%	20.8%	6,291	1,193	485
Sep. 2024	60.0%	20.4%	6,151	1,164	531
Oct. 2024	60.8%	22.8%	6,572	1,234	569
Nov. 2024	60.5%	23.2%	6,259	1,173	524
Dec. 2024	60.7%	22.5%	7,065	1,361	465
2022 Total	59.8%	23.4%	78,823	12,051	5,601
2023 Total	61.0%	22.1%	75,891	13,046	5,740
2024 Total	58.7%	22.0%	76,554	14,327	6,255
2024 Avg.	N/A	N/A	6,380	1194	521
Std. Dev.	4.3%	2.0%	430	82	48

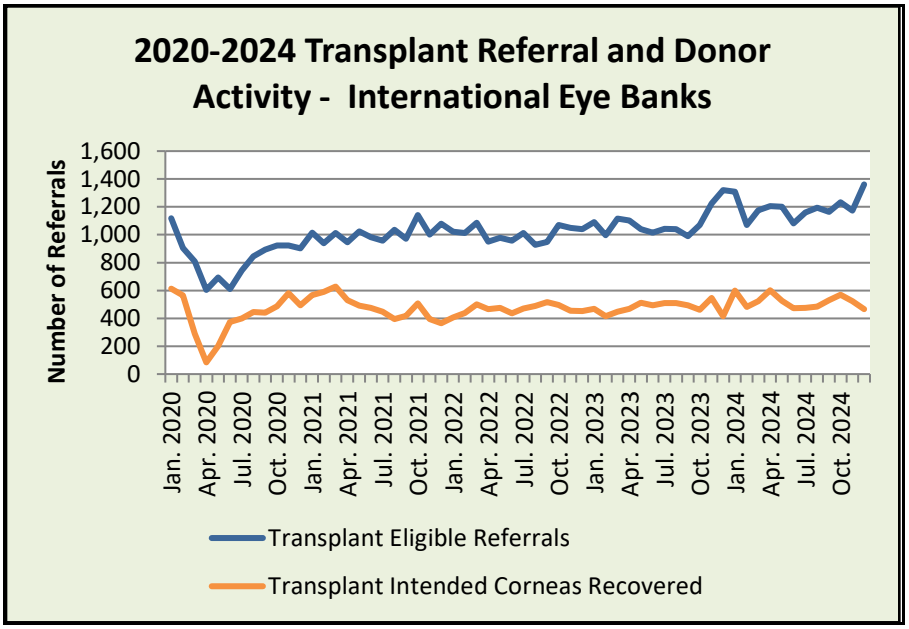
***Transplant rate is the number of corneas used for transplant divided by the number recovered for transplant. Conversion rate is the number of transplant donors divided by the number of transplant eligible referrals.**



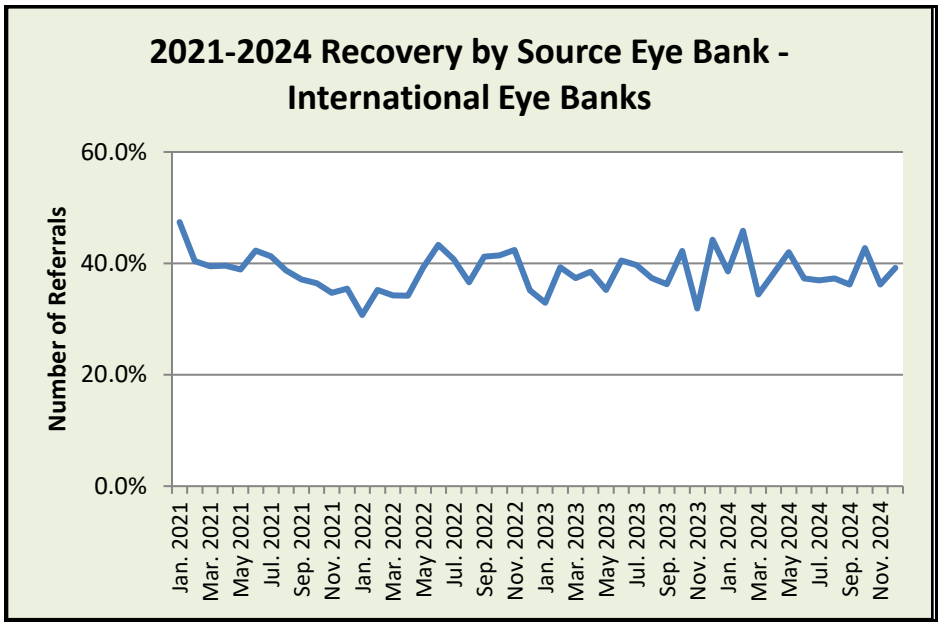
2024 International Eye Banking Statistics

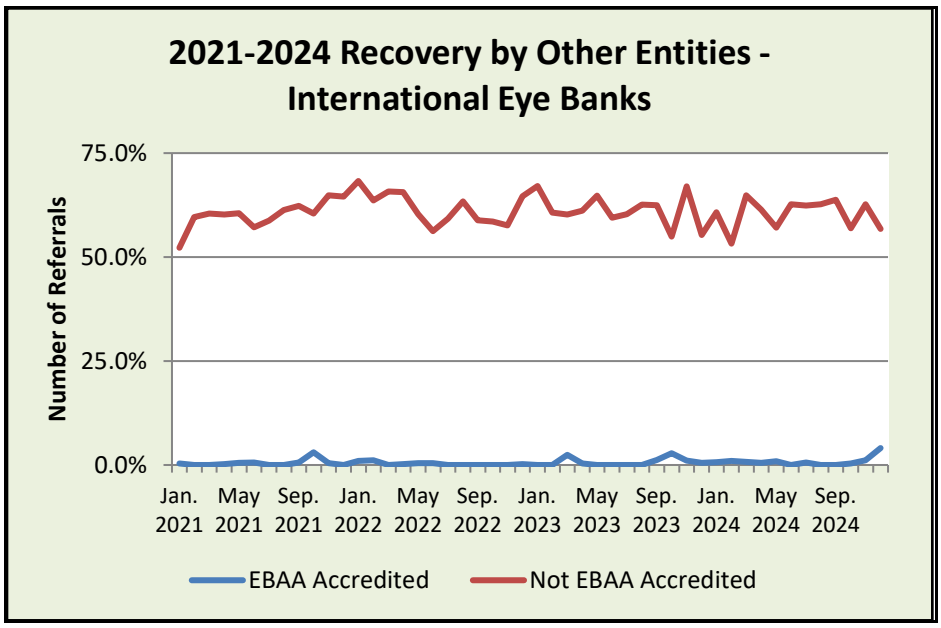
Referral Trends, Transplant and Conversion Rates



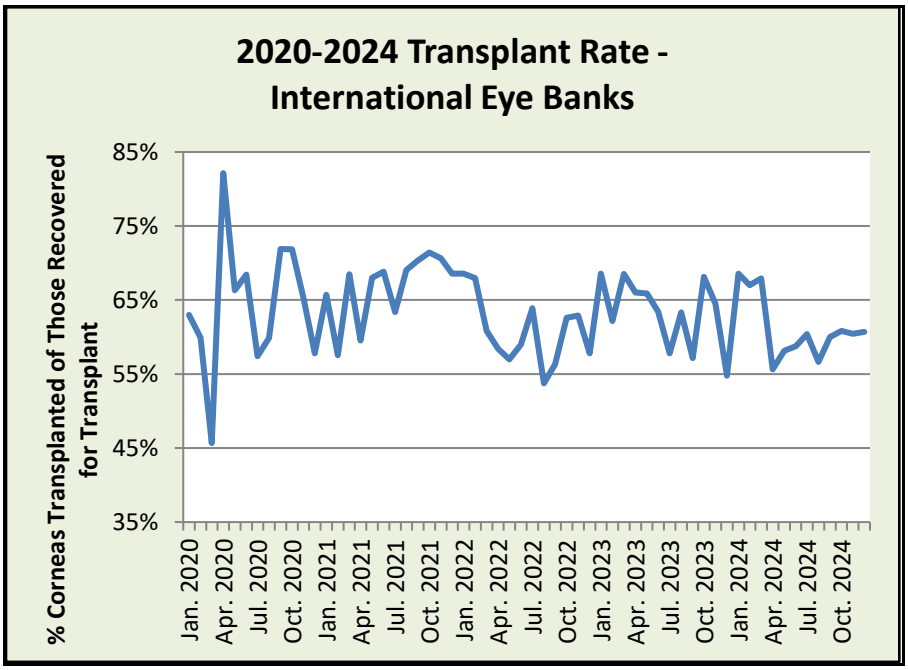


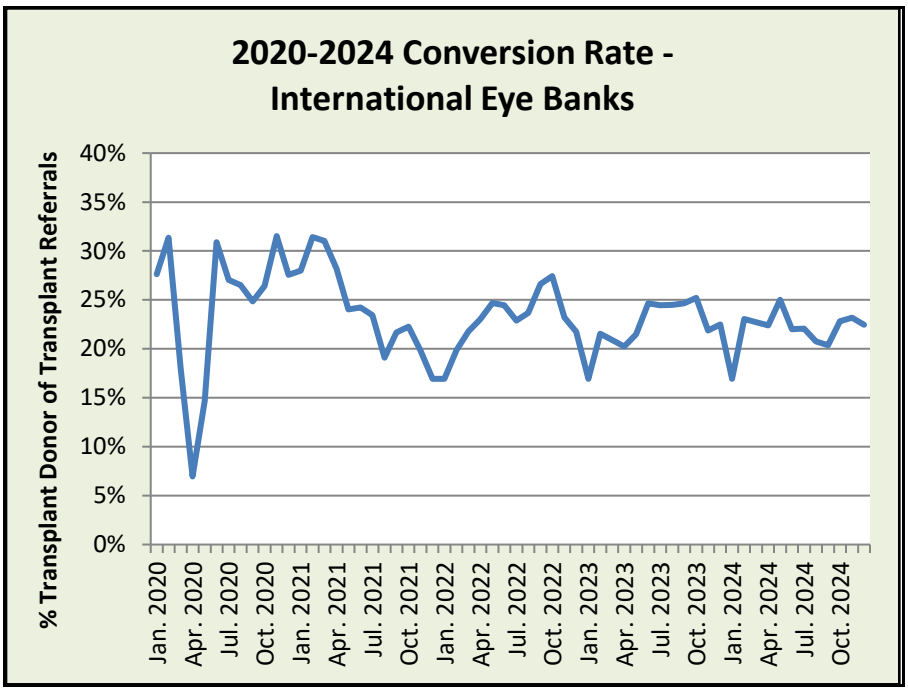
2024 International Eye Banking Statistics
Recovery Entities





2024 International Eye Banking Statistics
Transplant and Conversion Rates

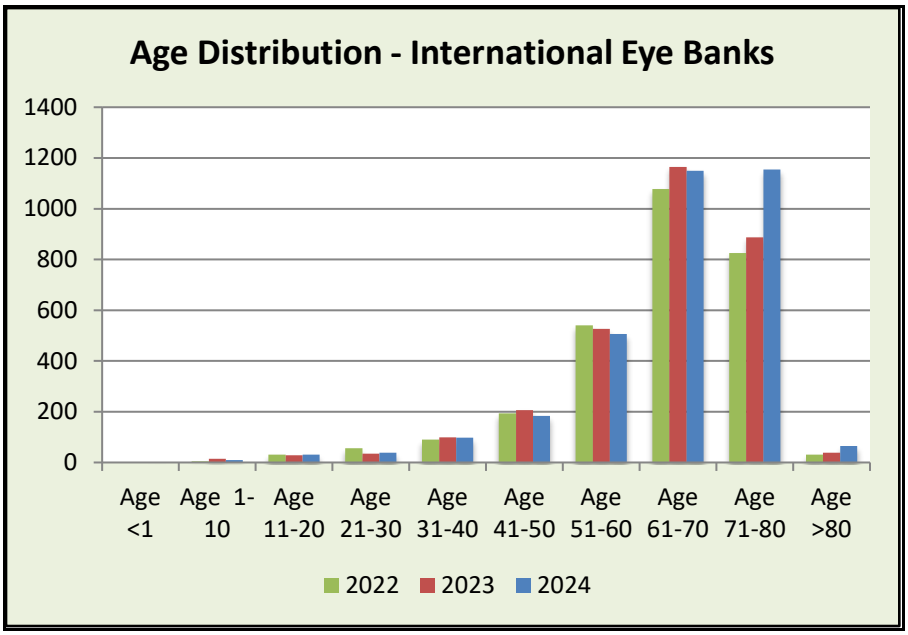




Transplant rate is the number of corneas used for transplant divided by the number recovered for transplant.
Conversion rate is the number of transplant donors divided by the number of transplant eligible referrals.

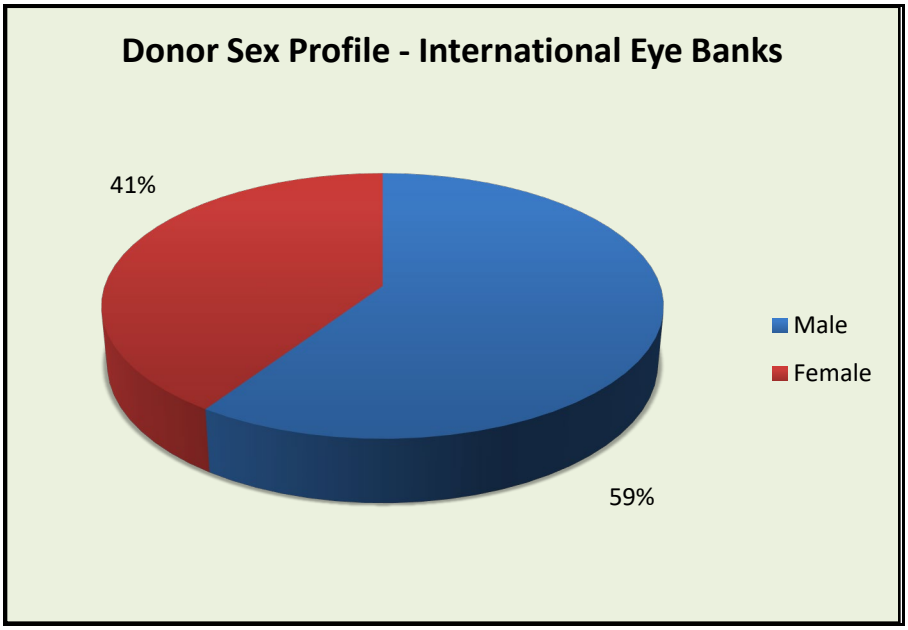
2024 International Eye Banking Statistics
Donor Profiles: Age

Age Demographics - International Eye Banks										
Year	Age <1	Age 1-10	Age 11-20	Age 21-30	Age 31-40	Age 41-50	Age 51-60	Age 61-70	Age 71-80	Age >80
2022	0	5	31	56	90	194	540	1,078	826	31
2023	0	15	28	35	99	206	527	1,165	887	38
2024	1	10	31	39	98	184	506	1,149	1,154	65
2024 Percent	0.0%	0.3%	1.0%	1.2%	3.0%	5.7%	15.6%	35.5%	35.7%	2.0%
Monthly Avg.	0	1	3	3	8	15	42	96	96	5
Std. Dev.	0.3	0.9	2.0	1.8	2.5	4.8	5.2	16.9	13.5	4.0



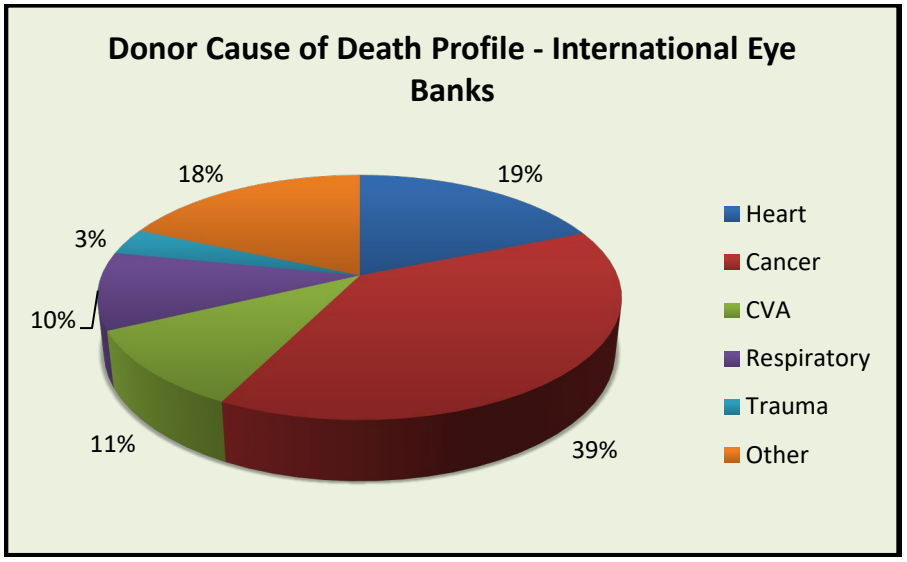
2024 International Eye Banking Statistics
Donor Profiles: Gender and Cause of Death

