دائـــــرة الـصـــحـــة
DEPARTMENT OF HEALTH

Ophthalmology and Corneal Transplant Jawda Guidance

Version 1.0

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Executive Summary

The Department of Health– Abu Dhabi (DOH) is the regulatory body of the healthcare sector in the Emirate of Abu Dhabi and ensures excellence in healthcare for the community by monitoring the health status of its population.

The Emirate of Abu Dhabi is experiencing a substantial growth in the number of hospitals, centers and clinics. This ranges from school clinics and mobile units to internationally renowned specialist and tertiary academic centers. Although, access and quality of care has improved dramatically over the last couple of decades, mirroring the economic upturn and population boom of Emirate of Abu Dhabi, however challenges remain in addressing further improvements.

The main challenges that are presented with increasingly dynamic population include an aging population with increased expectation for treatment, utilization of technology and diverse workforce leading to increased complexity of healthcare provision in Abu Dhabi. All of this results in an increased and inherent risk to quality and patient safety.

DOH has developed dynamic and comprehensive quality framework in order to bring about improvements across the health sector. This guidance pertains to the quality indicators that the Department of Health (DOH) is requiring for reporting by healthcare facilities providing Corneal Transplant services in the Emirate of Abu Dhabi.

The guidance sets out the full definition and method of calculation for patient safety and clinical effectiveness indicators. For enquiries about this guidance, please contact jawda@DoH.gov.ae

This document is subject for review and therefore it is advisable to utilize online versions available on the DOH at all times.

Published: May 2026

Effective from: Version 1, H2 2026

About this Guidance

This guidance sets out the definitions, scope, and reporting requirements for JAWDA Ophthalmology and Corneal Transplantation Performance Indicators. The Department of Health (DoH), in consultation with local and international clinical experts, has developed a unified set of Ophthalmology Quality Indicators to evaluate the extent to which providers deliver safe, effective, and timely clinical care across general ophthalmology services and subspecialty procedures.

These indicators monitor outcomes, safety events, and key performance elements across both corneal transplantation services and ophthalmic surgical procedures, including:

- Theatre-Based General Ophthalmology Procedures
- Cataract Surgery
- Intravitreal Injection Services
- Corneal Transplantation (PKP, DALK, DSEK, DMEK)

Healthcare providers remain central to capturing, validating, implementing and monitoring these indicators. It is essential that clinicians maintain leadership in quality improvement, ensuring that measures reflect clinical realities and advance patient outcomes.

Who is this guidance for?
All DoH licensed healthcare facilities providing corneal transplant and ophthalmology procedures in the Emirate of Abu Dhabi.

How do I follow this guidance?
Each provider must designate a qualified staff member who shall be accountable for coordinating, collecting, validating, and submitting data for all applicable ophthalmology and corneal transplant KPIs in accordance with this Guidance.

The nominated facility lead must ensure that:

- Updated contact details are submitted to the Department of Health (through jawda@doh.gov.ae) when changes occur; and
- All required performance data are submitted through the JAWDA online portal within the prescribed submission timelines.

What are the Regulation related to this guidance?

- Legislation establishing the Health Sector
- As per DoH Policy for Quality and Patient Safety issued April 2026, this guidance applies to all DOH Licensed Hospital Healthcare Facilities in the Emirate of Abu Dhabi in accordance with the requirements set out in this Standard.
- DOH Standard for Centers of Excellence in the Emirate of Abu Dhabi issued March 2019

Glossary

Corneal transplant: Surgical procedure that is often referred to as corneal grafting or keratoplasty. The type of technique used to perform the procedure further differentiates the types of corneal transplant procedures.

Deep Anterior Lamellar Keratoplasty (DALK): The surgery involves replacing only the damaged outer corneal tissue with the goal of preserving the inner corneal layers: Descemet's membrane and the endothelium.

Descemet's Membrane Endothelial Keratoplasty (DMEK): The DMEK procedure is a new type of partial-thickness corneal graft operation, where the damaged inner layers from the patient's eye are stripped and only the innermost corneal layers are replaced (Descemet's membrane and endothelium).

Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK): The DSAEK procedure strips damaged layers from the patient's eye and transplants the inner layers (Posterior stroma, Descemet's membrane, and endothelium) of the cornea.

Corneal transplantation is indicated in patients with confirmed corneal opacification in the anterior cornea and/or evidence of endothelial disease/compromise accompanied by visual symptoms and a desire by the patient for correction.

The processes of care for corneal transplantation are common across all types of corneal transplantation techniques.

Graft Survival: The percentage of corneal transplants that remain clear and functional at one-year post-surgery.

Graft Rejection: The specific immunological response of the host cornea to the donor corneal button/tissue is defined as corneal graft rejection.

Penetrating Keratoplasty (PK): The surgery involves transplant of a full thickness graft replacing all of the corneal layers.

Posterior Capsular Rupture (PCR): An intra-operative complication of cataract surgery defined as a tear or rupture of the posterior capsule, resulting in loss of integrity of the posterior capsular barrier and potential vitreous prolapse.

Primary Corneal Grafts: Corneal grafts performed in eyes undergoing first-time corneal transplantation, without major pre-existing risk factors known to significantly compromise graft survival.