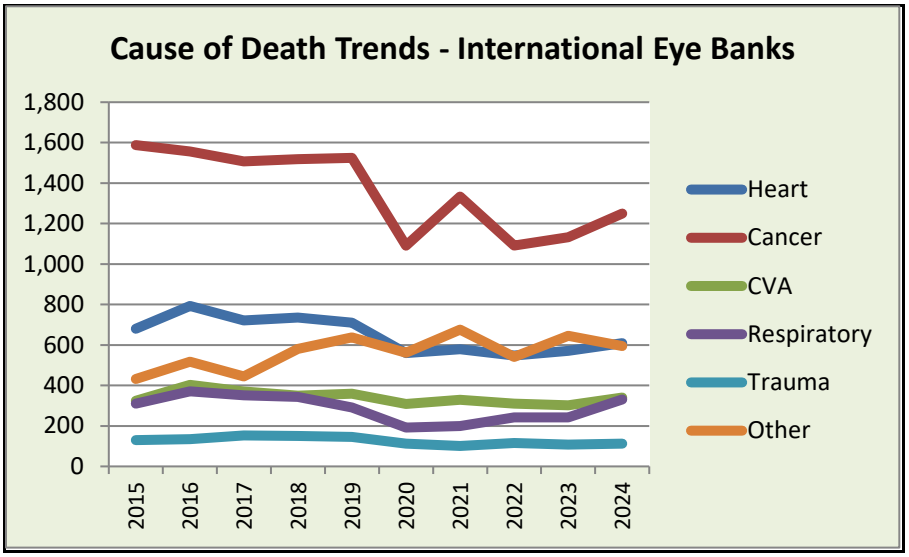
Sex Demographics – International Eye Banks		
Year	**Male**	**Female**
2022	1,668	1,183
2023	1,744	1,256
2024	1,923	1,314
2024 Percent	59.4%	40.6%
Monthly Avg.	160	110
Std. Dev.	13.6	15.8



2024 International Eye Banking Statistics
Donor Profiles: Cause of Death

Cause of Death Demographics - International Eye Banks						
Month	**Heart**	**Cancer**	**CVA**	**Respiratory**	**Trauma**	**Other**
2022 Total	548	1,092	311	243	116	541
2023 Total	571	1,132	302	242	108	645
2024 Total	609	1,249	340	331	113	595
2024 Percent	18.8%	38.6%	10.5%	10.2%	3.5%	18.4%
Monthly Avg.	51	104	28	28	9	50
Std. Dev.	8.6	11.5	6.0	6.5	3.9	5.8





2024 International Eye Banking Statistics
Reasons Tissue Intended for Surgery Was Not Suitable For Transplant

Contraindications for Transplant[1]	2022		2023		2024	
Donor Eligibility	**1,667**	**80.5%**	**1,447**	**74.7%**	**1,492**	**67.2%**
Positive or reactive test for communicable disease agent or disease	390	18.8%	406	21.0%	431	19.4%
Other communicable disease testing issue	96	4.6%	104	5.4%	104	4.7%
Medical record or autopsy findings	847	40.9%	664	34.3%	664	29.9%
Medical/social history interview	304	14.7%	246	12.7%	269	12.1%
Body Exam	30	1.4%	27	1.4%	24	1.1%
Tissue Suitability	**483**	**23.3%**	**464**	**24.0%**	**610**	**27.5%**
Quality Issue	**27**	**1.3%**	**38**	**2.0%**	**17**	**0.8%**
Other reason prior to tissue release	**132**	**6.4%**	**179**	**9.2%**	**341**	**15.4%**
Total eyes/corneas intended for transplant but not released for transplant	**2,070**		**1,937**		**2,221**	

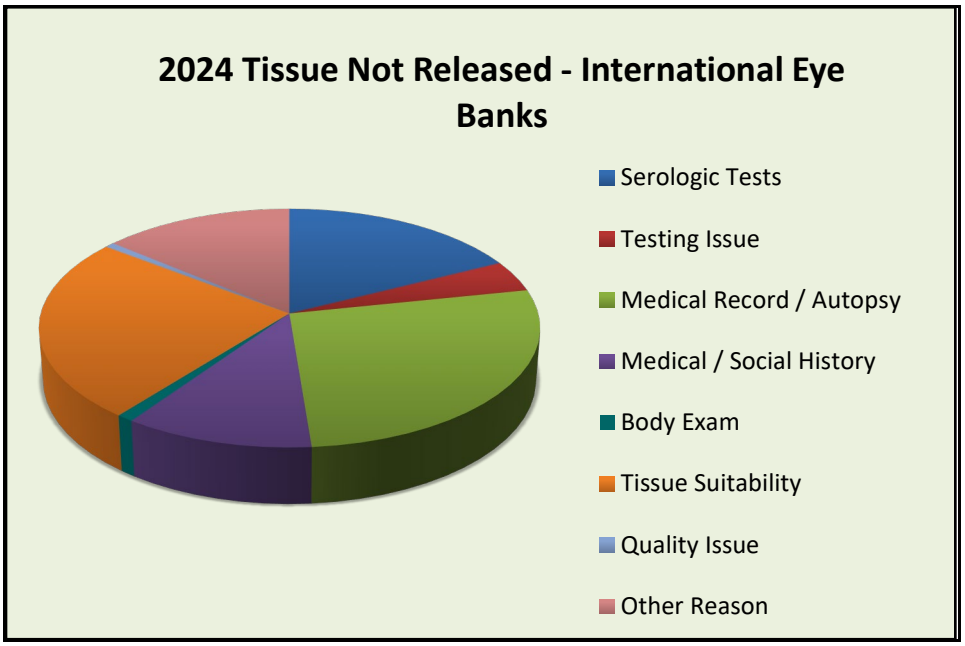
*Percentages read from this table should be read as "of the tissue not released for transplant."

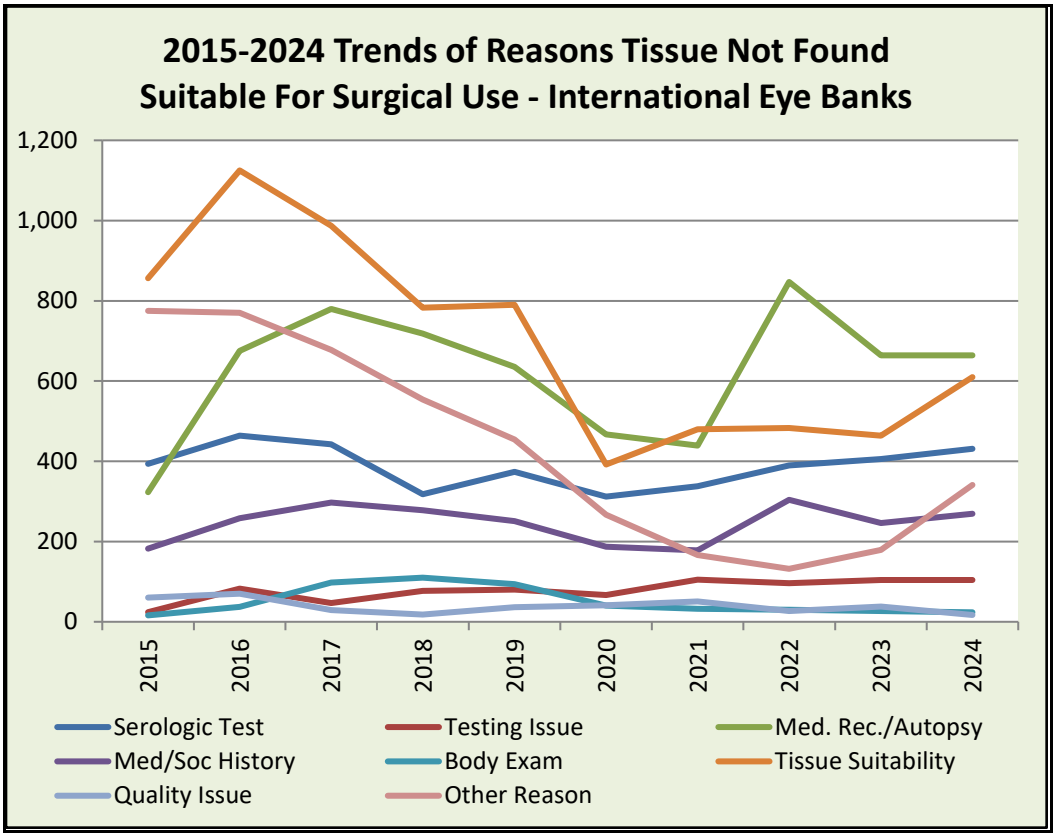
Reasons Corneas Recovered for Transplant Were Not Released - International Eye Banks											
Reasons Not Released	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Serology Tests	394	464	442	318	374	312	338	390	406	431	
Testing Issue	24	83	47	77	80	67	105	96	104	104	
Med. Rec./Autopsy	323	675	780	718	635	467	439	847	664	664	
Med Soc Hx	182	258	297	278	251	187	178	304	246	269	
Body Exam	16	37	98	110	94	40	32	30	27	24	
Tissue Suitability	856	1,125	987	783	790	392	480	483	464	610	
Quality Issue	60	70	29	18	36	41	51	27	38	17	
Other Reason	775	770	678	554	454	267	166	132	179	341	

[1] Some tissues had multiple contraindications.

2024 International Eye Banking Statistics

Reasons Tissue Intended for Surgery Was Not Released

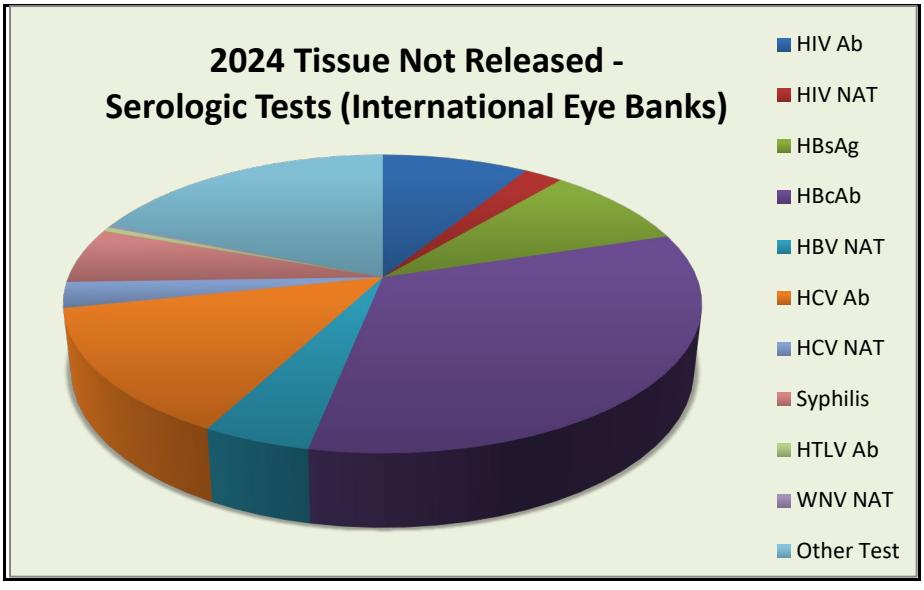




2024 International Eye Banking Statistics

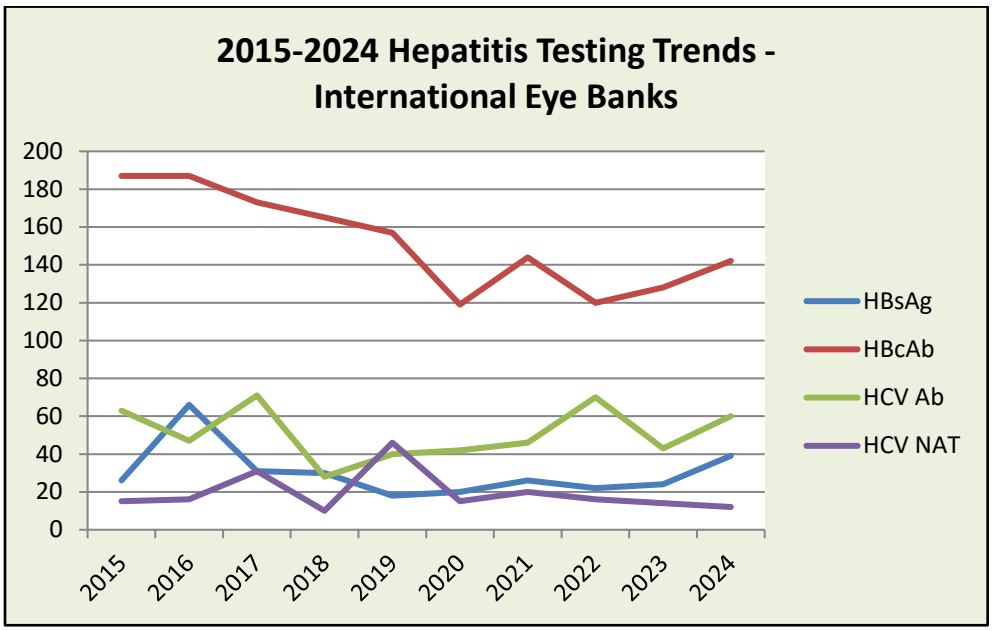
Reasons Tissue Intended for Surgery Was Not Released

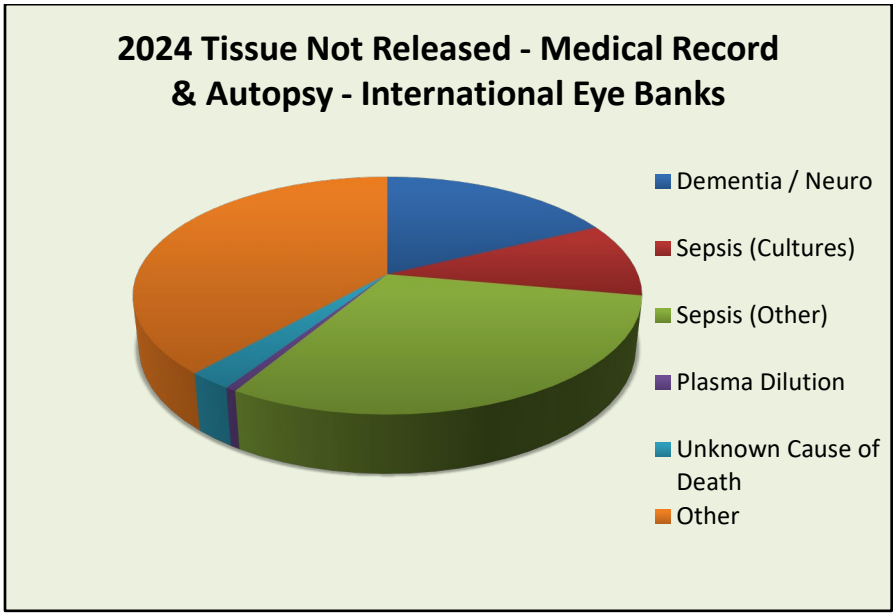
Corneas Not Released for Transplant (Serologic Testing) - International Eye Banks											
Not Released - Serology	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trend**
HIV	37	30	34	22	27	44	8	18	18	48	
HIV I/II Ab	37	30	32	22	25	42	8	14	16	38	
HIV NAT	0	0	2	0	2	2	0	4	2	10	
HBV	213	263	209	219	203	162	195	162	172	201	
HBsAg	26	66	31	30	18	20	26	22	24	39	
HBcAb	187	187	173	165	157	119	144	120	128	142	
HBV NAT	0	10	5	24	28	23	25	20	20	20	
HCV	78	63	102	38	86	57	66	86	57	72	
HCV Ab	63	47	71	28	40	42	46	70	43	60	
HCV NAT	15	16	31	10	46	15	20	16	14	12	
Syphilis	41	64	59	15	37	21	27	23	36	26	
HTLV	5	20	12	6	4	4	4	2	4	2	
WNV	0	0	2	0	0	0	3	0	0	1	
Other	20	24	24	18	17	24	35	99	119	81	



2024 International Eye Banking Statistics

Reasons Tissue Intended for Surgery Was Not Released

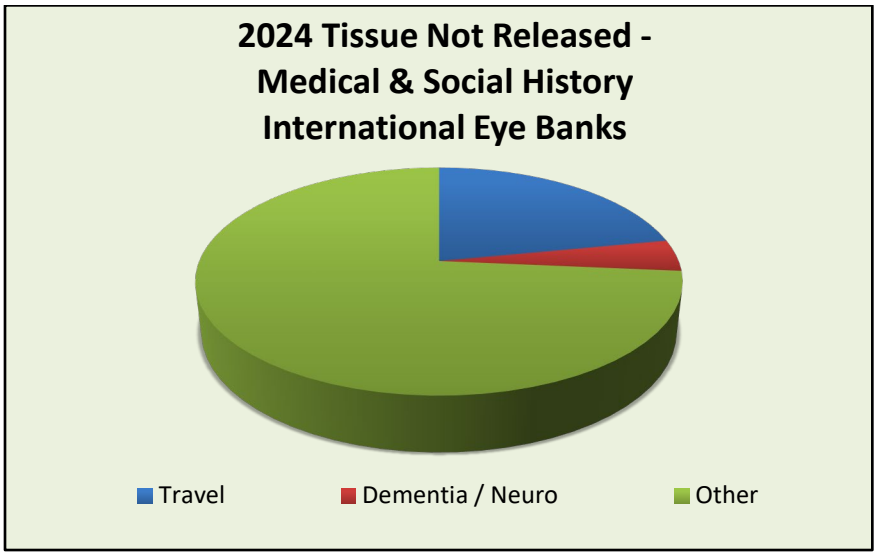




2024 International Eye Banking Statistics

Reasons Tissue Intended for Surgery Was Not Suitable

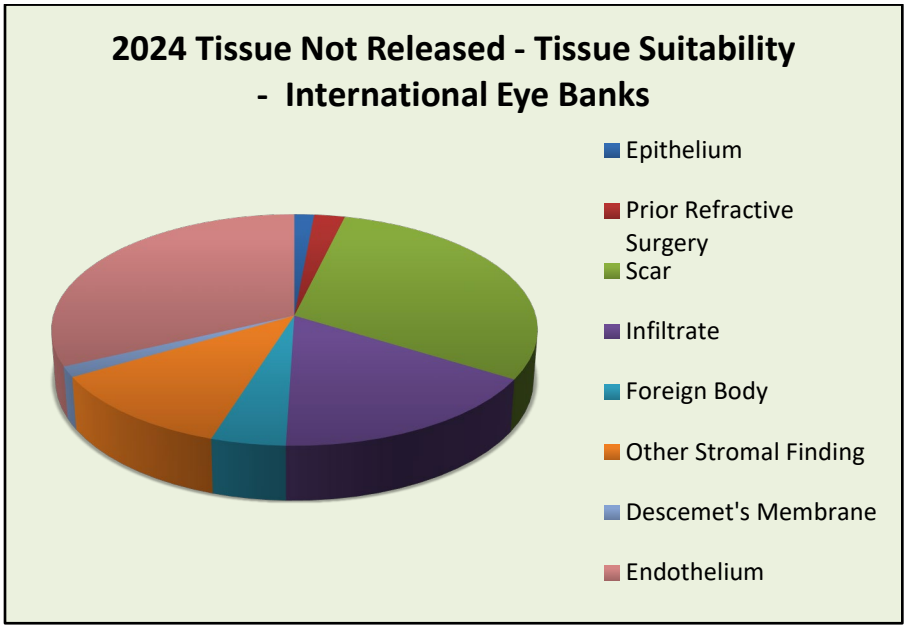
Corneas Not Released for Transplant (Medical Records) - International Eye Banks											
Not Released - Med Rec / Autopsy	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Dementia/Neuro	48	171	161	191	101	64	39	101	97	118	
Sepsis (Cultures)	26	50	46	80	40	39	24	46	49	67	
Sepsis (Other)	111	140	145	114	146	129	108	258	214	204	
Plasma Dilution	4	10	10	6	9	2	4	0	12	4	
Unknown COD	28	24	12	10	30	20	27	10	18	16	
Other	106	280	406	317	309	213	237	432	274	255	



Corneas Not Released for Transplant (Med Soc Hx) - International Eye Banks											
Not Released - Med Soc	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Travel	16	24	38	24	40	38	38	65	58	59	
Dementia/Neuro	40	19	24	43	20	6	14	8	10	12	
Other	126	215	235	211	191	143	126	231	178	198	

2024 International Eye Banking Statistics

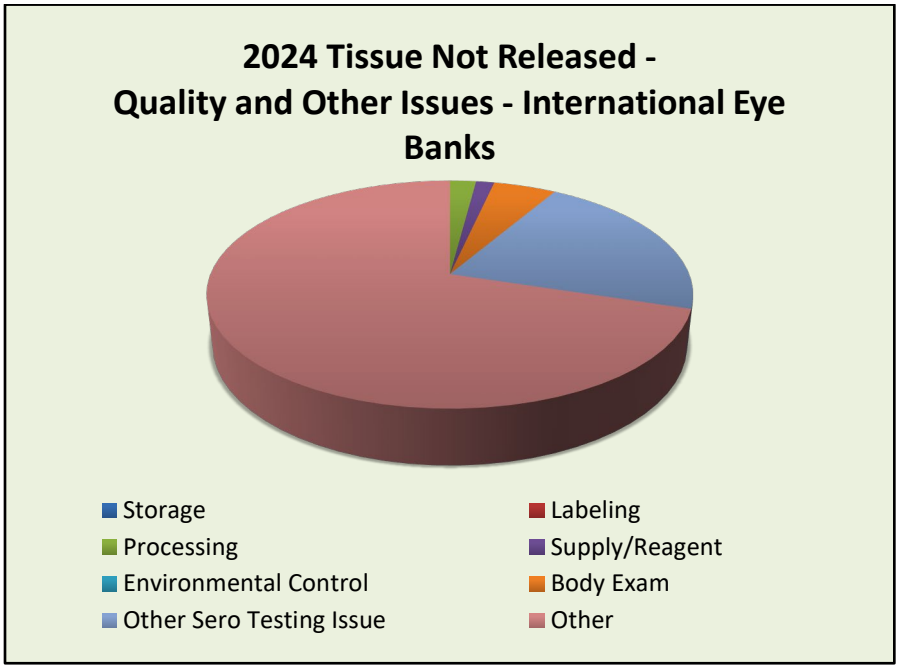
Tissue Suitability Reasons Tissue Was Not Released



Corneas Not Released for Transplant (Tissue Suitability) - International Eye Banks											
Not Released - Tissue Suitability	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Epithelium	45	54	37	10	18	13	7	40	5	9	
Prior Refractive Surgery	33	40	21	9	12	2	6	15	3	14	
Scar	238	282	328	156	124	44	88	58	79	183	
Infiltrate	106	164	85	106	96	89	81	94	104	102	
Foreign Body	21	25	23	6	2	0	12	34	37	27	
Other Stromal Finding	77	77	119	48	43	35	34	16	22	71	
Descemet's Membrane	16	35	10	23	19	12	5	4	4	9	
Endothelium	320	448	364	425	476	197	247	222	210	195	

2024 International Eye Banking Statistics

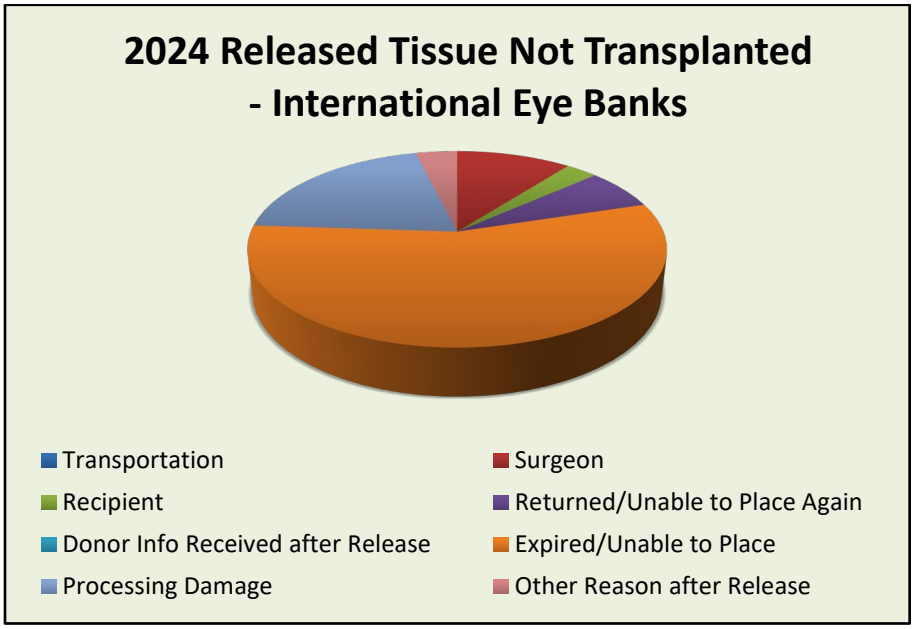
Quality Reasons Tissue Intended for Surgery Was Not Released



Corneas Not Released for Transplant (Quality) - International Eye Banks											
Not Released - Quality Issues / Other	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Storage Issue	23	13	4	3	10	6	13	2	8	0	
Labeling Issue	9	10	0	0	0	5	0	0	0	0	
Processing Issue (not released)	8	11	8	8	19	18	18	20	21	10	
Supply / Reagent Issue	5	5	6	3	7	6	14	5	5	7	
Environmental Control Issue	15	31	11	4	0	6	6	0	4	0	
Body Exam	16	37	98	110	94	40	32	30	27	24	
Other Sero Testing Issue	24	83	47	77	80	67	105	96	104	104	
Other Issue	775	770	678	554	454	267	166	132	179	341	

2024 International Eye Banking Statistics
Reasons Released Tissues Were Not Transplanted

Reasons Released Tissues Were Not Transplanted	2022		2023		2024	
Transportation Issue	0	0.0%	1	0.4%	0	0.0%
Surgeon Issue	27	12.2%	27	11.1%	25	10.6%
Recipient Issue	3	1.4%	4	1.6%	7	3.0%
Returned and Unable to Place Again	16	7.2%	13	5.3%	16	6.8%
Donor Information Not Available at the Time of Tissue Release	1	0.5%	0	0.0%	0	0.0%
Expired or Unable to Place Tissue	136	61.5%	126	51.6%	133	56.6%
Tissue Damaged During Processing	47	21.3%	60	24.6%	48	20.4%
Other Reason After Release of Tissue	14	6.3%	16	6.6%	9	3.8%
Total eyes/corneas released for transplant, but not used for transplant	**221**		**244**		**235**	



Corneas Released but Not Transplanted - International Eye Banks											
Released But Not Transplanted	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trends**
Transport Issue	2	8	1	2	2	3	3	0	1	0	
Surgeon Issue	53	24	46	38	52	17	22	27	27	25	
Recipient Issue	6	6	6	5	9	4	8	3	4	7	
Returned, Unable to Place Again	24	32	35	26	41	11	22	16	13	16	
Donor Info Received After Release	2	7	2	0	0	0	1	1	0	0	
Expired, Unable to Place	234	215	219	156	112	167	193	136	126	133	
Processing Damage After Release	41	55	47	52	46	40	72	47	60	48	
Other Reason After Release	24	42	44	48	42	23	58	14	16	9	

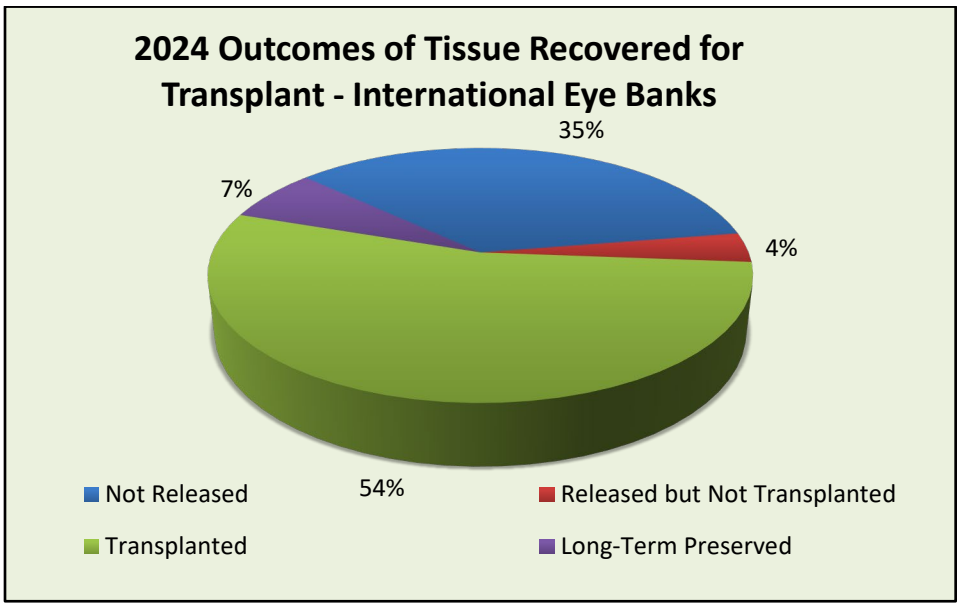
2024 International Eye Banking Statistics
Outcomes of Tissue Recovered for Transplant

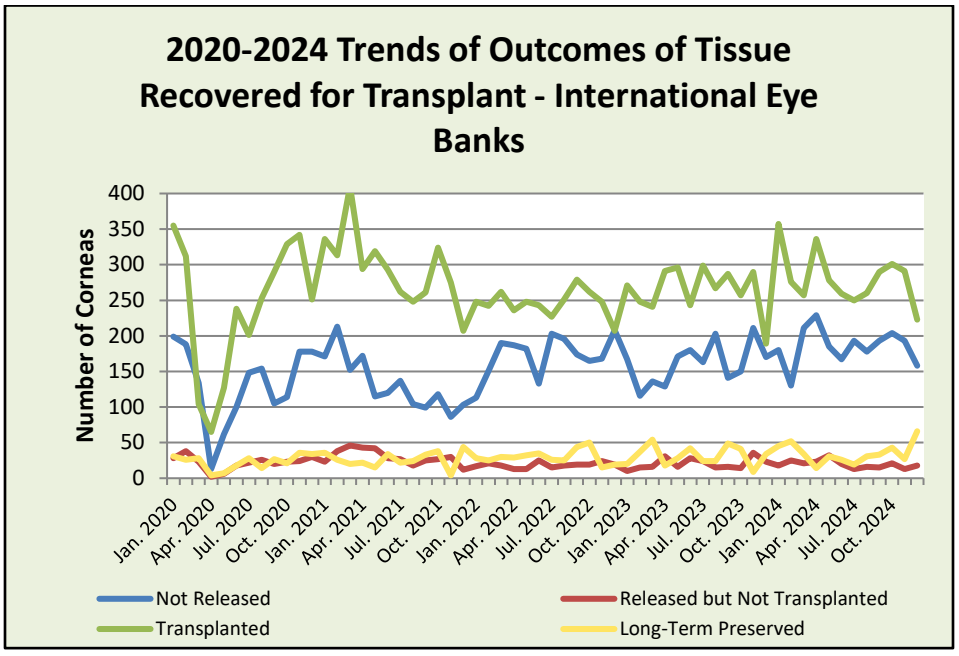
Donations	2022	2023	2024	% Change
Eye Banks Reported	11	11	12	9.1%
Total Whole Eyes and Corneas Donated	5,669	5,960	6,433	7.9%
Total Number of Donors	2,851	3,000	3,237	7.9%
Distribution	**2022**	**2023**	**2024**	**% Change**
Intermediate-Term Preserved Corneas	2,953	3,179	3,378	6.3%
Sclera	1,438	1,496	1,703	13.8%
Long-Term Preserved Corneas	394	320	294	(8.1%)
Research	266	299	383	28.1%
Training	982	1,223	1,184	(3.2%)

Outcomes of Corneas Recovered for Transplant Use - International Eye Banks											
Month	Corneas Recovered for Transplant	Corneas Segmented	Corneal Segments Produced	Not Released		Released but Not Transplanted		Whole Corneas and Segments Transplanted		Preserved Long-Term	
Jan. 2024	600	0	0	180	30.0%	18	3.0%	357	59.5%	45	7.5%
Feb. 2024	483	0	0	130	26.9%	25	5.2%	276	57.1%	52	10.8%
Mar. 2024	523	0	0	211	40.3%	21	4.0%	257	49.1%	34	6.5%
Apr. 2024	602	0	0	229	38.0%	23	3.8%	336	55.8%	14	2.3%
May 2024	526	0	0	185	35.2%	32	6.1%	278	52.9%	31	5.9%
Jun. 2024	472	0	0	167	35.4%	20	4.2%	259	54.9%	26	5.5%
Jul. 2024	475	0	0	193	40.6%	13	2.7%	250	52.6%	19	4.0%
Aug. 2024	485	0	0	178	36.7%	16	3.3%	260	53.6%	31	6.4%
Sep. 2024	531	0	0	193	36.3%	15	2.8%	290	54.6%	33	6.2%
Oct. 2024	569	0	0	204	35.9%	21	3.7%	301	52.9%	43	7.6%
Nov. 2024	524	0	0	193	36.8%	13	2.5%	291	55.5%	27	5.2%
Dec. 2024	465	0	0	158	34.0%	18	3.9%	223	48.0%	66	14.2%
2022 Total	5,601	2	3	2,070	37.0%	221	3.9%	2,953	52.7%	358	6.4%
2023 Total	5,740	0	0	1,937	33.7%	244	4.3%	3,179	55.4%	380	6.6%
2024 Total	6,255	0	0	2,221	35.5%	235	3.8%	3,378	54.0%	421	6.7%
2024 Avg.	521	0	0	185	N/A	20	N/A	282	N/A	35	N/A
Std. Dev.	48	0.00	0.0	26	3.9%	5	1.0%	37	3.2%	14	3.1%

*Percentages read from this table should be read as "of the tissue recovered with transplant intent"