High-Risk Corneal Grafts: Corneal grafts performed in eyes with one or more of the following pre-existing risk factors:

- Repeat or re-graft procedures
- Corneal neovascularization
- Active or previous intraocular inflammation (e.g. uveitis)
- Herpetic keratitis (HSV)
- Uncontrolled or advanced glaucoma
- Significant ocular surface disease or scarring

Submission Timeline

H2 Timeline	Actions	2025	2026	2027
1-year Survival	**DENOMINATOR:** Look-back Period (Patients whose transplant occurred from July to December)	1st July to 31st December →		
	NUMERATOR: Patient follow-up after 365 days		1st July to 31st December →	
	Patient Example	10 November 2025 Transplant	10 November 2026 Follow-up	
	Submission Period			February

H1 Timeline	Actions	2025	2026	2027
1-year Survival	**DENOMINATOR:** Look-back Period (Patients whose transplant occurred from January to June)	1st January to 30th June →		
	NUMERATOR: Patient follow-up after 365 days		1st January to 30th June →	
	Patient Example	10 March 2025 Transplant	10 March 2026 Follow-up	
	Submission Period			August

H2 Timeline	Actions	2026	2027	2027
Major Complications within 56 Days	**DENOMINATOR:** Look-back Period (Patients whose transplant occurred from July to December)	1st July to 31st December →		
	NUMERATOR: 56-days complication window		25th February →	
	Patient Example	10 November 2025 Transplant	05 January 2027 Complication	
	Submission Period			February

H1 Timeline	Actions	2027	2027	2027
Major Complications within 56 Days	**DENOMINATOR:** Look-back Period (Patients whose transplant occurred from January to June)	1st January to 30th June		
	NUMERATOR: 56-days complication window		25th August	
	Patient Example	**10 March 2027 Transplant**	**05 May 2027 Complication**	
	Submission Period			**August**

Type: Ophthalmology Quality Indicator **Indicator Number: OCT001**

KPI Description (title):	**Posterior Capsular Rupture (PCR) with or without vitreous loss during routine cataract surgery**
Domain	**Safety**
Indicator Type	**Outcome**
Definition:	Percentage of adult cataract surgeries complicated by posterior capsular rupture, with or without vitreous loss, occurring intra-operatively.
Calculation:	**Numerator:** Number of routine adult cataract surgeries with documented PCR ± vitreous loss recorded intra-operatively **ICD 10 codes:** **H59.88, Y65.8, H59.219, H59.211, H59.212, H59.213** **CPT Codes:** **67005, 67010** **Denominator:** Total number of adult (aged ≥18 years) routine cataract surgeries performed during the reporting period. **CPT codes:** • **66984:** Extracapsular cataract removal with phacoemulsification (or manual/mechanical) and IOL insertion (most common). • **66982:** Complex cataract surgery requiring advanced techniques (e.g., iris expansion, complex capsulorrhexis). **Denominator Exclusion:** • Combined ophthalmic procedures *Cataract surgeries **(CPT 66984 or 66982)** performed in the same operative encounter as any additional ophthalmic surgical CPT code, indicating a concurrent procedure (e.g., vitrectomy, glaucoma surgery, corneal surgery, intravitreal procedure). Such cases are excluded to ensure comparability of isolated cataract surgery outcomes.* • Traumatic cataracts (Refer to Appendix II) • Posterior Polar Cataract
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	RCOphth National Ophthalmology Database (NOD) Cataract Audit 2023; ESCRS EUREQUO Audit
Desired direction:	≤3%
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records • Given limitations in PCR-specific ICD-10 coding, healthcare facilities may utilize supplementary coding indicators to support case identification, including HCPCS codes corresponding to anterior vitrectomy packs and three-piece intraocular lens implantation, where these are documented during the same operative episode as routine cataract surgery.

Type: Ophthalmology Quality Indicator **Indicator Number: OCT002**

KPI Description (title):	**Post-operative endophthalmitis within 30 days of routine cataract surgery**
Domain	**Safety**
Indicator Type	**Outcome**
Definition:	Rate of confirmed post-operative endophthalmitis occurring within 30 days of cataract surgery.
Calculation:	**Numerator:** Number of routine adult cataract surgeries complicated by confirmed endophthalmitis within 30 days post-procedure. (Day of surgery = Day 1) **ICD 10 codes:** • **H44.001/H44.002/H44.003/H44.009** • **H44.011** • **H44.012** • **H44.013** • **H44.019** ***OPTIONAL: Include confirmed endophthalmitis cases cared for in other facilities through Malaffi search* **Denominator:** Total number of adult (aged ≥18 years) routine cataract surgeries performed during the reporting period. **CPT codes:** **66984, 66982** **Denominator Exclusion:** • Pre-existing intraocular infection • Endophthalmitis unrelated to index surgery • Combined ophthalmic procedures *Cataract surgeries (**CPT 66984 or 66982**) performed in the same operative encounter as any additional ophthalmic surgical CPT code, indicating a concurrent procedure (e.g., vitrectomy, glaucoma surgery, corneal surgery, intravitreal procedure). Such cases are excluded to ensure comparability of isolated cataract surgery outcomes.* • Cases with sequential procedures after cataract surgery
Reporting Frequency:	Quarterly
Unit of Measure:	Per 10,000 surgeries
International comparison if available	American Academy of Ophthalmology (AAO). Preferred Practice Pattern: Cataract, 2022 RCOphth NOD Cataract Audit Report, 2023 ESCRS Endophthalmitis Study Group. J Cataract Refract Surg, 2007
Desired direction:	≤ 5 per 10,000 surgeries
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: Ophthalmology Quality Indicator **Indicator Number: OCT003**