2024 International Eye Banking Statistics
Outcomes of Tissues Recovered for Transplant

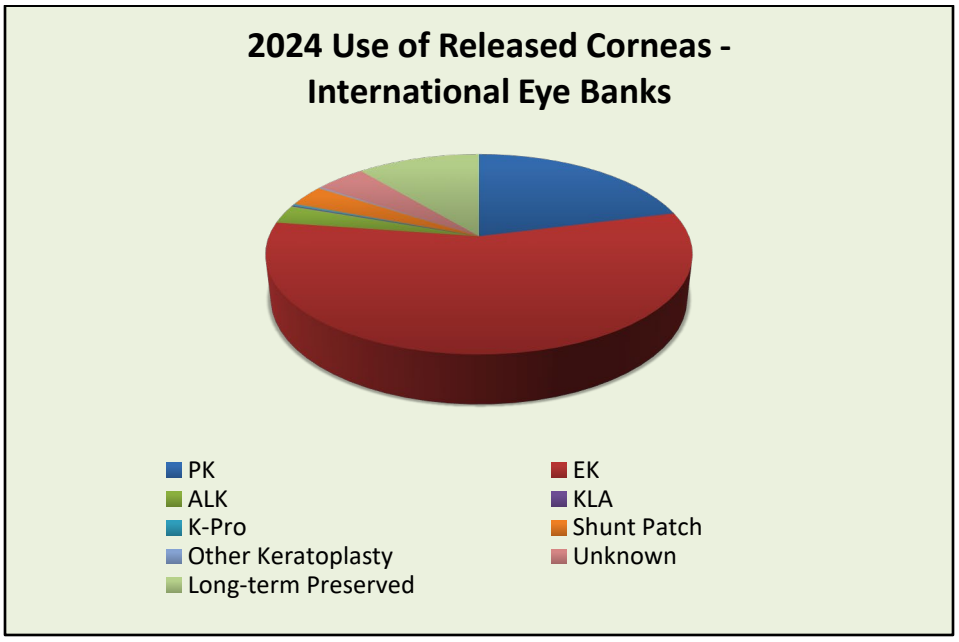




General Outcomes of Corneas Recovered for Transplant Use - International Eye Banks											
Outcome	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**Trend**
Not Released	2,217	2,838	2,692	2,492	2,392	1,573	1,590	2,070	1,937	2,221	
Released but Not Transplanted	380	379	380	304	279	260	359	221	244	235	
Transplanted	3,500	4,035	3,570	3,631	3,682	2,867	3,542	2,953	3,179	3,378	
Long-Term Preserved	307	81	111	135	202	274	318	358	380	421	

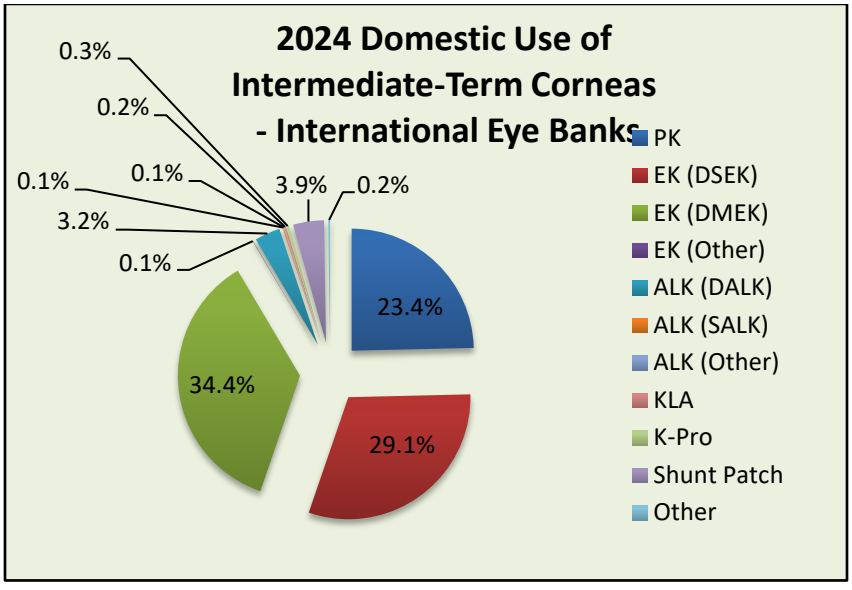
2024 International Eye Banking Statistics
Use of Donated Tissues

Use of Donated Tissue	2020	2021	2022	2023	2024
Corneal Grafts Total	3,141	3,860	3,310	3,559	3,799
Penetrating Keratoplasty	763	953	810	749	799
Anterior Lamellar Keratoplasty	105	104	103	99	113
Endothelial Keratoplasty	1,693	1,856	1,678	1,870	2,138
Keratolimbal Allograft	0	0	4	5	7
Keratoprosthesis (K-Pro)	12	12	13	29	11
Glaucoma Shunt Patch or other non-keratoplasty use	167	238	101	116	130
Other keratoplasty (experimental surgery)	3	3	2	0	8
Unknown or Unspecified	124	374	243	311	172
Sclera	1,332	1,315	1,438	1,496	1,703
Long-Term Preserved Corneas	235	381	394	320	294
Keratoplasty	4	2	6	10	6
Glaucoma Shunt Patching	166	355	339	283	252
Other Surgical Uses	65	24	49	27	36
Research	86	199	266	299	383
Training	1,431	1,239	982	1,223	1,184



2024 International Eye Banking Statistics
Intermediate-Term Tissue Distribution

Intermediate-Term Tissue Distribution of Source Eye Bank Corneas for Domestic Use			
	2022	**2023**	**2024**
Intermediate-term preserved corneas, corneal segments or whole eyes transplanted **domestically** for:	**2,932**	**3,152**	**3,355**
PK	**794**	**728**	**784**
EK	**1,674**	**1,865**	**2,130**
DSEK, DSAEK, DLEK	833	847	975
DMEK or DMAEK	841	1,018	1,153
PDEK	0	0	0
Other EK	0	0	2
ALK	**103**	**98**	**113**
DALK (Deep Anterior Lamellar Keratoplasty)	98	94	107
SALK (Superficial Anterior Lamellar Keratoplasty)	0	2	4
Other ALK (e.g., peripheral, eccentric, etc.)	5	2	2
KLA	4	5	7
Keratoprosthesis (K-Pro)	12	29	11
Glaucoma shunt patch or other non-keratoplasty use	100	116	130
Other Keratoplasty (e.g., experimental surgery type)	2	0	8
Unknown or Unspecified	243	311	172
Total intermediate-term preserved corneas, corneal segments, and whole eyes used for KERATOPLASTY	**2,852**	**3,063**	**3,248**
Total intermediate-term preserved corneas, corneal segments, and whole eyes used for TRANSPLANT	**2,952**	**3,179**	**3,378**



2024 International Eye Banking Statistics

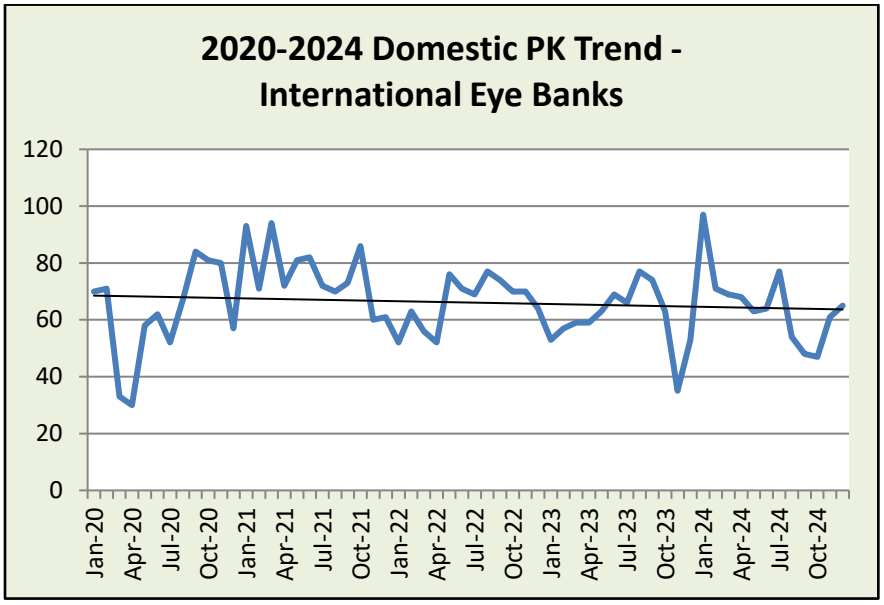
Domestic Surgery Use of Intermediate-Term Preserved Tissue

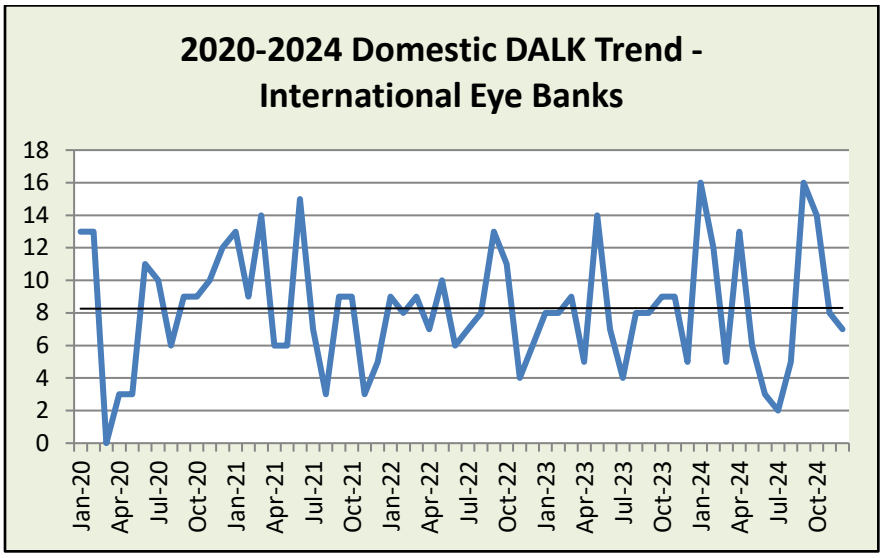
Surgery Type (Domestically Distributed Corneas) - International Eye Banks												
Month	PK	EK (DSEK)	EK (DMEK)	EK (Other)	ALK (DALK)	ALK (SALK)	ALK (Other)	KLA	K-Pro	Shunt Patch	Other	Unknown
Jan. 2024	27.2%	27.5%	32.5%	0.0%	4.5%	0.0%	0.0%	0.3%	0.0%	4.8%	0.0%	3.4%
Feb. 2024	26.2%	28.4%	30.3%	0.0%	4.4%	0.0%	0.0%	0.4%	0.7%	4.1%	0.0%	5.5%
Mar. 2024	27.5%	32.3%	29.1%	0.0%	2.0%	0.0%	0.0%	0.0%	0.4%	2.0%	0.0%	6.8%
Apr. 2024	20.2%	24.4%	33.3%	0.0%	3.9%	0.0%	0.0%	0.3%	0.0%	3.3%	0.0%	14.6%
May 2024	23.7%	29.7%	38.7%	0.0%	2.3%	0.4%	0.0%	0.0%	0.0%	1.9%	0.4%	3.0%
Jun. 2024	24.7%	29.3%	31.3%	0.0%	1.2%	0.0%	0.0%	0.0%	0.4%	5.4%	0.0%	7.7%
Jul. 2024	30.8%	25.2%	37.6%	0.8%	0.8%	0.4%	0.0%	0.0%	0.0%	2.8%	0.4%	1.2%
Aug. 2024	20.8%	36.9%	31.9%	0.0%	1.9%	0.0%	0.0%	0.0%	0.4%	4.2%	1.5%	2.3%
Sep. 2024	16.6%	32.1%	40.7%	0.0%	5.5%	0.0%	0.0%	0.3%	0.7%	2.4%	0.0%	1.7%
Oct. 2024	15.6%	34.9%	36.5%	0.0%	4.7%	0.3%	0.0%	0.7%	1.0%	4.3%	0.3%	1.7%
Nov. 2024	21.0%	27.1%	39.2%	0.0%	2.7%	0.0%	0.7%	0.3%	0.0%	5.2%	0.3%	3.4%
Dec. 2024	29.1%	20.6%	30.0%	0.0%	3.1%	0.4%	0.0%	0.0%	0.4%	6.3%	0.0%	9.9%
2022 Avg.	27.1%	28.4%	28.7%	0.0%	3.3%	0.0%	0.2%	0.1%	0.4%	3.4%	0.1%	8.3%
2023 Avg.	23.1%	26.9%	32.3%	0.0%	3.0%	0.1%	0.1%	0.2%	0.9%	3.7%	0.0%	9.9%
2024 Avg.	23.4%	29.1%	34.4%	0.1%	3.2%	0.1%	0.1%	0.2%	0.3%	3.9%	0.2%	5.1%
Std. Dev.	4.8%	4.6%	4.1%	0.2%	1.5%	0.2%	0.2%	0.2%	0.3%	1.4%	0.4%	4.0%
2024 Totals	784	975	1,153	2	107	4	2	7	11	130	8	172
*Percentages read from this table should be read as "of the tissue distributed for transplant use domestically"												

Domestic PK vs. DSAEK vs. DMEK - International Eye Banks											
Surgery Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trend
PK	1,101	1,107	1,046	1,003	912	745	915	794	728	784	
DSEK	1,097	1,237	1,055	1,078	1,117	1,004	999	833	847	975	
DMEK	381	592	615	744	831	671	843	841	1,018	1,153	
Other EK	N/A	N/A	2	3	0	1	1	0	0	2	
DALK	183	128	146	160	152	99	99	98	94	107	
SALK	0	1	10	11	15	2	2	0	2	4	
Other ALK	2	6	9	9	10	4	3	5	2	2	
KLA	8	4	6	3	3	0	0	4	5	7	
K-Pro	15	24	10	11	18	12	12	12	29	11	
Shunt Patch	239	311	228	243	239	167	238	100	116	130	
Other	1	2	3	8	1	3	3	2	0	8	
Unknown	57	260	164	262	248	124	374	243	311	172	

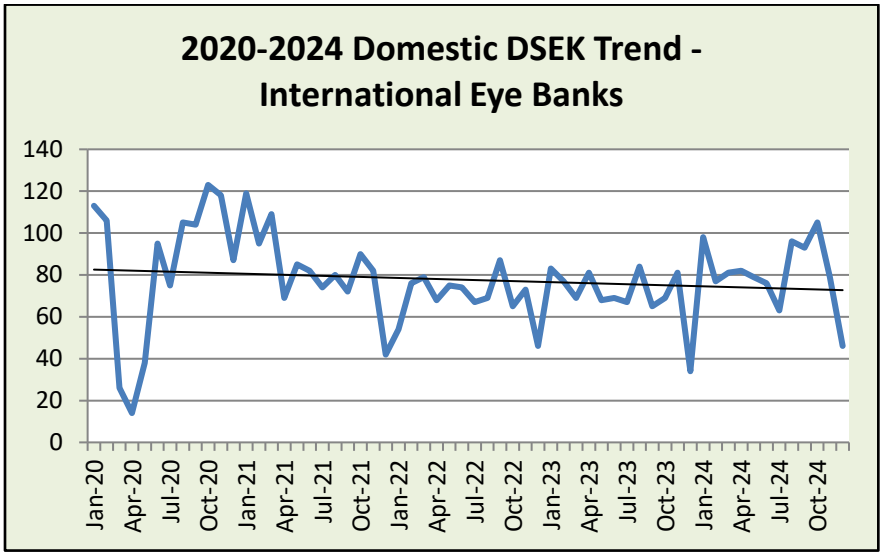
2024 International Eye Banking Statistics

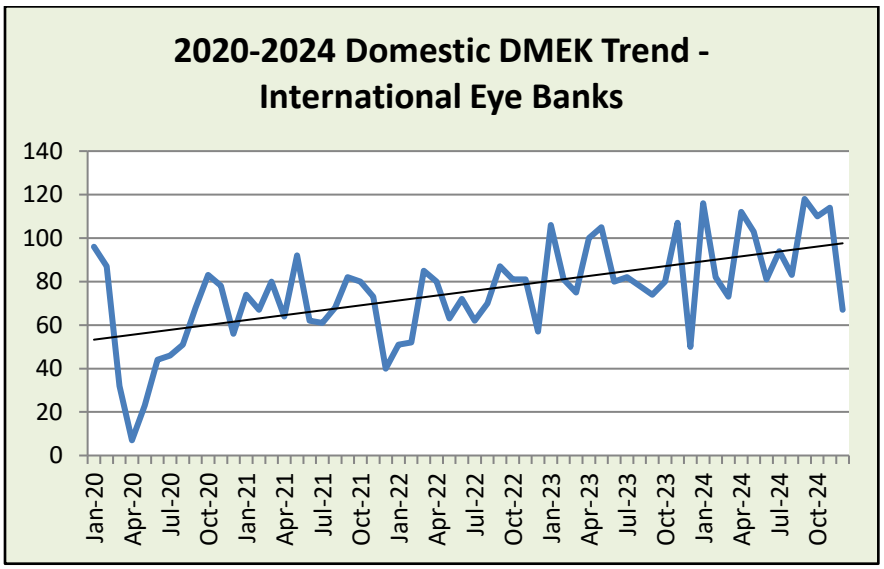
Trends of Domestic Use





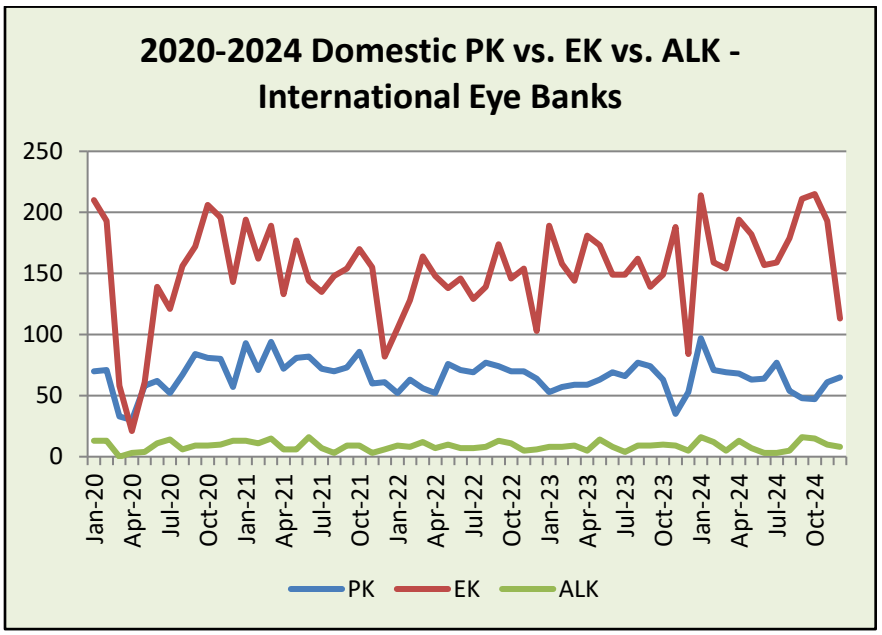
2024 International Eye Banking Statistics
Trends of Domestic Use