KPI Description (title):	**Visual Outcome ≥6/12 (20/40) within 30 Days Post ROUTINE Cataract Surgery**
Domain	**Effectiveness**
Indicator Type	**Outcome**
Definition:	Rate of adult cataract surgery patients achieving best-corrected visual acuity (BCVA) ≥6/12 (20/40) within 30 days post-operatively
Calculation:	**Numerator:** Number of adult routine cataract surgery patients who achieved a BCVA ≥6/12 (20/40) within 30 days post cataract surgery. (Day of surgery = Day 1) **Numerator Inclusion:** • Patients with at least one documented post-operative follow-up within 30 days • BCVA measured and recorded using a standardized visual acuity assessment • If multiple follow-ups occur within the 30-day period, use the last recorded BCVA ***ICD-10 status codes such as Z98.41, Z98.42, Z98.49, Z96.1 may be used where applicable to support case identification.* **Denominator:** Total number of adult (aged ≥18 years) routine cataract surgeries performed during the reporting period. **CPT codes:** **66984, 66982** **Denominator Exclusion:** Exclude patients with ocular comorbidities that significantly limit expected post-operative visual potential **if the comorbidity diagnosis is documented/coded before the index cataract surgery date** (i.e., pre-existing at the time of surgery). This includes, ICD-10-CM diagnosis groups listed below: • Corneal and External Eye Conditions o Corneal edema: **H18.211–H18.213** o Corneal opacity and corneal disorders: **H17.01–H17.829** o Central corneal ulcer: **H16.011–H16.019** o Open wounds and severe ocular trauma: **S05.11XA, S05.12XA, S05.21XA, S05.22XA, S05.31XA, S05.32XA, S05.51XA, S05.52XA, S05.61XA, S05.62XA, S05.71XA, S05.72XA, S05.8X1A, S05.8X2A** o Prior penetrating keratoplasty / corneal transplant status: **Z94.7** • Retinal and Macular Pathology o Diabetic retinopathy (severe non-proliferative and proliferative, with or without macular edema):**E08.311–E13.3599** o Diabetic macular edema: **E08.311, E08.3211–E08.3519, E09.311–E09.3519, E10.311–E10.3519, E11.311–E11.3519, E13.311–E13.3519** o Age-related macular degeneration (dry and wet): **H35.3110–H35.3293** o Retinal vascular occlusion: **H34.01–H34.9** o Retinal detachment and separation: **H33.001–H33.**

	○ Other clinically significant retinopathies and retinal changes: **H35.021–H35.063, H35.81** • Glaucoma and Optic Nerve Disorders ○ Primary and secondary glaucoma (open-angle and angle-closure): **H40.001–H40.9** ○ Glaucoma associated with congenital anomalies: **H42.8** ○ Optic atrophy: **H47.20–H47.293** ○ Optic neuritis: **H46.01–H46.9** ○ Other optic nerve disorders: **H47.011–H47.013** ○ Visual field defects: **H53.40–H53.489** • Other Vision-Limiting Conditions ○ Amblyopia: **H53.001–H53.043** ○ Uveitis and iridocyclitis (acute, subacute, or chronic): **H20.00–H20.9, H30.21–H30.93** ○ Pathologic / degenerative myopia and associated maculopathy: **H44.21, H44.22, H44.23, H44.2A–H44.2E** (all sub-codes) ○ Nystagmus: **H55.00–H55.89** ○ Traumatic or secondary cataracts: **H26.20–H26.239, H26.8** ○ Posterior polar cataract: **H25.041–H25.043**
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	American Academy of Ophthalmology (AAO). Preferred Practice Pattern: Cataract, 2022 RCOphth NOD Cataract Audit Report, 2023
Desired direction:	≥80%
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: Ophthalmology Quality Indicator **Indicator Number: OCT004**

KPI Description (title):	**Endophthalmitis Rate after Intravitreal Injection**
Domain	**Safety**
Indicator Type	**Outcome**
Definition:	Rate of confirmed endophthalmitis occurring within 30 days following intravitreal injection.
Calculation:	**Numerator:** Number of confirmed endophthalmitis cases within 30 days of intravitreal injection. (Day of surgery = Day 1) **ICD 10 codes:** • **H44.001/H44.002/H44.003/H44.009** • **H44.011** • **H44.012** • **H44.013** • **H44.019** ***OPTIONAL: Include confirmed endophthalmitis cases cared for in other facilities through Malaffi search* **Denominator:** Total number of adult (aged ≥18 years) intravitreal injections performed during the reporting period. **CPT codes:** **67028-**Intravitreal Injections **Denominator Exclusion:** • Infection present prior to injection (Refer to Appendix IV) • Combined procedures: eg IVI and cataract surgery. • Sequential procedures in which an IVI is followed by another procedure such as cataract or vitrectomy surgery.
Reporting Frequency:	Quarterly
Unit of Measure:	Per 10,000 injections
International comparison if available	AAO Preferred Practice Pattern: Intravitreal Injections, 2022 Royal College of Ophthalmologists. Intravitreal Injection Guidelines, 2020
Desired direction:	≤ 5 per 10,000 injections
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: Ophthalmology Quality Indicator **Indicator Number: OCT005**

KPI Description (title):	**Unplanned Return to Ophthalmic Theatre within 15 Days**
Domain	**Effectiveness**
Indicator Type	**Outcome**
Definition:	Percentage of adult ophthalmic surgical cases requiring an unplanned return to theatre within 15 days of index procedure.
Calculation:	**Numerator:** Number of adult ophthalmic surgical cases requiring an unplanned return to an ophthalmic operating theatre within 15 days of the index procedure, for the same eye, due to a post-operative complication related to the index surgery. (Day of surgery = Day 1) **ICD 10 codes:** **Z98.41** **Z98.42** **Z98.49** **H59.89** **Numerator Guidance:** Where procedural modifier 78 is not available, an unplanned return to theatre should be identified by ALL THREE of the following: • Timing and linkage: The patient returns to theatre for the same eye within 15 days of the original (index) ophthalmic procedure. • Evidence of a post-operative complication: The return is associated with at least one post-operative complication diagnosis code, such as: **H59.099, H59.311–H59.313, H59.89, H44.001–H44.003, T85.228A** • Evidence of a repeat ophthalmic procedure: A subsequent ophthalmic surgical procedure code is recorded that indicates management of a complication, for example: **66982, 66984, 66682, 67040–67043, 66170, 66172, 66250** ***OPTIONAL: Include unplanned return to the operating theatre in other facilities through Malaffi search* **Numerator Exclusions:** • Planned staged procedures • Contralateral (fellow-eye) procedures • Trauma-related surgeries, including eye injury occurring after the index procedure • Elective re-interventions not related to a complication (e.g. refractive enhancement) • Returns driven solely by diagnostic evaluation without surgical intervention **Denominator:** Total number of adult (aged ≥18 years) ophthalmic surgical procedures performed during the reporting period.
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	NHS England. Unplanned Return to Theatre Indicator Definition, 2022 Australian Commission on Safety and Quality in Health Care (ACSQHC), Clinical Care Standards
Desired direction:	≤ 2%

Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: CT Quality Indicator **Indicator Number: OCT006**

KPI Description (title):	**Primary Corneal Transplant Survival rate at 1 Year**
Domain	**Effectiveness**
Indicator Type	**Outcome**
Definition:	The percentage of patients (aged 18 years and older) who underwent a primary corneal graft transplantation and whose graft remained clear and functional at 1 year (up to Day 365) following the index transplant. This indicator evaluates long-term graft viability following first-time corneal transplantation and reflects surgical technique, post-operative management, and immunologic control in standard-risk cases.
Calculation:	**Numerator:** Number of patients from the denominator whose corneal grafts remained clear and functional at 1 year (Day 365) following transplantation and had no documented graft failure requiring graft replacement or repeat keratoplasty within the 1-year follow-up period. For survival determination, the occurrence of **repeat corneal transplantation procedures** (CPT codes **65730, 65755, 65710, 65780, or 65756**) in the same eye within 1 year of the index transplant shall be considered evidence of graft failure and the case shall not be counted in the survival numerator. Day of transplantation = Day 0 **Denominator:** Total number of patients (aged ≥18 years at the time of transplantation) who underwent a primary corneal graft transplantation during the defined accrual period. CPT Codes: **65730, 65755, 65710, 65780, 65756** **Denominator Inclusion:** Primary corneal graft is defined as: • First-time corneal graft in the operated eye • Absence of predefined high-risk graft factors at the time of transplantation (see denominator exclusion) **Denominator Exclusions:** • Loss to follow-up before completion of 1-year assessment • High-risk corneal grafts: o The presence of keratoconus or corneal edema ICD-10 diagnosis codes alone shall NOT qualify a case as high-risk; classification as high-risk is allowed ONLY when these codes are accompanied by documented high-risk features (e.g. corneal neovascularization, corneal scarring, prior graft failure, or repeat graft status) coded or clearly documented prior to transplantation. o Repeat / Re-graft Procedures: **T86.841, T86.842, Z94.7** ***Z94.7 (corneal transplant status) SHALL be an exclusion if coded BEFORE the index surgery (indicating a repeat graft) and shall NOT be an exclusion if coded AFTER the surgery.* o Corneal Neovascularization: (Refer to Appendix VIII) o Active or Previous Intraocular Inflammation (Uveitis / Iridocyclitis): (Refer to Appendix XIV) o Herpetic Keratitis (HSV): **B00.52** o Advanced or Uncontrolled Glaucoma: ▪ Primary Open-Angle / Advanced Glaucoma: (Refer to Appendix VI)

	▪ Secondary Glaucoma (Any Cause): **H40.531–H40.539, H40.501–H40.509, H40.611–H40.619** o Significant Ocular Surface Disease / Corneal Scarring: **H18.60, H18.62, H18.20, H18.59** o Other Conditions with Proven High Graft Failure Risk: **H17.9, Q13.4, H18.51**
Reporting Frequency:	Semi-annually
Unit of Measure:	Percentage
International comparison if available	
Desired direction:	Higher is better
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: CT Quality Indicator **Indicator Number: OCT007**

KPI Description (title):	**High-Risk Corneal Transplant Survival rate at 1 Year**
Domain	**Safety**
Indicator Type	**Outcome**
Definition:	The percentage of patients (aged 18 years and older) who underwent a high-risk corneal graft transplantation and whose graft remained clear and functional at 1 year (up to Day 365) following the index transplant. This indicator evaluates graft survivorship in clinically complex cases known to carry an elevated risk of failure and is intended to support contextualized performance assessment rather than direct comparison with primary graft outcomes.
Calculation:	**Numerator:** Number of patients from the denominator whose corneal grafts remained clear and functional at 1 year (Day 365) following transplantation and had no documented graft failure requiring graft replacement or repeat keratoplasty within the 1-year follow-up period. For survival determination, the occurrence of **repeat corneal transplantation procedures** (**CPT codes 65730, 65755, 65710, 65780, or 65756**) in the same eye within 1 year of the index transplant shall be considered evidence of graft failure and the case shall not be counted in the survival numerator. Day of transplantation = Day 0 **Denominator:** Total number of patients (aged ≥18 years at the time of transplantation) who underwent a high-risk corneal graft transplantation during the defined accrual period. CPT Codes: **65730, 65755, 65710, 65780, 65756** **Denominator Inclusions:** High-risk corneal grafts are defined as grafts performed in eyes with one or more of the following pre-existing risk factors at the time of transplantation: o The presence of keratoconus or corneal edema ICD-10 diagnosis codes alone shall NOT qualify a case as high-risk; classification as high-risk is allowed ONLY when these codes are accompanied by documented high-risk features (e.g. corneal neovascularization, corneal scarring, prior graft failure, or repeat graft status) coded or clearly documented prior to transplantation. o Repeat / Re-graft Procedures: **T86.841, T86.842, Z94.7** o Corneal Neovascularization: (Refer to Appendix VIII) o Active or Previous Intraocular Inflammation (Uveitis / Iridocyclitis): (Refer to Appendix XIV) o Herpetic Keratitis (HSV): **B00.52** o Advanced or Uncontrolled Glaucoma: ▪ Primary Open-Angle / Advanced Glaucoma: (Refer to Appendix VI) ▪ Secondary Glaucoma (Any Cause): **H40.531–H40.539, H40.501–H40.509, H40.611–H40.619** o Significant Ocular Surface Disease / Corneal Scarring: **H18.60, H18.62, H18.20, H18.59** o Other Conditions with Proven High Graft Failure Risk: **H17.9, Q13.4, H18.51**
Reporting Frequency:	Semi-annually
Unit of Measure:	Percentage

International comparison if available	
Desired direction:	Higher is better
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Type: CT Quality Indicator **Indicator Number: OCT008**