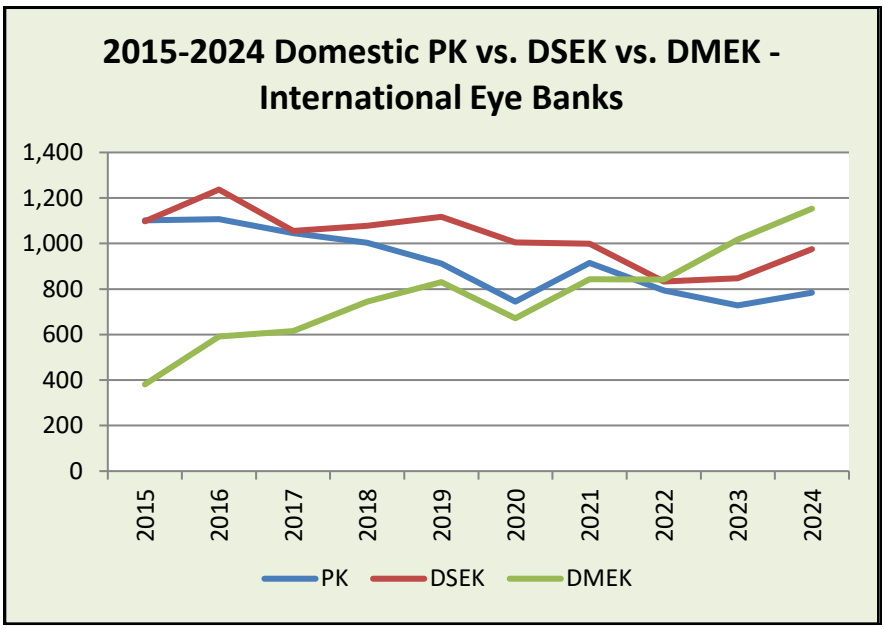




2024 International Eye Banking Statistics

Domestic Surgery Use of Intermediate-Term Preserved Tissue

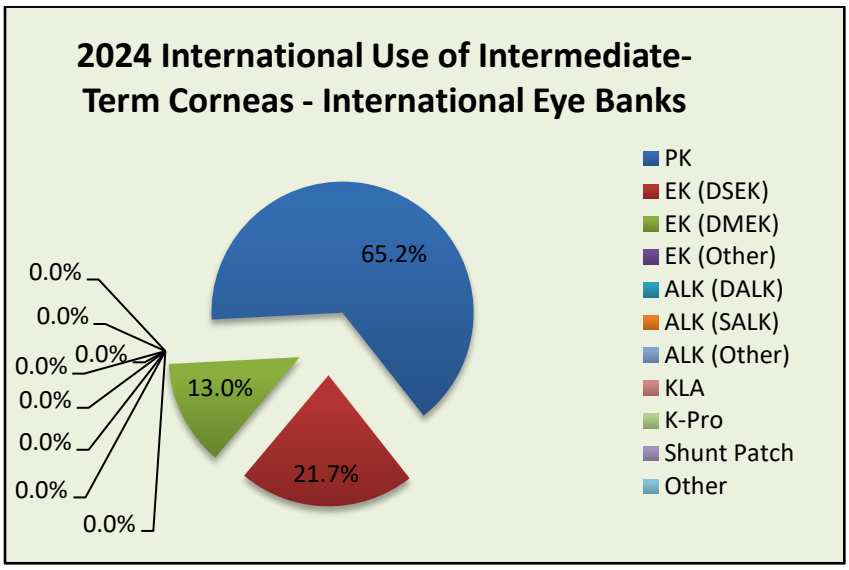




2024 International Eye Banking Statistics

International Surgery Use of Intermediate-Term Preserved Tissue

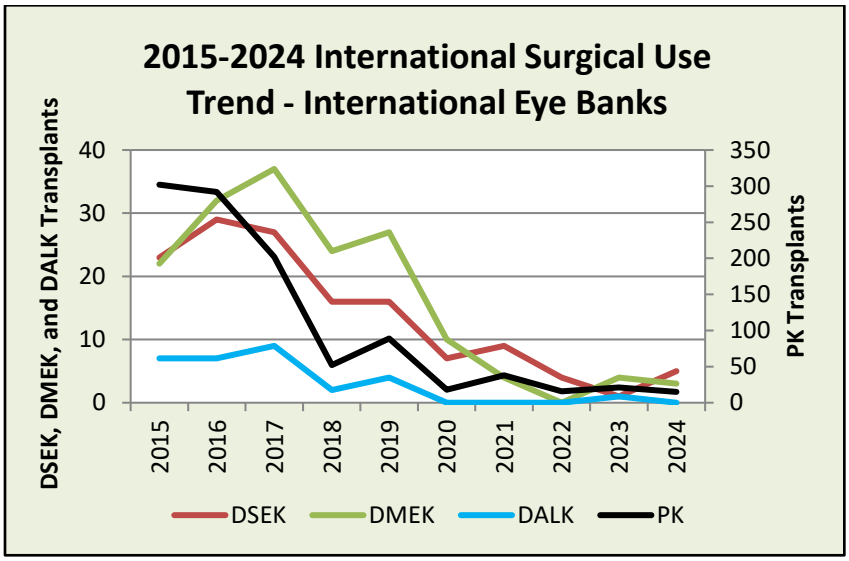
International Use of Intermediate-Term Corneas – International Eye Banks			
	2022	**2023**	**2024**
Intermediate-term preserved corneas, corneal segments or whole eyes transplanted for:	**21**	**27**	**23**
PK	**16**	**21**	**15**
EK	**4**	**5**	**8**
DSEK, DSAEK, DLEK	4	1	5
DMEK or DMAEK	0	4	3
PDEK	0	0	0
Other EK	0	0	0
ALK	**0**	**1**	**0**
DALK (Deep Anterior Lamellar Keratoplasty)	0	1	0
SALK (Superficial Anterior Lamellar Keratoplasty)	0	0	0
Other ALK (e.g., peripheral, eccentric, etc.)	0	0	0
KLA	0	0	0
Keratoprosthesis (K-Pro)	0	0	0
Glaucoma shunt patch or other non-keratoplasty use	1	1	0
Other Keratoplasty (e.g., experimental surgery type)	0	0	0
Unknown or Unspecified	0	0	0
Total intermediate-term preserved corneas, corneal segments, and whole eyes used for KERATOPLASTY	**2,852**	**3,063**	**3,063**
Total intermediate-term preserved corneas, corneal segments, and whole eyes used for TRANSPLANT	**2,952**	**3,179**	**3,179**

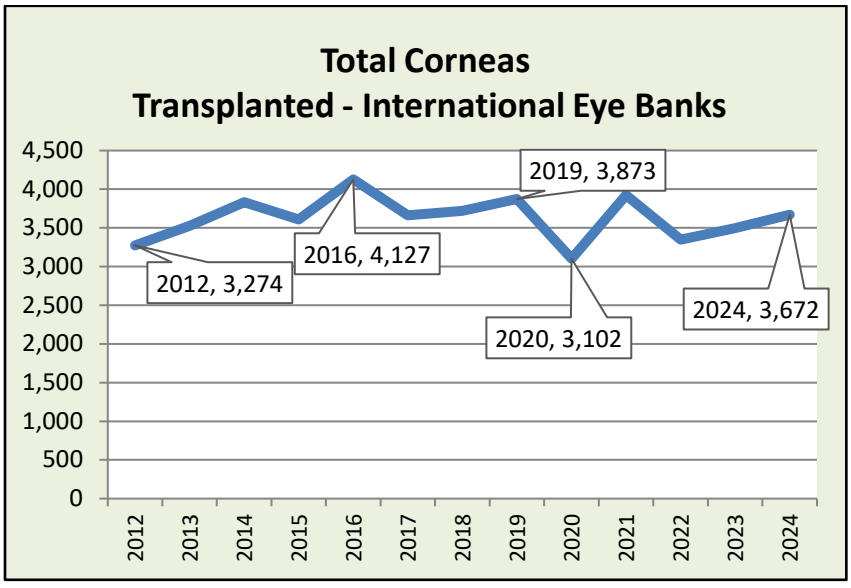


2024 International Eye Banking Statistics

International Surgery Use of Intermediate-Term Preserved Tissue

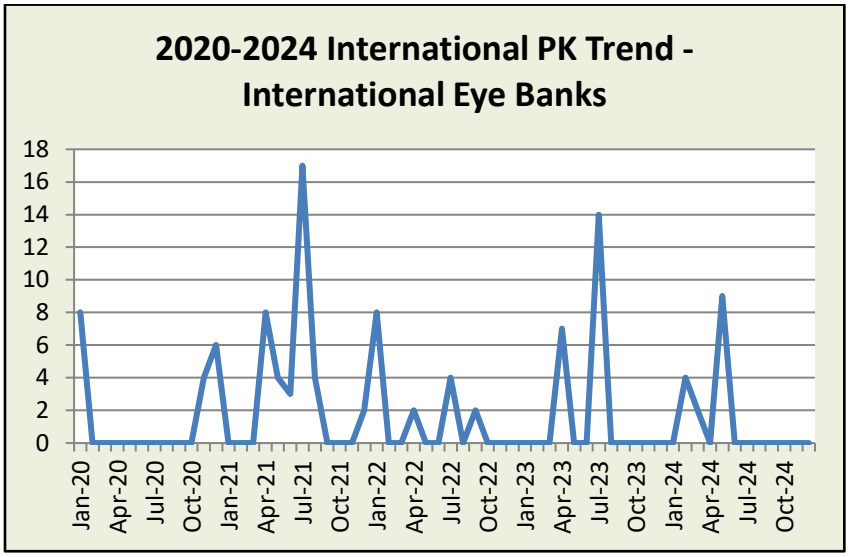
Surgery Type (Internationally Distributed Corneas) - International Eye Banks												
Year	**PK**	**EK (DSEK)**	**EK (DMEK)**	**EK (Other)**	**ALK (DALK)**	**ALK (SALK)**	**ALK (Other)**	**KLA**	**K-Pro**	**Shunt Patch**	**Other**	**Unknown**
2020	18	7	10	0	0	0	0	0	0	0	0	0
2021	38	9	4	0	0	0	0	0	0	2	0	0
2022	16	4	0	0	0	0	0	0	0	1	0	0
2023	21	1	4	0	1	0	0	0	0	0	0	0
2024	15	5	3	0	0	0	0	0	0	0	0	0

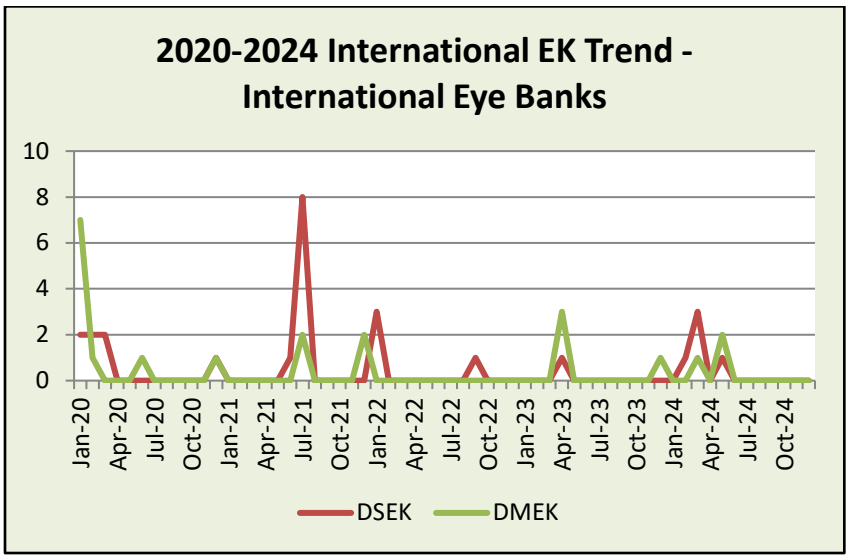




2024 International Eye Banking Statistics

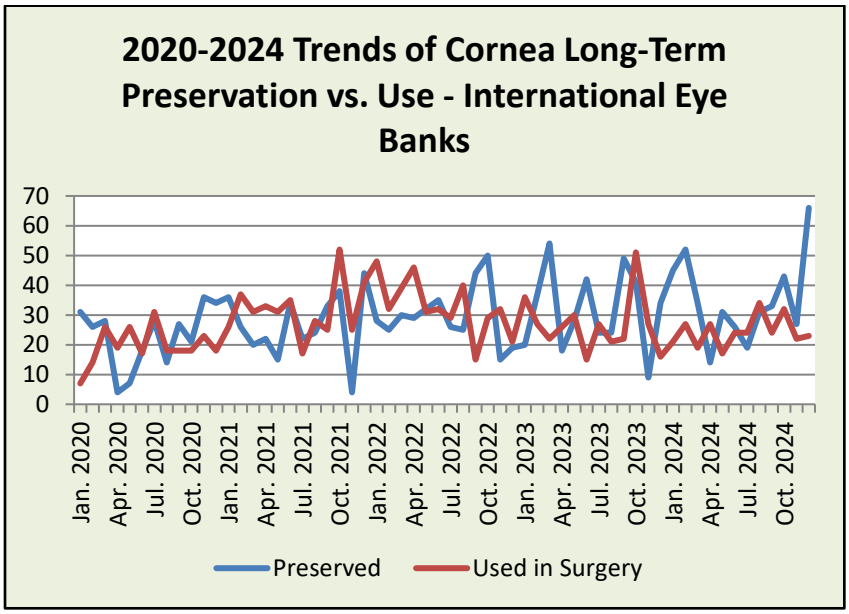
Trends of International Use





2024 International Eye Banking Statistics
Long-Term Tissue Distribution

Long-Term Preserved Tissue Preservation and Distribution			
	2022	**2023**	**2024**
Long-term preserved corneas or whole globes PRESERVED for transplant	358	380	421
Long-term preserved corneas, corneal segments, or whole globes DISTRIBUTED for:	394	320	294
Keratoplasty	6	10	6
Glaucoma Shunt patching	339	283	252
Other Surgical Uses	49	27	36
Long-term preserved corneas, corneal segments, or whole globes FORWARDED to another entity for final distribution	12	17	45
Sclera or sclera segments PRESERVED for transplantation	1,682	1,970	1,858
Sclera or sclera segments DISTRIBUTED for:	1,438	1,496	1,703
Prosthesis following enucleation	44	39	40
Glaucoma shunt patching	1,303	1,367	1,558
Other surgical uses	91	90	105
Sclera or sclera segments FORWARDED to another entity for final distribution	15	0	6