KPI Description (title):	**Major Graft-Threatening Complications within 56 days (8 weeks) after Primary Corneal Transplant**
Domain	**Effectiveness**
Indicator Type	**Outcome**
Definition:	Major Graft-Threatening Complications within 56 days (8 weeks) after Primary Corneal Transplant This indicator assesses early post-operative graft-threatening complications and is complementary to OCT006 and OCT007, which assess 1-year graft survival outcomes.
Calculation:	**Numerator:** Total number of unique patients from the denominator who developed at least one major graft-threatening complication within 56 days (8 weeks) following primary corneal transplantation. **Numerator Inclusion:** A major graft-threatening complication shall be included in the numerator only if all of the following conditions are met: • The complication was newly diagnosed after the index corneal transplantation and was not present or documented prior to surgery; and • The diagnosis occurred within Day 0 to Day 56 following primary corneal transplantation; and • The complication is clinically attributable to the post-transplant course, including graft rejection, graft failure, infection, or post-operative sequelae; and • For secondary glaucoma diagnoses, the condition required persistent long-term medical therapy or surgical intervention, and was not a transient or pre-existing intraocular pressure elevation. Diagnoses representing pre-existing ocular disease, historical conditions, or complications unrelated to the index corneal transplant shall not be included in the numerator, even if coded within the surveillance period. Major graft-threatening complications include: • Graft rejection requiring escalation of therapy: **T86.841** • Graft failure (primary or secondary): **T86.841X** • Post-operative endophthalmitis: (Refer to Appendix IV) • Culture-proven or clinically significant graft infection: **T86.8421 - T86.8423** • Secondary Glaucoma due to Eye Inflammation: **H40.531, H40.532, H40.533, H40.539** • Secondary Glaucoma due to Other Eye Disorders: **H40.501, H40.502, H40.503, H40.509** • Secondary Glaucoma following Ocular Surgery: **H40.611, H40.612, H40.613, H40.619** • Other complications of corneal graft: **T86.849** ***A patient experiencing more than one qualifying event is counted once in the numerator.*

	Numerator Exclusions: The ICD-10 codes listed and conditions specified by clinical rule shall not be included in the numerator, even if present during the surveillance period. These represent pre-existing disease, expected post-operative findings, or non–graft-threatening conditions: • Primary Open-Angle Glaucoma: **H40.111, H40.112, H40.113, H40.119** • Ocular Hypertension: **H40.051, H40.052, H40.053, H40.059** • Transient Post-Operative IOP Elevation • Cataract / Cataract Progression: **H25.011, H25.012, H25.013, H25.019, H25.20, H25.21, H25.22, H25.23, H25.811, H25.812, H25.813, H25.819** • Post-Operative Astigmatism: **H52.201, H52.202, H52.203, H52.209, H52.221, H52.222, H52.223, H52.229** • Dry Eye, Epithelial Defects, Delayed Epithelial Healing: **H04.121, H04.122, H04.123, H04.129, H18.821, H18.822, H18.823, H18.829** ***Optional: Include complications diagnosed in other facilities through Malaffi search* **Denominator:** Total number of unique patients (aged ≥18 years at the time of transplantation) who underwent a primary corneal graft transplantation during the defined accrual period. **CPT codes: 65730, 65755, 65710, 65780, 65756** **Denominator Inclusions:** • *Day of transplantation is day "0".* • Patients are included in the denominator based on the date of primary corneal transplantation within the reporting half-year **Denominator Exclusions:** • Loss to follow-up • Revision or repair procedures • Suture adjustments alone • Re-graft procedures coded under repeat keratoplasty • Procedures not involving implantation of donor corneal tissue
Reporting Frequency:	Semiannually
Unit of Measure:	Percentage
International comparison if available	SME recommendation based on American Academy of Ophthalmology: 2023 Assessing Quality Metrics in Ophthalmic Surgery-A Standardized Approach
Desired direction:	Lower is Better
Data sources and guidance:	• Healthcare Facility (procedure, operating theatre) Logs • Electronic Medical Records

Appendix I: Cataract Surgeries

ICD10 / CPT	Description
66820	Discission of secondary membranous cataract (opacified posterior lens capsule and/or anterior hyaloid); stab incision technique (Ziegler or Wheeler knife)
66821	Discission of secondary membranous cataract (opacified posterior lens capsule and/or anterior hyaloid); laser surgery (eg, YAG laser) (1 or more stages)
66830	Removal of secondary membranous cataract (opacified posterior lens capsule and/or anterior hyaloid) with corneo-scleral section, with or without iridectomy (iridocapsulotomy, iridocapsulectomy)
66982	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1-stage procedure), manual or mechanical technique (eg, irrigation and aspiration or phacoemulsification), complex, requiring devices or techniques not generally used in routine cataract surgery (eg, iris expansion device, suture support for intraocular lens, or primary posterior capsulorrhexis) or performed on patients in the amblyogenic developmental stage; without endoscopic cyclophotocoagulation
66983	Intracapsular cataract extraction with insertion of intraocular lens prosthesis (1 stage procedure)
66984	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1 stage procedure), manual or mechanical technique (eg, irrigation and aspiration or phacoemulsification); without endoscopic cyclophotocoagulation
66986	Exchange of intraocular lens
66987	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1-stage procedure), manual or mechanical technique (eg, irrigation and aspiration or phacoemulsification), complex, requiring devices or techniques not generally used in routine cataract surgery (eg, iris expansion device, suture support for intraocular lens, or primary posterior capsulorrhexis) or performed on patients in the amblyogenic developmental stage; with endoscopic cyclophotocoagulation
66988	Extracapsular cataract removal with insertion of intraocular lens prosthesis (1 stage procedure), manual or mechanical technique (eg, irrigation and aspiration or phacoemulsification); with endoscopic cyclophotocoagulation

Appendix II: Traumatic Cataracts

ICD10 / CPT	Description
H26101	Unspecified traumatic cataract, right eye
H26102	Unspecified traumatic cataract, left eye
H26103	Unspecified traumatic cataract, bilateral
H26109	Unspecified traumatic cataract, unspecified eye
H26111	Localized traumatic opacities, right eye
H26112	Localized traumatic opacities, left eye
H26113	Localized traumatic opacities, bilateral
H26119	Localized traumatic opacities, unspecified eye
H26121	Partially resolved traumatic cataract, right eye
H26122	Partially resolved traumatic cataract, left eye
H26123	Partially resolved traumatic cataract, bilateral
H26129	Partially resolved traumatic cataract, unspecified eye
H26131	Total traumatic cataract, right eye
H26132	Total traumatic cataract, left eye
H26133	Total traumatic cataract, bilateral
H26139	Total traumatic cataract, unspecified eye

Appendix III: Posterior Polar Cataract

ICD10 / CPT	Description
H26051	Posterior subcapsular polar infantile and juvenile cataract, right eye
H26052	Posterior subcapsular polar infantile and juvenile cataract, left eye
H26053	Posterior subcapsular polar infantile and juvenile cataract, bilateral
H26059	Posterior subcapsular polar infantile and juvenile cataract, unspecified eye
H25041	Posterior subcapsular polar age-related cataract, right eye
H25042	Posterior subcapsular polar age-related cataract, left eye
H25043	Posterior subcapsular polar age-related cataract, bilateral
H25049	Posterior subcapsular polar age-related cataract, unspecified eye

Appendix IV: Endophthalmitis

ICD10 / CPT	Description
H44001	Unspecified purulent endophthalmitis, right eye
H44002	Unspecified purulent endophthalmitis, left eye
H44003	Unspecified purulent endophthalmitis, bilateral
H44009	Unspecified purulent endophthalmitis, unspecified eye
H4419	Other endophthalmitis
H44011	Panophthalmitis (acute), right eye
H44012	Panophthalmitis (acute), left eye
H44013	Panophthalmitis (acute), bilateral
H44019	Panophthalmitis (acute), unspecified eye

Appendix V: All Glaucoma

B7302	H26231	H26232	H26233	H26239	H40001
H40002	H40003	H40009	H40061	H40062	H40063
H40069	H4010X0	H4010X1	H4010X2	H4010X3	H4010X4
H401110	H401111	H401112	H401113	H401114	H401120
H401121	H401122	H401123	H401124	H401130	H401131
H401132	H401133	H401134	H401190	H401191	H401192
H401193	H401194	H401210	H401211	H401212	H401213
H401214	H401220	H401221	H401222	H401223	H401224
H401230	H401231	H401232	H401233	H401234	H401290
H401291	H401292	H401293	H401294	H401310	H401311
H401312	H401313	H401314	H401320	H401321	H401322
H401323	H401324	H401330	H401331	H401332	H401333
H401334	H401390	H401391	H401392	H401393	H401394
H401410	H401411	H401412	H401413	H401414	H401420
H401421	H401422	H401423	H401424	H401430	H401431
H401432	H401433	H401434	H401490	H401491	H401492
H401493	H401494	H40151	H40152	H40153	H40159
H4020X0	H4020X1	H4020X2	H4020X3	H4020X4	H40211
H40212	H40213	H40219	H402210	H402211	H402212
H402213	H402214	H402220	H402221	H402222	H402223
H402224	H402230	H402231	H402232	H402233	H402234
H402290	H402291	H402292	H402293	H402294	H40231
H40232	H40233	H40239	H40241	H40242	H40243
H40249	H4030X0	H4030X1	H4030X2	H4030X3	H4030X4
H4031X0	H4031X1	H4031X2	H4031X3	H4031X4	H4032X0
H4032X1	H4032X2	H4032X3	H4032X4	H4033X0	H4033X1
H4033X2	H4033X3	H4033X4	H4040X0	H4040X1	H4040X2
H4040X3	H4040X4	H4041X0	H4041X1	H4041X2	H4041X3
H4041X4	H4042X0	H4042X1	H4042X2	H4042X3	H4042X4
H4043X0	H4043X1	H4043X2	H4043X3	H4043X4	H4050X0
H4050X1	H4050X2	H4050X3	H4050X4	H4051X0	H4051X1
H4051X2	H4051X3	H4051X4	H4052X0	H4052X1	H4052X2
H4052X3	H4052X4	H4053X0	H4053X1	H4053X2	H4053X3
H4053X4	H4060X0	H4060X1	H4060X2	H4060X3	H4060X4
H4061X0	H4061X1	H4061X2	H4061X3	H4061X4	H4062X0
H4062X1	H4062X2	H4062X3	H4062X4	H4063X0	H4063X1
H4063X2	H4063X3	H4063X4	H40811	H40812	H40813
H40819	H40821	H40822	H40823	H40829	H4089
H409	H42	H44511	H44512	H44513	H44519
H47231	H47232	H47233	H47239	Q150	