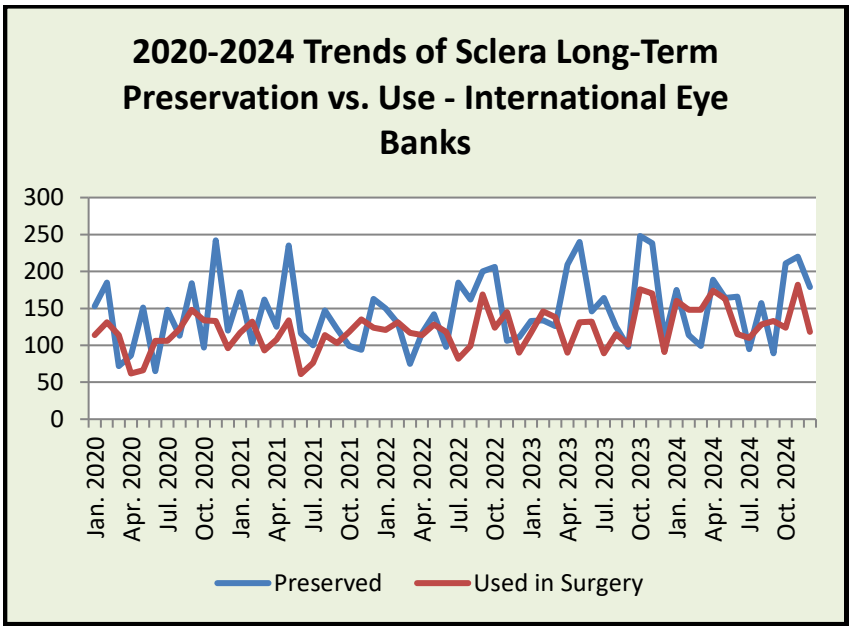


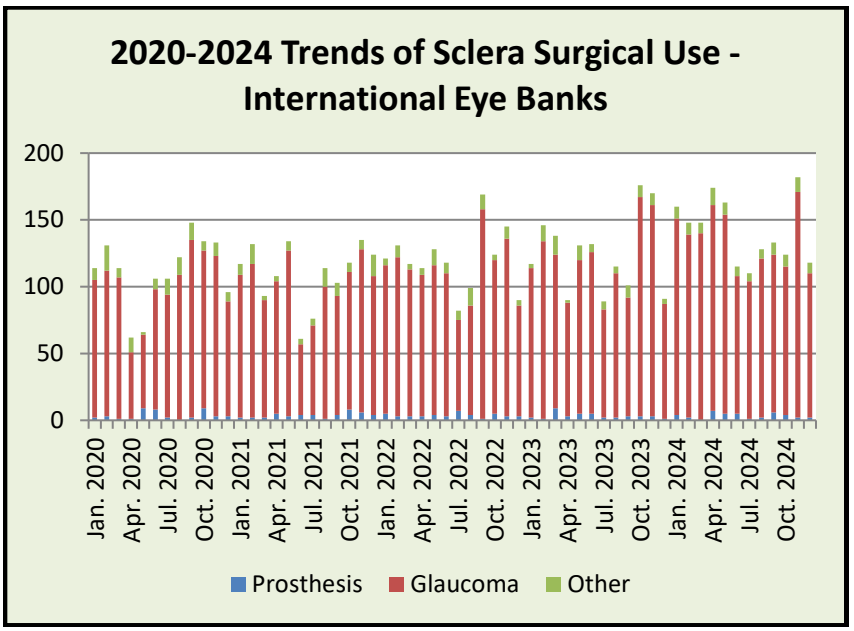
2024 International Eye Banking Statistics
Long-Term Tissue Trends

Long-Term Tissue Trends - International Eye Banks								
Month	Long-Term Preserved Corneas	Long-Term Cornea Use - Keratoplasty	Long-Term Cornea Use - Glaucoma	Long-Term Cornea Use - Other	Scleral Segments Preserved	Sclera Use - Prosthesis	Sclera Use - Glaucoma	Sclera Use - Other
Jan. 2024	45	1	15	5	175	4	147	9
Feb. 2024	52	0	23	4	114	2	137	9
Mar. 2024	34	0	15	4	99	0	140	8
Apr. 2024	14	1	23	3	189	7	154	13
May 2024	31	2	12	3	164	5	149	9
Jun. 2024	26	0	23	1	166	5	103	7
Jul. 2024	19	0	22	2	95	1	103	6
Aug. 2024	31	0	31	3	157	2	119	7
Sep. 2024	33	1	22	1	89	6	118	9
Oct. 2024	43	0	30	2	211	4	111	9
Nov. 2024	27	0	18	4	220	2	169	11
Dec. 2024	66	1	18	4	179	2	108	8
2022 Total	358	6	339	49	1,682	44	1,303	91
2023 Total	380	10	283	27	1,970	39	1,367	90
2024 Total	421	6	252	36	1,858	40	1,558	105
2024 Avg.	35	1	21	3	155	3	130	9
Std. Dev.	14	1	6	1	45	2	22	2

Ocular Tissue Used for Glaucoma Shunt Patching - International Eye Banks											
Ocular Tissue Used for Glaucoma Shunt Patching	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Trends
Long-Term Cornea	102	89	62	62	126	166	355	339	283	252	
Intermediate-Term Cornea	240	313	229	245	239	167	240	101	116	130	
Sclera	611	773	737	893	1,246	1,171	1,170	1,303	1,367	1,558	

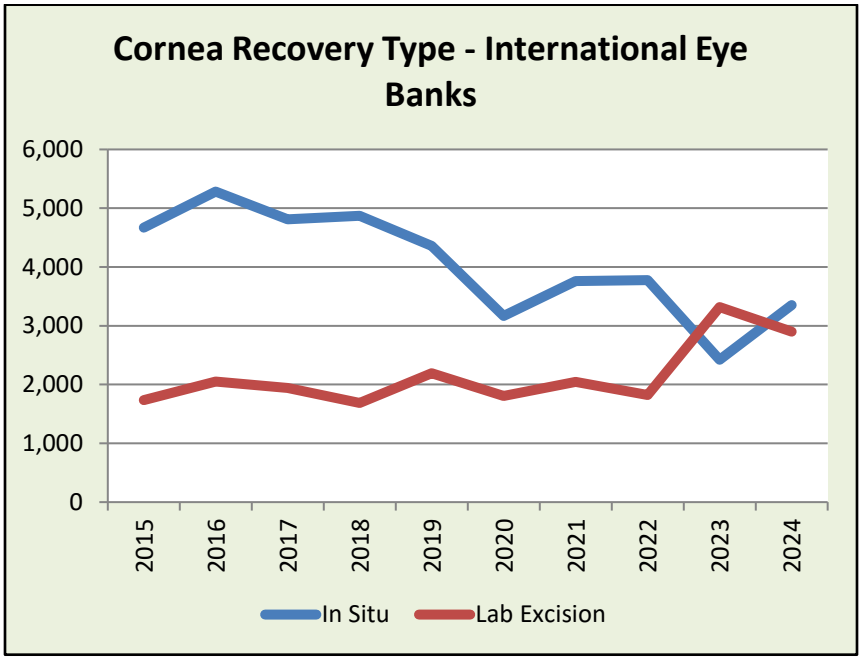
2024 International Eye Banking Statistics
Long-Term Tissue Trends



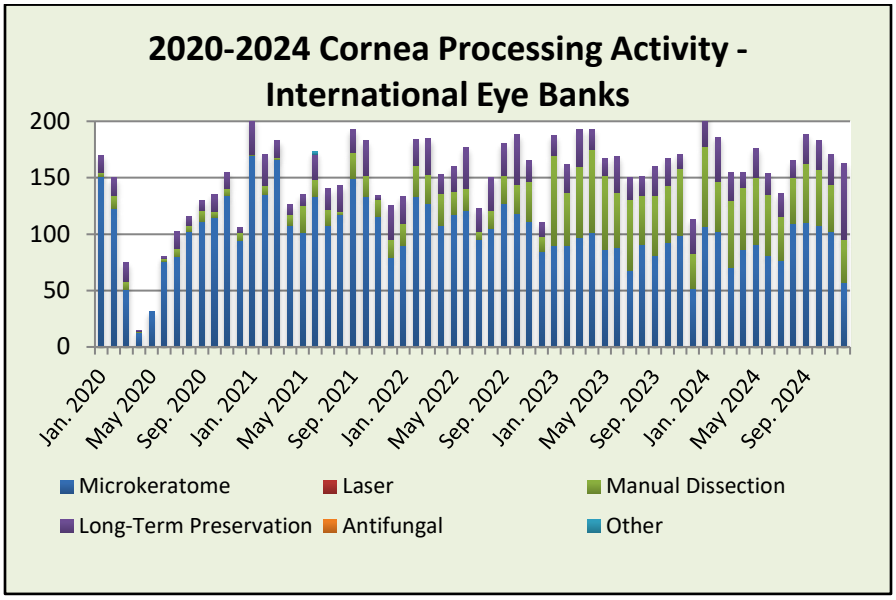


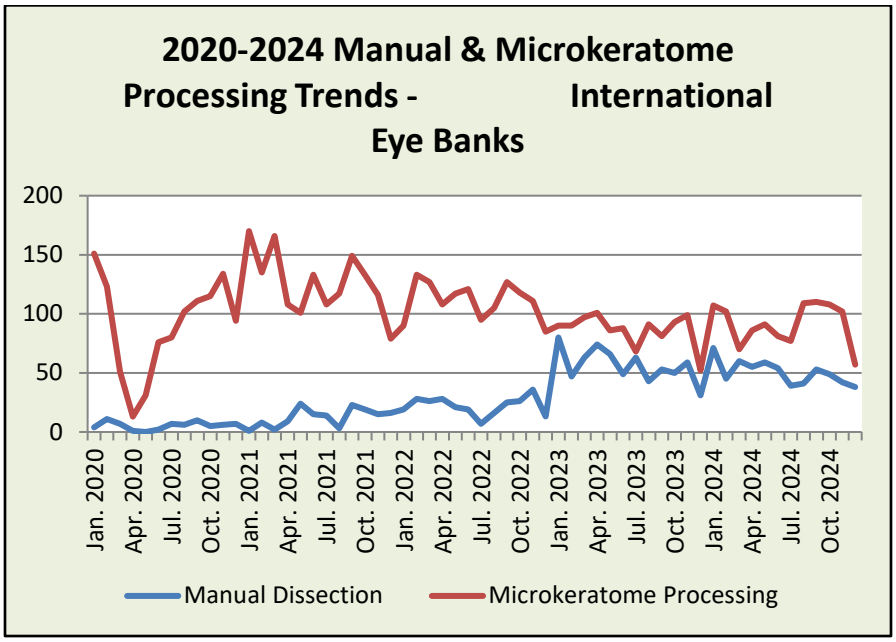
2024 International Eye Banking Statistics
Tissue Processing

Tissue Processing for Transplant – International Eye Banks			
	2022	**2023**	**2024**
Eye Processing (does not include in situ excision)	**1,823**	**3,318**	**2,901**
Processed for corneal preservation only	1,210	2,449	2,067
Processed for sclera preservation	577	800	810
Processed for other ocular materials	36	69	24
Cornea Processing	**1,908**	**1,983**	**2,045**
Processed by microkeratome	1,337	1,036	1,100
Preloaded into a device following microkeratome processing	0	0	0
Processed by laser	0	0	0
Processed by manual dissection	264	678	606
Preloaded into a device following manual dissection	11	62	57
Processed by transfer into long-term preservation	307	269	339
Processing included use of an antifungal in the storage media		0	0
Processed by other methods	0	0	0



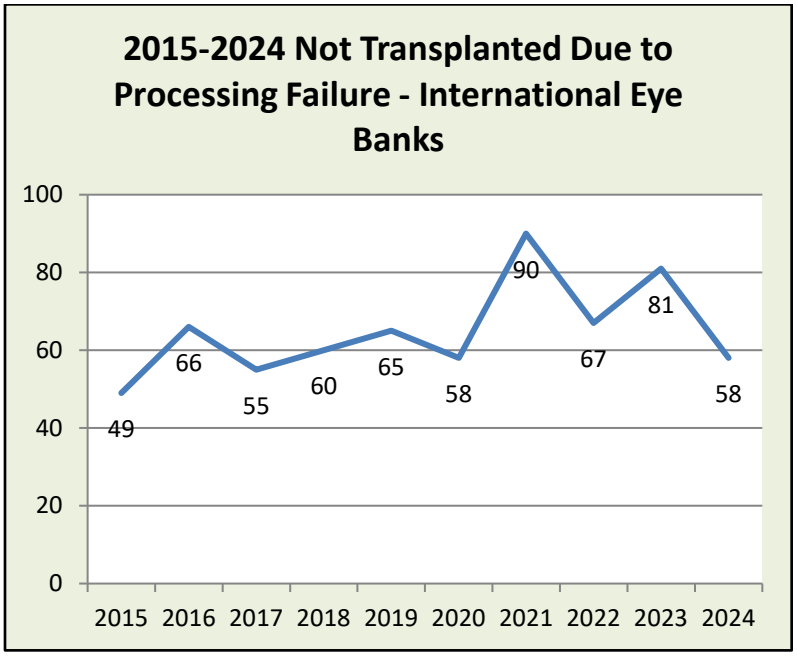
2024 International Eye Banking Statistics
Tissue Processing





2024 International Eye Banking Statistics
Tissue Processing

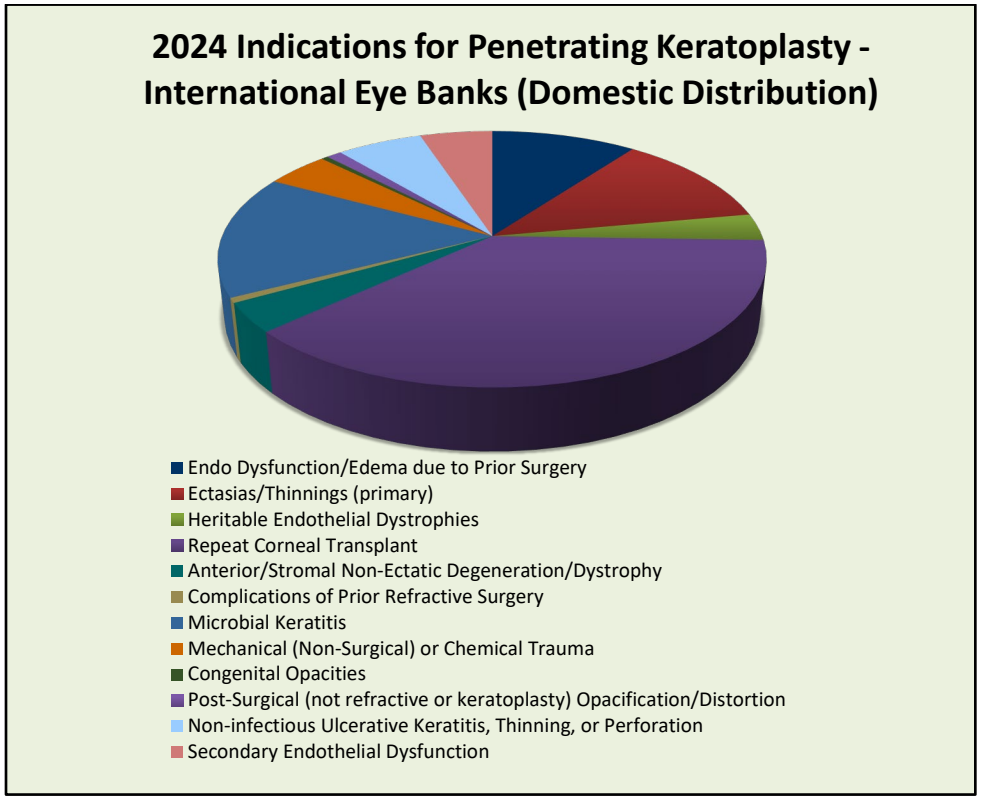
Cornea Processing - International Eye Banks										
Month	Microkeratome Processing	Pre-loaded after Microkeratome Processing	Percent DSAEK Pre-load	Laser Processing	Manual Processing (e.g. DMEK)	Pre-loaded after Manual Processing	Percent DMEK Pre-load	Long-term Preservation	Antifungal Supplementation	Other Cornea Processing
Jan. 2024	107	0	0.0%	0	71	14	19.7%	35	0	0
Feb. 2024	102	0	0.0%	0	45	3	6.7%	39	0	0
Mar. 2024	70	0	0.0%	0	60	0	0.0%	25	0	0
Apr. 2024	86	0	0.0%	0	55	4	7.3%	14	0	0
May 2024	91	0	0.0%	0	59	8	13.6%	26	0	0
Jun. 2024	81	0	0.0%	0	54	1	1.9%	19	0	0
Jul. 2024	77	0	0.0%	0	39	3	7.7%	20	0	0
Aug. 2024	109	0	0.0%	0	41	2	4.9%	15	0	0
Sep. 2024	110	0	0.0%	0	53	2	3.8%	25	0	0
Oct. 2024	108	0	0.0%	0	49	7	14.3%	26	0	0
Nov. 2024	102	0	0.0%	0	42	3	7.1%	27	0	0
Dec. 2024	57	0	0.0%	0	38	10	26.3%	68	0	0
2022 Total	1337	0	0.0%	0	264	11	4.2%	307		0
2023 Avg.	1036	0	0.0%	0	678	62	9.1%	269	0	0
2024 Avg.	1100	0	0.0%	0	606	57	9.4%	339	0	0
2024 Avg.	92	0	0.0%	0	51	5	9.4%	28	0	0
Std. Dev.	18	0	0.0%	0	10	4	7.7%	14	0	0

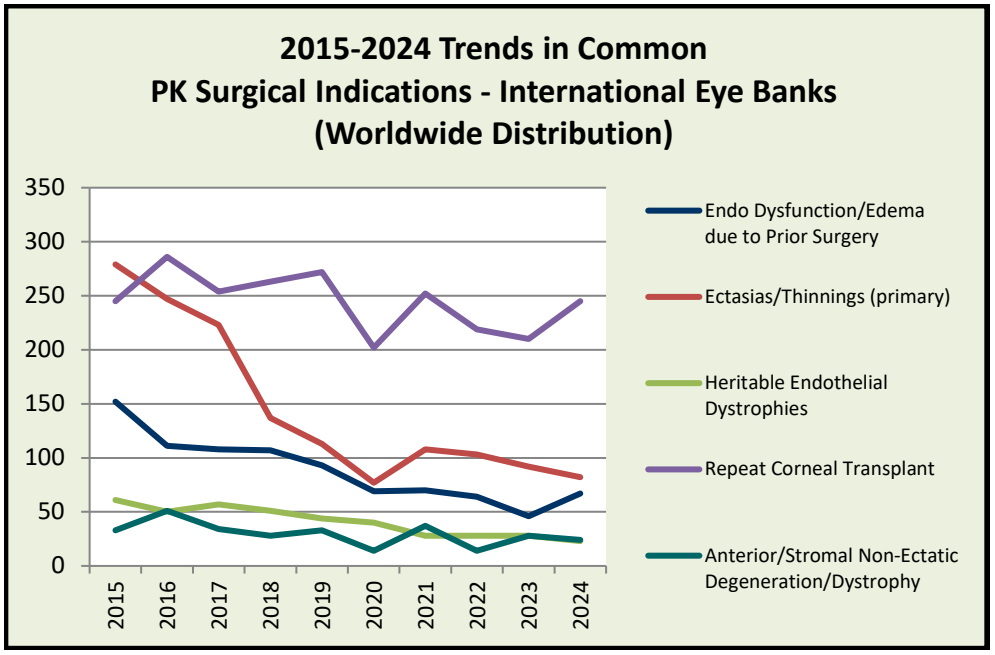


2024 International Eye Banking Statistics
Indications for Corneal Transplant

Indications for Penetrating Keratoplasty 2024	Domestic Use		International Use	
A. Endo Dysfunction / Edema due to Prior Surgery	66	8.4%	1	6.7%
B. Ectasias/Thinnings (primary)	78	9.9%	4	26.7%
C. Heritable Endothelial Dystrophies	22	2.8%	1	6.7%
D. Repeat Corneal Transplant	245	31.3%	0	0%
E. Anterior/Stromal Non-Ectatic Degeneration/Dystrophy	24	3.1%	0	0%
F. Complications of Prior Refractive Surgery	4	0.5%	0	0%
G. Microbial Keratitis	101	12.9%	0	0%
H. Mechanical (non-Surgical) or Chemical Trauma	29	3.7%	0	0%
I. Congenital Opacities	3	0.4%	0	0%
J. Post-surgical (not refractive or keratoplasty) Opacification/Distortion	7	0.9%	0	0%
K. Non-infectious Ulcerative Keratitis, Thinning, or Perforation	39	5.0%	0	0%
L. Secondary Endothelial Dysfunction	33	4.2%	0	0%
Z. Unknown, unreported, or unspecified	133	17.0%	9	60.0%
Total Indications for Penetrating Keratoplasty	**784**		**15**	
Indications for Anterior Lamellar Keratoplasty	**Domestic Use**		**International Use**	
B. Ectasias/Thinnings (primary)	39	34.5%	0	0%
D. Repeat Corneal Transplant	8	7.1%	0	0%
E. Anterior/Stromal Non-Ectatic Degeneration/Dystrophy	8	7.1%	0	0%
F. Complications of Prior Refractive Surgery	2	1.8%	0	0%
G. Microbial Keratitis	9	8.0%	0	0%
H. Mechanical (non-Surgical) or Chemical Trauma	7	6.2%	0	0%
I. Congenital Opacities	2	1.8%	0	0%
J. Post-Surgical (not refractive or keratoplasty) Opacification/Distortion	6	8.0%	0	0%
K. Non-infectious Ulcerative Keratitis, Thinning, or Perforation	9	8.0%	0	0%
Z. Unknown, unreported, or unspecified	23	20.4%	0	0%
Total for Anterior Keratoplasty	**113**		**0**	
Indications for Endothelial Keratoplasty	**Domestic Use**		**International Use**	
A. Endo Dysfunction / Edema due to Prior Surgery	501	23.5%	1	12.5%
C. Heritable Endothelial Dystrophies	848	39.8%	0	0%
D. Repeat Corneal Transplant	342	16.1%	0	0%
L. Secondary Endothelial Dysfunction	83	3.9%	0	0%
Z. Unknown, unreported, or unspecified	356	16.7%	7	87.5%
Total for Endothelial Keratoplasty	**2,130**		**8**	

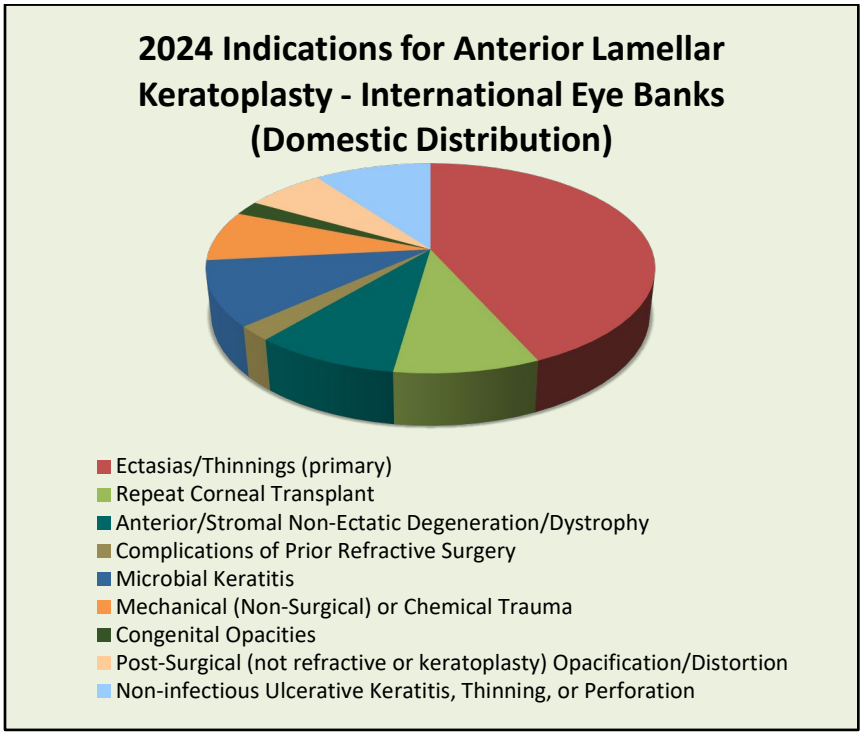
2024 International Eye Banking Statistics
Indications for Corneal Transplant

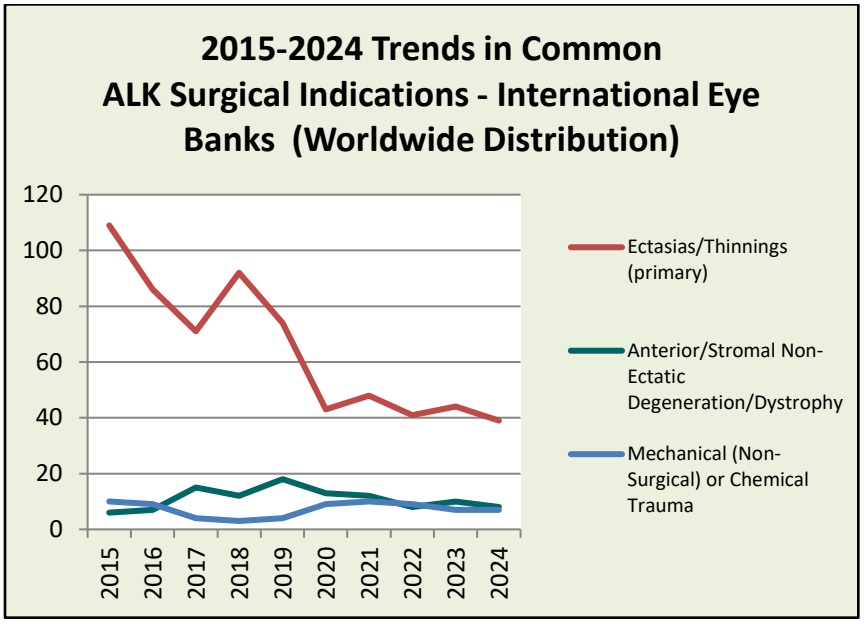




***Worldwide Distribution = Combined Domestic and International Distribution**

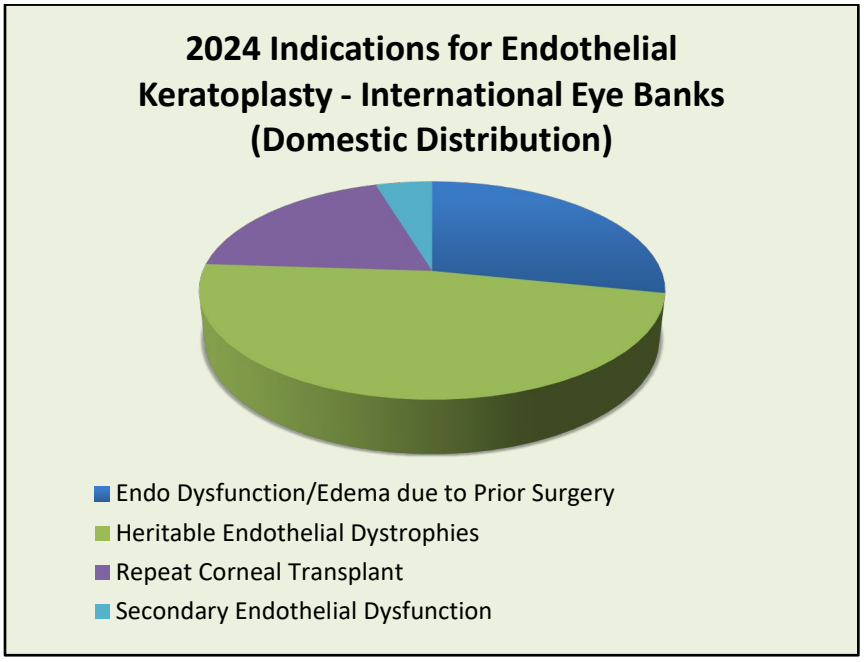
2024 International Eye Banking Statistics
Indications for Corneal Transplant

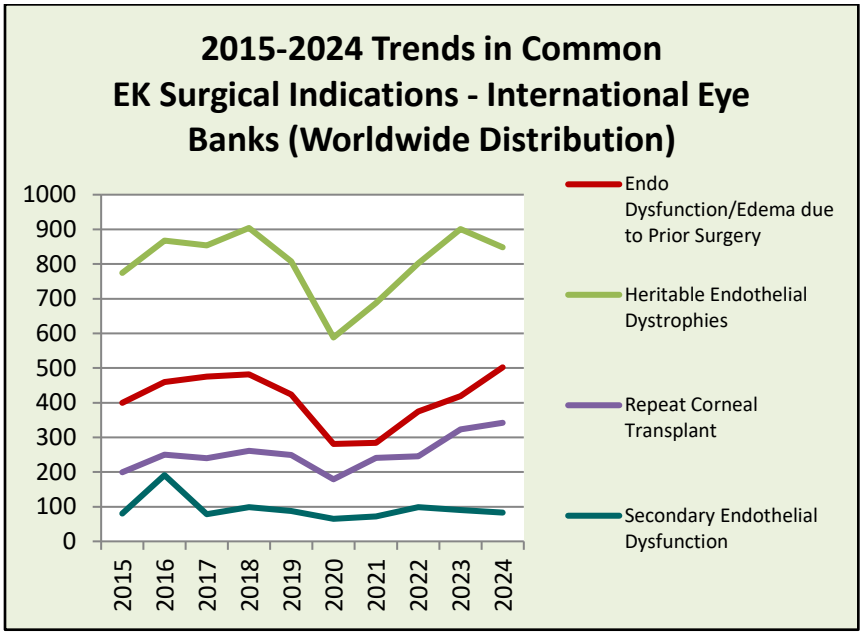




***Worldwide Distribution = Combined Domestic and International Distribution**

2024 Internationl Eye Banking Statistics
Indications for Corneal Transplant





***Worldwide Distribution = Combined Domestic and International Distribution**

2024 International Eye Banking Statistics
Indications for Corneal Transplant

2024 (Domestically Distributed Corneas Only) - International Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	66	78	22	245	24	4	101	29	3	7	39	33	133
EK	501		848	342								83	356
ALK		39		8	8	2	9	7	2	6	9		23

2024 (Internationally Distributed Corneas Only) - International Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	1	4	1	0	0	0	0	0	0	0	0	0	9
EK	1		0	0								0	7
ALK		0		0	0	0	0	0	0	0	0		0

2024 (Combined Domestic & International Distributed Corneas) International Eye Banks													
	A	B	C	D	E	F	G	H	I	J	K	L	Z
PK	67	82	23	245	24	4	101	29	3	7	39	33	142
EK	502		848	342								83	363
ALK		39		8	8	2	9	7	2	6	9		23

A - Endo Dysfunction/Edema due to Prior Surgery

B - Ectasias/Thinnings (primary)

C - Heritable Endothelial Dystrophies

D - Repeat Corneal Transplant

E - Anterior/Stromal Non-Ectatic Degeneration/Dystrophy

F - Complications of Prior Refractive Surgery

G - Microbial Keratitis

H - Mechanical (Non-Surgical) or Chemical Trauma

I - Congenital Opacities

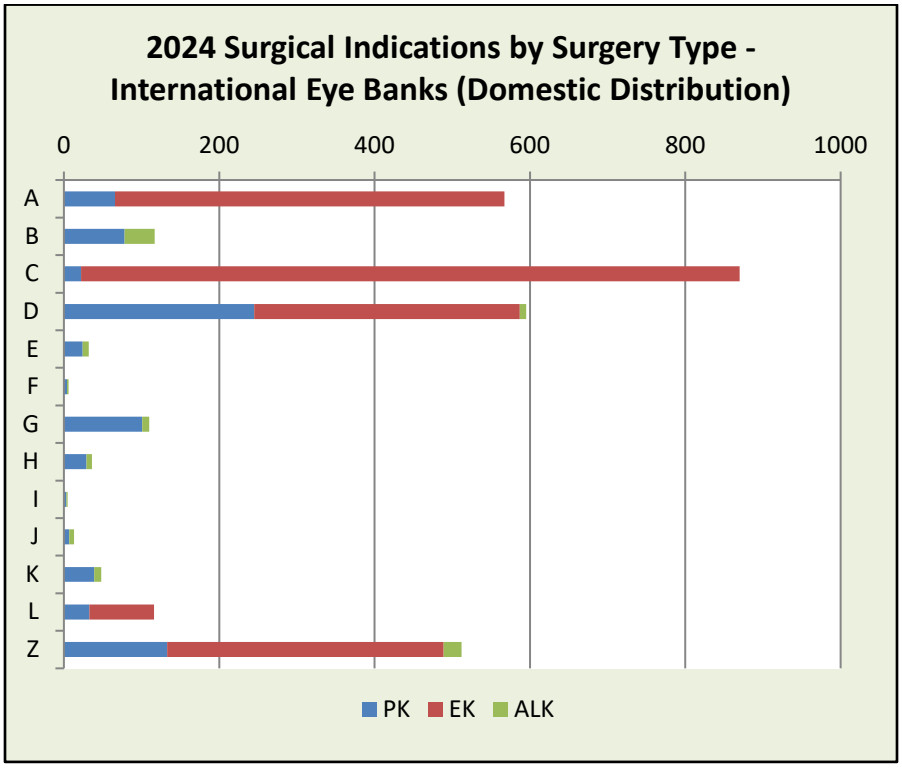
J - Post-surgical (not refractive or keratoplasty) Opacification/Distortion

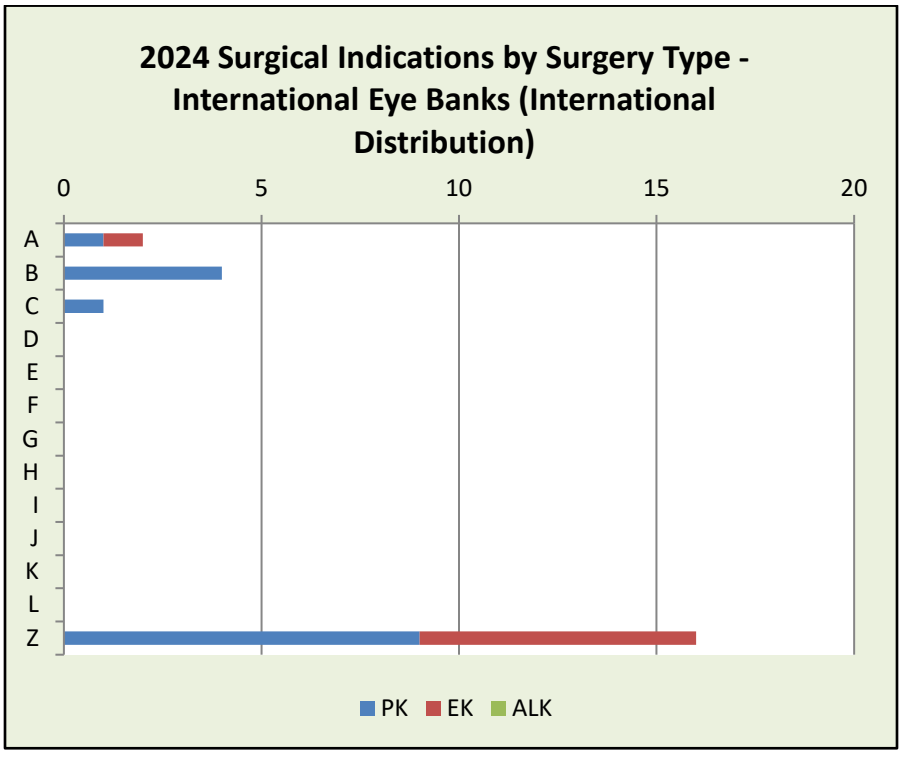
K - Non-infectious Ulcerative Keratitis, Thinning, or Perforation