Appendix VI: Severe Glaucoma

ICD10 / CPT	Description
H4010X3	Unspecified open-angle glaucoma, severe stage
H4010X3	Unspecified open-angle glaucoma, severe stage
H401113	Primary open-angle glaucoma, right eye, severe stage
H401123	Primary open-angle glaucoma, left eye, severe stage
H401133	Primary open-angle glaucoma, bilateral, severe stage
H401193	Primary open-angle glaucoma, unspecified eye, severe stage
H401213	Low-tension glaucoma, right eye, severe stage
H401223	Low-tension glaucoma, left eye, severe stage
H401233	Low-tension glaucoma, bilateral, severe stage
H401293	Low-tension glaucoma, unspecified eye, severe stage
H401313	Pigmentary glaucoma, right eye, severe stage
H401323	Pigmentary glaucoma, left eye, severe stage
H401333	Pigmentary glaucoma, bilateral, severe stage
H401393	Pigmentary glaucoma, unspecified eye, severe stage
H401413	Capsular glaucoma with pseudoexfoliation of lens, right eye, severe stage
H401423	Capsular glaucoma with pseudoexfoliation of lens, left eye, severe stage
H401433	Capsular glaucoma with pseudoexfoliation of lens, bilateral, severe stage
H401493	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, severe stage
H4020X3	Unspecified primary angle-closure glaucoma, severe stage
H402213	Chronic angle-closure glaucoma, right eye, severe stage
H402223	Chronic angle-closure glaucoma, left eye, severe stage
H402233	Chronic angle-closure glaucoma, bilateral, severe stage
H402293	Chronic angle-closure glaucoma, unspecified eye, severe stage
H4030X3	Glaucoma secondary to eye trauma, unspecified eye, severe stage
H4031X3	Glaucoma secondary to eye trauma, right eye, severe stage
H4032X3	Glaucoma secondary to eye trauma, left eye, severe stage
H4033X3	Glaucoma secondary to eye trauma, bilateral, severe stage
H4040X3	Glaucoma secondary to eye inflammation, unspecified eye, severe stage
H4041X3	Glaucoma secondary to eye inflammation, right eye, severe stage
H4042X3	Glaucoma secondary to eye inflammation, left eye, severe stage
H4043X3	Glaucoma secondary to eye inflammation, bilateral, severe stage
H4050X3	Glaucoma secondary to other eye disorders, unspecified eye, severe stage
H4051X3	Glaucoma secondary to other eye disorders, right eye, severe stage
H4052X3	Glaucoma secondary to other eye disorders, left eye, severe stage
H4053X3	Glaucoma secondary to other eye disorders, bilateral, severe stage
H4060X3	Glaucoma secondary to drugs, unspecified eye, severe stage
H4061X3	Glaucoma secondary to drugs, right eye, severe stage
H4062X3	Glaucoma secondary to drugs, left eye, severe stage
H4063X3	Glaucoma secondary to drugs, bilateral, severe stage

Appendix VII: Macular degeneration

ICD10 / CPT	Description
H3530	Unspecified macular degeneration
H353110	Nonexudative age-related macular degeneration, right eye, stage unspecified
H353111	Nonexudative age-related macular degeneration, right eye, early dry stage
H353112	Nonexudative age-related macular degeneration, right eye, intermediate dry stage
H353113	Nonexudative age-related macular degeneration, right eye, advanced atrophic without subfoveal involvement
H353114	Nonexudative age-related macular degeneration, right eye, advanced atrophic with subfoveal involvement
H353120	Nonexudative age-related macular degeneration, left eye, stage unspecified
H353121	Nonexudative age-related macular degeneration, left eye, early dry stage
H353122	Nonexudative age-related macular degeneration, left eye, intermediate dry stage
H353123	Nonexudative age-related macular degeneration, left eye, advanced atrophic without subfoveal involvement
H353124	Nonexudative age-related macular degeneration, left eye, advanced atrophic with subfoveal involvement
H353130	Nonexudative age-related macular degeneration, bilateral, stage unspecified
H353131	Nonexudative age-related macular degeneration, bilateral, early dry stage
H353132	Nonexudative age-related macular degeneration, bilateral, intermediate dry stage
H353133	Nonexudative age-related macular degeneration, bilateral, advanced atrophic without subfoveal involvement
H353134	Nonexudative age-related macular degeneration, bilateral, advanced atrophic with subfoveal involvement
H353190	Nonexudative age-related macular degeneration, unspecified eye, stage unspecified
H353191	Nonexudative age-related macular degeneration, unspecified eye, early dry stage
H353192	Nonexudative age-related macular degeneration, unspecified eye, intermediate dry stage
H353193	Nonexudative age-related macular degeneration, unspecified eye, advanced atrophic without subfoveal involvement
H353194	Nonexudative age-related macular degeneration, unspecified eye, advanced atrophic with subfoveal involvement
H353210	Exudative age-related macular degeneration, right eye, stage unspecified
H353211	Exudative age-related macular degeneration, right eye, with active choroidal neovascularization
H353212	Exudative age-related macular degeneration, right eye, with inactive choroidal neovascularization
H353213	Exudative age-related macular degeneration, right eye, with inactive scar
H353220	Exudative age-related macular degeneration, left eye, stage unspecified
H353221	Exudative age-related macular degeneration, left eye, with active choroidal neovascularization
H353222	Exudative age-related macular degeneration, left eye, with inactive choroidal neovascularization
H353223	Exudative age-related macular degeneration, left eye, with inactive scar
H353230	Exudative age-related macular degeneration, bilateral, stage unspecified
H353231	Exudative age-related macular degeneration, bilateral, with active choroidal neovascularization
H353232	Exudative age-related macular degeneration, bilateral, with inactive choroidal neovascularization
H353233	Exudative age-related macular degeneration, bilateral, with inactive scar
H353290	Exudative age-related macular degeneration, unspecified eye, stage unspecified

ICD10 / CPT	Description
H353291	Exudative age-related macular degeneration, unspecified eye, with active choroidal neovascularization
H353292	Exudative age-related macular degeneration, unspecified eye, with inactive choroidal neovascularization
H353293	Exudative age-related macular degeneration, unspecified eye, with inactive scar
H35351	Cystoid macular degeneration, right eye
H35352	Cystoid macular degeneration, left eye
H35353	Cystoid macular degeneration, bilateral
H35359	Cystoid macular degeneration, unspecified eye

Appendix VIII: Amblyopia

ICD10 / CPT	Description
H53001	Unspecified amblyopia, right eye
H53002	Unspecified amblyopia, left eye
H53003	Unspecified amblyopia, bilateral
H53009	Unspecified amblyopia, unspecified eye
H53011	Deprivation amblyopia, right eye
H53012	Deprivation amblyopia, left eye
H53013	Deprivation amblyopia, bilateral
H53019	Deprivation amblyopia, unspecified eye
H53021	Refractive amblyopia, right eye
H53022	Refractive amblyopia, left eye
H53023	Refractive amblyopia, bilateral
H53029	Refractive amblyopia, unspecified eye
H53031	Strabismic amblyopia, right eye
H53032	Strabismic amblyopia, left eye
H53033	Strabismic amblyopia, bilateral
H53039	Strabismic amblyopia, unspecified eye
H53041	Amblyopia suspect, right eye
H53042	Amblyopia suspect, left eye
H53043	Amblyopia suspect, bilateral
H53049	Amblyopia suspect, unspecified eye