L - Secondary Endothelial Dysfunction

Z – Unknown or Unreported

2024 International Eye Banking Statistics
Indications for Corneal Transplant

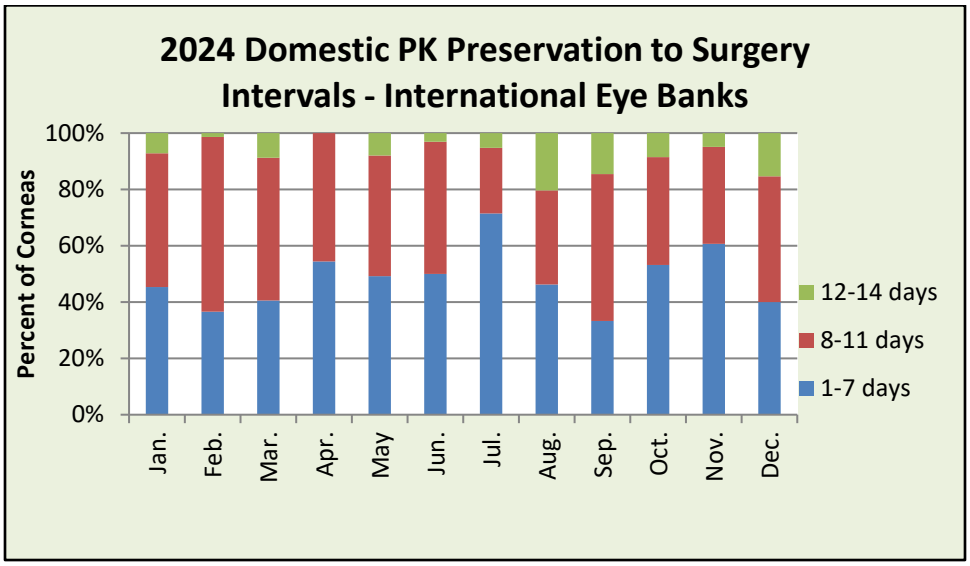




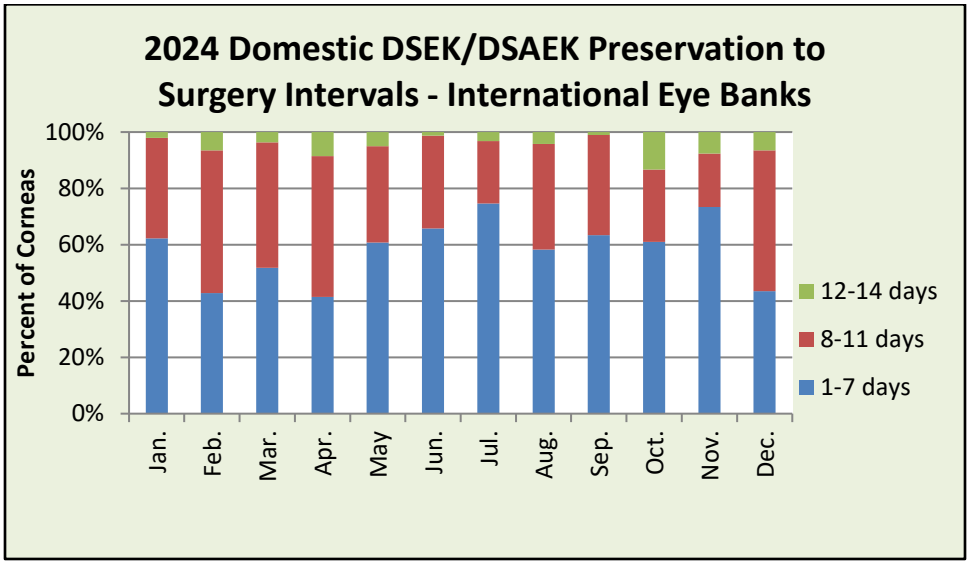
2024 International Eye Banking Statistics
Preservation Time

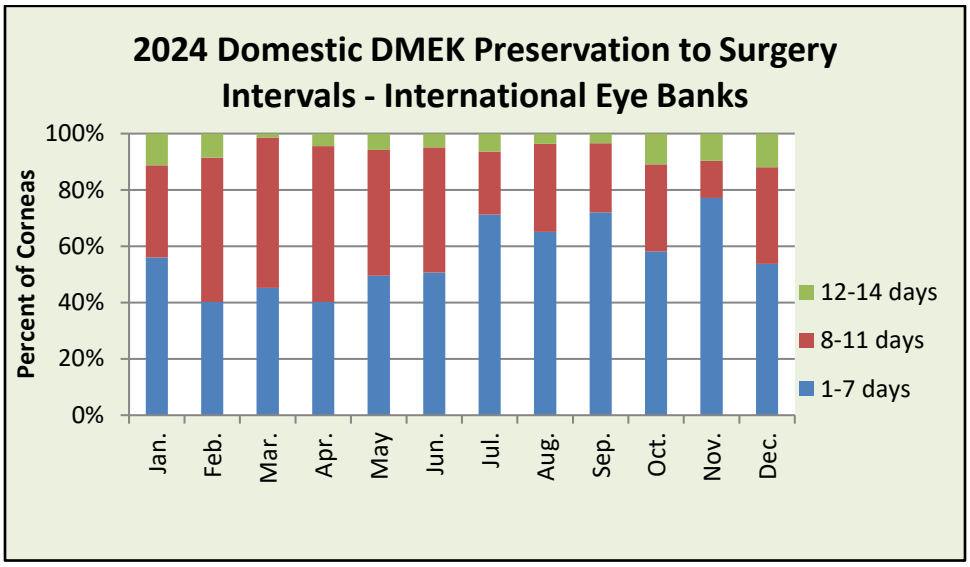
Preservation to Surgery - International Eye Banks (Tissue used domestically with respect to source nation only)									
Month	PK: 1-7 days	PK: 8-11 days	PK: 12-14 days	DSEK/DSAEK: 1-7 days	DSEK/DSAEK: 8-11 days	DSEK/DSAEK: 12-14 days	DMEK: 1-7 days	DMEK: 8-11 days	DMEK: 12-14 days
Jan. 2024	45.4%	47.4%	7.2%	62.2%	35.7%	2.0%	56.0%	32.8%	11.2%
Feb. 2024	36.6%	62.0%	1.4%	42.9%	50.6%	6.5%	40.2%	51.2%	8.5%
Mar. 2024	40.6%	50.7%	8.7%	51.9%	44.4%	3.7%	45.2%	53.4%	1.4%
Apr. 2024	54.4%	45.6%	0.0%	41.5%	50.0%	8.5%	40.2%	55.4%	4.5%
May 2024	49.2%	42.9%	7.9%	60.8%	34.2%	5.1%	49.5%	44.7%	5.8%
Jun. 2024	50.0%	46.9%	3.1%	65.8%	32.9%	1.3%	50.6%	44.4%	4.9%
Jul. 2024	71.4%	23.4%	5.2%	74.6%	22.2%	3.2%	71.3%	22.3%	6.4%
Aug. 2024	46.3%	33.3%	20.4%	58.3%	37.5%	4.2%	65.1%	31.3%	3.6%
Sep. 2024	33.3%	52.1%	14.6%	63.4%	35.5%	1.1%	72.0%	24.6%	3.4%
Oct. 2024	53.2%	38.3%	8.5%	61.0%	25.7%	13.3%	58.2%	30.9%	10.9%
Nov. 2024	60.7%	34.4%	4.9%	73.4%	19.0%	7.6%	77.2%	13.2%	9.6%
Dec. 2024	40.0%	44.6%	15.4%	43.5%	50.0%	6.5%	53.7%	34.3%	11.9%
2022 Avg.	55.0%	36.8%	8.2%	61.1%	36.6%	2.3%	64.7%	32.0%	3.3%
2023 Avg.	53.7%	38.0%	8.2%	59.5%	37.1%	3.4%	60.5%	34.1%	5.4%
2024 Avg.	48.7%	43.6%	7.7%	58.7%	36.0%	5.3%	57.4%	35.6%	6.9%
Std. Dev.	10.7%	10.1%	6.0%	11.2%	10.8%	3.5%	12.5%	13.3%	3.5%

*Percentages read from this table should be read as "of the domestically distributed tissue used (for PK, DSEK, or DMEK, respectively)"

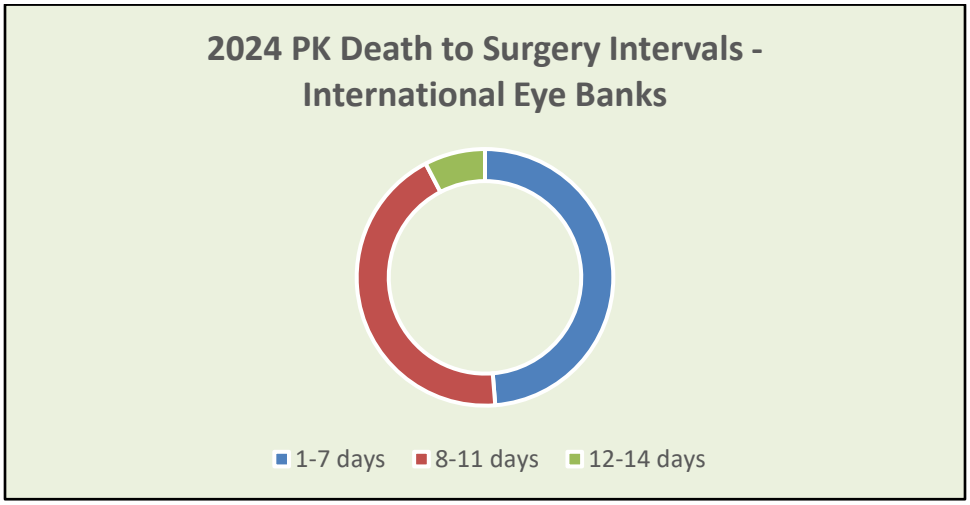


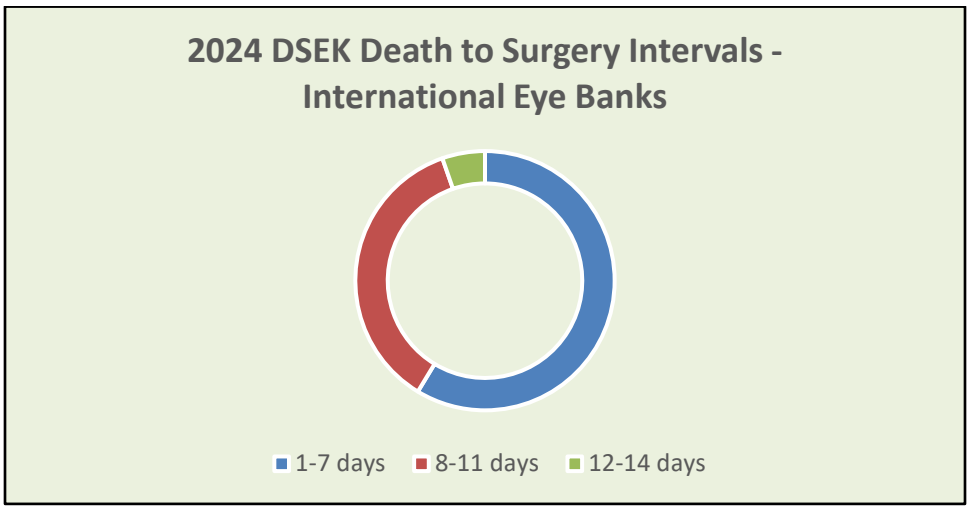
2024 International Eye Banking Statistics
Preservation Time

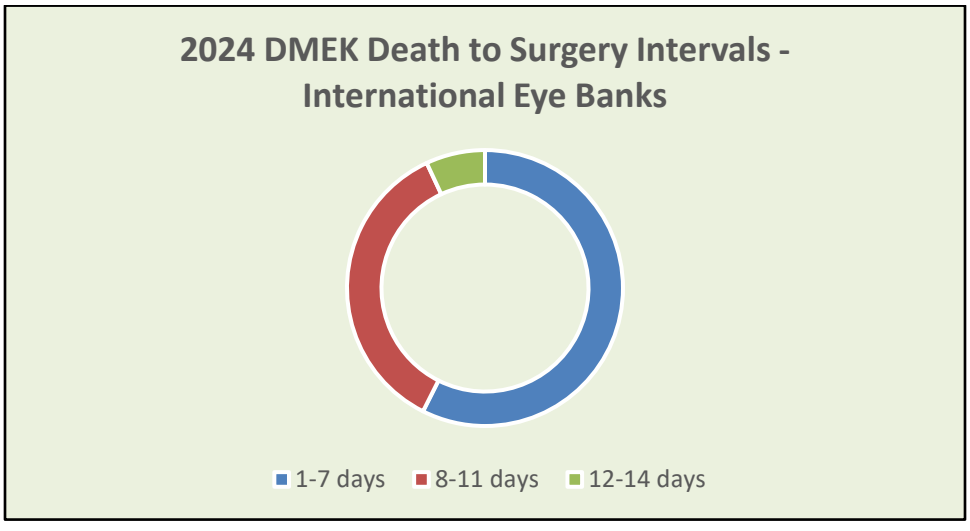




2024 International Eye Banking Statistics
Preservation Time







EYE BANKS SUBMITTING DATA FOR THE 2021 STATISTICAL REPORT

EYE BANK ASSOCIATION OF AMERICA®

Eye Banks Submitting Data for the 2024 Eye Banking Statistical Report

STATE	EYE BANK NAME	CITY
AL	Advancing Sight Network	Birmingham
CA	One Legacy	Azusa
	San Diego Eye Bank	San Diego
	Sierra Donor Services Eye Bank	West Sacramento
CO	Rocky Mountain Lions Eye Bank	Aurora
FL	Beauty of Sight	Miami
	Lions World Vision Institute	Tampa
GA	Georgia Eye Bank	Atlanta
HI	Lions Eye Bank of Hawaii	Honolulu
IA	Iowa Lions Eye Bank	Coralville
ID	Envision	Boise
IN	VisionFirst	Carmel
KY	The Eye Bank of Kentucky	Louisville
LA	Baton Rouge Regional Eye Bank	Baton Rouge
	Southern Eye Bank	Metairie
MI	Eversight	Ann Arbor
MN	Lions Gift of Sight	St. Paul
MO	Mid-America Transplant	St. Louis
	Saving Sight	Kansas City
MS	Mississippi Lions Eye Bank	Flowood
NC	LifeShare Carolinas	Charlotte
	Miracles in Sight.	Winston-Salem
NE	Lions Eye Bank of Nebraska	Omaha
NM	New Mexico Lions Eye Bank	Albuquerque
NV	Nevada Donor Network	Las Vegas
NY	Lions Eye Bank of the Northeast	Albany
	The Lions Eye Bank for Long Island	Valley Stream
	The Eye-Bank for Sight Restoration	New York
	ConnectLife	Williamsville
OH	Central Ohio Lions Eye Bank	Columbus
	Cincinnati Eye Bank	Cincinnati
	Lions Eye Bank of West Central Ohio	Dayton
OK	Oklahoma Lions Eye Bank	Oklahoma City
OR	VisionGift	Portland

STATE	EYE BANK NAME	CITY
PA	Center for Organ Recovery & Education (CORE)	Pittsburgh
	Gift of Life Donor Program Eye Bank	Hershey
	AltruVision	Philadelphia
	Lions Eye Bank of NW PA	Erie
PR	Lions Eye Bank of Puerto Rico	San Juan
SD	Dakota Lions Sight and Health	Sioux Falls
TN	East Tennessee Lions Eye Bank	Knoxville
	MidSouth Eye Bank	Bartlett
TX	Great Plains Lions Eye Bank	Lubbock
	Lions Eye Bank of Texas at Baylor College of Medicine	Houston
	Transplant Services Center, UT Southwestern Medical Center	Dallas
	Western Texas Lions Eye Bank Alliance	San Angelo
	San Antonio Eye Bank	San Antonio
UT	Utah Lions Eye Bank	Murray
VA	Lions Medical Eye Bank & Research Center of Eastern VA	Norfolk
	Old Dominion Eye Foundation	North Chesterfield
WA	Lions World Vision Institute	Seattle
	CorneaGen	Seattle
WI	Lions Eye Bank of Wisconsin	Madison
WV	Medical Eye Bank of West Virginia	Charleston

COUNTRY	EYE BANK NAME	CITY
Canada	Give Life Alberta - Eye Bank South	Calgary, AB
	Eye Bank of British Columbia	Vancouver, BC
	Tissue Bank Manitoba Shared Health	Winnipeg, MB
	New Brunswick Organ and Tissue Program - Ocular Division	Saint John, NB
	Regional Tissue Bank	Halifax, NS
	Eye Bank of Canada, Ontario Division	Toronto, ON
	Eye Bank of Saskatchewan	Saskatoon, SK
China	Daqing Eye Bank	Daqing
Germany	Hornhautbank Muenchen gGmbH	Munich
Hong Kong	Hospital Authority Eye Bank	Kowloon
Japan	Cornea Center & Eye Bank	Ichikawa City
Saudi Arabia	King Abdulaziz Medical City Eye Bank	Riyadh

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