Appendix IX: Intravitreal Injections

ICD10 / CPT	Description
67028	Intravitreal injection of a pharmacologic agent (separate procedure)

Appendix X: Other post procedural status

ICD10 / CPT	Description
Z98890	Other specified postprocedural states

Appendix XI: Corneal Transplantation

ICD10 / CPT	Description
65750	Keratoplasty (corneal transplant); penetrating (in aphakia)

Appendix XII: Corneal Transplantation Complication

ICD10 / CPT	Description
T868401	Corneal transplant rejection, right eye
T868402	Corneal transplant rejection, left eye
T868403	Corneal transplant rejection, bilateral
T868409	Corneal transplant rejection, unspecified eye
T868411	Corneal transplant failure, right eye
T868412	Corneal transplant failure, left eye
T868413	Corneal transplant failure, bilateral
T868419	Corneal transplant failure, unspecified eye
T868421	Corneal transplant infection, right eye
T868422	Corneal transplant infection, left eye
T868423	Corneal transplant infection, bilateral
T868429	Corneal transplant infection, unspecified eye
T868481	Other complications of corneal transplant, right eye
T868482	Other complications of corneal transplant, left eye
T868483	Other complications of corneal transplant, bilateral
T868489	Other complications of corneal transplant, unspecified eye
T868491	Unspecified complication of corneal transplant, right eye
T868492	Unspecified complication of corneal transplant, left eye
T868493	Unspecified complication of corneal transplant, bilateral
T868499	Unspecified complication of corneal transplant, unspecified eye

Appendix XIII: Neovascularization

ICD10 / CPT	Description
H16401	Unspecified corneal neovascularization, right eye
H16402	Unspecified corneal neovascularization, left eye
H16403	Unspecified corneal neovascularization, bilateral
H16409	Unspecified corneal neovascularization, unspecified eye
H16.41	Ghost vessels (corneal)
H16411	Ghost vessels (corneal), right eye
H16412	Ghost vessels (corneal), left eye
H16413	Ghost vessels (corneal), bilateral
H16419	Ghost vessels (corneal), unspecified eye
H16.42	Pannus (corneal)
H16421	Pannus (corneal), right eye
H16422	Pannus (corneal), left eye
H16423	Pannus (corneal), bilateral
H16429	Pannus (corneal), unspecified eye
H16431	Localized vascularization of cornea, right eye
H16432	Localized vascularization of cornea, left eye
H16433	Localized vascularization of cornea, bilateral
H16439	Localized vascularization of cornea, unspecified eye
H16441	Deep vascularization of cornea, right eye
H16442	Deep vascularization of cornea, left eye
H16443	Deep vascularization of cornea, bilateral
H16449	Deep vascularization of cornea, unspecified eye

Appendix XIV: Uveitis / Iridocyclitis

ICD10 / CPT	Description
H2000	Unspecified acute and subacute iridocyclitis
H20011	Primary iridocyclitis, right eye
H20012	Primary iridocyclitis, left eye
H20013	Primary iridocyclitis, bilateral
H20019	Primary iridocyclitis, unspecified eye
H20021	Recurrent acute iridocyclitis, right eye
H20022	Recurrent acute iridocyclitis, left eye
H20023	Recurrent acute iridocyclitis, bilateral
H20029	Recurrent acute iridocyclitis, unspecified eye
H20031	Secondary infectious iridocyclitis, right eye
H20032	Secondary infectious iridocyclitis, left eye
H20033	Secondary infectious iridocyclitis, bilateral
H20039	Secondary infectious iridocyclitis, unspecified eye
H20041	Secondary noninfectious iridocyclitis, right eye
H20042	Secondary noninfectious iridocyclitis, left eye
H20043	Secondary noninfectious iridocyclitis, bilateral
H20049	Secondary noninfectious iridocyclitis, unspecified eye

Appendix XV: Corneal Scarring

ICD10 / CPT	Description
H1700	Adherent leukoma, unspecified eye
H1701	Adherent leukoma, right eye
H1702	Adherent leukoma, left eye
H1703	Adherent leukoma, bilateral
H1710	Central corneal opacity, unspecified eye
H1711	Central corneal opacity, right eye
H1712	Central corneal opacity, left eye
H1713	Central corneal opacity, bilateral
H17811	Minor opacity of cornea, right eye
H17812	Minor opacity of cornea, left eye
H17813	Minor opacity of cornea, bilateral
H17819	Minor opacity of cornea, unspecified eye
H17821	Peripheral opacity of cornea, right eye
H17822	Peripheral opacity of cornea, left eye
H17823	Peripheral opacity of cornea, bilateral
H17829	Peripheral opacity of cornea, unspecified eye
H1789	Other corneal scars and opacities
H179	Unspecified corneal scar and opacity

Appendix XVI: Astigmatism

ICD10 / CPT	Description
H52201	Unspecified astigmatism, right eye
H52202	Unspecified astigmatism, left eye
H52203	Unspecified astigmatism, bilateral
H52209	Unspecified astigmatism, unspecified eye
H52211	Irregular astigmatism, right eye
H52212	Irregular astigmatism, left eye
H52213	Irregular astigmatism, bilateral
H52219	Irregular astigmatism, unspecified eye
H52221	Regular astigmatism, right eye
H52222	Regular astigmatism, left eye
H52223	Regular astigmatism, bilateral
H52229	Regular astigmatism, unspecified eye

Appendix XVII: Epithelial Defects

ICD10 / CPT	Description
H18891	Other specified disorders of cornea, right eye
H18892	Other specified disorders of cornea, left eye
H18893	Other specified disorders of cornea, bilateral
H18899	Other specified disorders of cornea, unspecified eye