



COS Ophthalmic Surgery Prioritization

Steering Committee:

Yvonne Buys, Phil Hooper, Colin Mann, Salina Teja, Vivian Yin

Working Group includes the COS Advocacy Committee (Appendix 2) and additional representation across Canada as listed below:

- Ontario: Yvonne Buys, Phil Hooper, Raj Rathee, Bassar Khan, Sherif El-Defrawy
- NS: Colin Mann, Marcelo Nicolela
- PEI: Guy Boswall
- NB: Ken Roberts
- Quebec: Salim Lahoud
- Manitoba: Guillermo Rocha, Jennifer Rahman
- Alberta: Karim Damji, Amin Kherani, Stephanie Dotchin
- Saskatchewan: Todd Buglass, Ryan Eidsness
- Newfoundland/Labrador: Chris Jackmann
- BC: Salina Teja, Vivian Yin

The COS would like to thank Dr Marie-Josée Aubin for her help in the translation of the case examples below.

Hospitals and ambulatory surgical centers are facing a large backlog of “elective” surgical procedures due to cancellations during the COVID-19 pandemic. The continuation of ophthalmic surgical care is vital to prevent vision loss and consequent disability in the Canadian population. The impact of visual impairment (VI) on productivity, mental health¹, fall risk, childhood development, and quality of life metrics has been well established. The effect of VI is not limited to individuals and often has a wider impact on the patient’s family and society as a whole.

Objectives:

1. To provide a framework for prioritization of individual ophthalmic surgeon cases that can be applicable across Canada and across ophthalmology subspecialties during COVID.

¹ <https://iovs.arvojournals.org/article.aspx?articleid=2200157>

2. To advocate for ophthalmic surgery within hospital setting
3. To have the ability to audit/compare across ophthalmic surgeons for quality

Framework:

Now more than ever, the management of operating room time requires a case prioritization process that balances medical necessity, risk of COVID-19 exposure to patients and the healthcare team, and equity in resource allocation. There are three possible approaches to development of the framework, from the least generalizable to the broadest applicability – specific surgical procedure based, subspecialty based or general framework.

Decisions on prioritization in surgical care are a balance of three factors: procedure factors, disease specific factors and patient factors.

After consideration of the advantages for each type of prioritization framework, we have recommended adoption of a modified General Surgery framework of Medically Necessary, Time-Sensitive Procedures (MeNTS)². This is a scoring system that encompasses all three categories of factors that impact a patient’s surgical need and risk of COVID, and gives a composite score intended to allow comparison for surgical prioritization. This is not meant to replace current systems used for emergent surgery but rather for elective surgeries.

The framework is to be used in surgical management, and is a dynamic process with expectation of periodic reassessment during the patient’s waiting period, similar to a patient on an emergency board being up or down staged based on changing factors. This framework can be easily adopted for individual regions/hospitals and subspecialties within ophthalmology as well as for comparison to other surgical specialties who have adopted this scoring system.

Advantages:

- Does not dictate specific timeframe prioritization so that each hospital can still adapt to their hospital-specific scheduling time frame
- Ability to compare across country and across ophthalmology subspecialties
- Ability to compare ophthalmic surgery waitlist with other surgical specialties and added benefit (long-term) of being used for advocacy
- Aligns with 7 ethical principles of decision-making including utility, fairness, equity, giving priority to the worst off, autonomy, minimizing harm, and harmony²
- Helps to relieve moral burden of decision-making on individual providers
- Provides a tracking method for decisions and therefore ultimately accountability

Implementation:

The COS executive and advocacy committee has already begun efforts to raise awareness of the importance of this framework with Department Heads across the country. Similarly, efforts are

²V. N. Prachand, R. Milner, P. Angelos et coll. Medically Necessary, Time-Sensitive Procedures: Scoring System to Ethically and Efficiently Manage Resource Scarcity and Provider Risk During the COVID-19 Pandemic. American College of Surgeons. [https://www.journalacs.org/article/S1072-7515\(20\)30317-3/pdf](https://www.journalacs.org/article/S1072-7515(20)30317-3/pdf).

underway with the above listed working group members to advocate to hospital administrations to adopt this prioritization framework in order to fairly allocate operating room resources going forward.

As a fellow COS member, **we request** that each of you also advocate for the adoption of this prioritizing framework for ophthalmic surgical care at the level of your provincial Ministry of Health with individual letters. If you would like support with a letter template, please contact Eric Johnson at the COS at communications@cos-sco.ca

In addition, speak to your surgical colleagues when you see them in the OR on the importance of adoption of one national prioritization framework and encourage them to do the same.

Please email Vivian Yin (viviany@me.com) to help you set up a fillable online form (Qualtrics) to fit your needs.

Ophthalmology Prioritization Framework:

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with ADLs or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, central involving	Partially reversible, non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Abbreviations: OR=operating room, LOS=length of stay, GA=general anesthesia, ADL=activities of daily living, QOL=quality of life, COPD=chronic obstructive pulmonary disease, CF=cystic fibrosis, CPAP=continuous positive airway pressure, CV=cardiovascular, HTN=hypertension, CHF=congestive heart failure, CAD=coronary artery disease, PO=per os, ILI=influenza like illness

*Grey colored rows are taken without change from published MeNTS score

**Factors with additional explanation below

Selective Description/Examples:

- Surgical team size:
 - Includes surgical team only (primary/secondary surgeons as well as trainees) without nursing or ancillary staff
- Nonoperative treatment option effective:
 - None available also applies to drug shortage. As an example:
 - Glaucoma patient medically controlled but medication currently using is unavailable (due to drug shortage)
 - Cataract patient with rapid and progressive myopic shift who cannot afford repeated glasses change
 - Cataract patient with refractive correction providing only 50% improvement in visual acuity
 - Percentage effectiveness if base on the clinician's expertise and understanding of the patient's disease process and responsiveness to treatment
- Risk of significant vision loss with 6-week delay:
 - Vision loss is defined as loss of visual acuity by 2 or more lines, VF loss³ paracentrally based on clinician's awareness of patient's characteristics
- Covid-19 exposure risk of nonoperative treatment versus surgery
 - For example, in the setting of posterior chamber nuclear fragments, multiple office visits to monitor for endophthalmitis, inflammation or elevated IOP increase the patient's potential exposure to COVID-19 compared to surgical management.
- Social factors complicating care:
 - Patients with difficulty in transportation arrangement for any reason, mental health comorbidities, language barrier, social issues such as complex family situation or homelessness, drug addiction etc.
- Vision that falls below functional needs:
 - It is recognized that when there is a disease process of the same severity in a monocular patient compared to a binocular patient, this category gives priority to the monocular patient. As such, there is no specified degree of functional impairment for the monocular patient.

³ <https://www.ncbi.nlm.nih.gov/pubmed/18378317>

Appendix 1: Example Cases

Case 1: Retina case. **Total score 48.**

83M followed for proliferative retinopathy OU with PRP and augmentation in the past. He has a 6 week history of reduced vision OD. He has a past medical history of diabetes and hypertension for which he takes insulin and oral hyperglycemic agents. He lives alone locally and has some family support close by. On examination the right eye dense hemorrhage with little clearing over 6 weeks and vision CF 2 feet. Ischemic macula with OS vision 20/200.

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	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe

	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 2: Adult strabismus case. **TOTAL SCORE: 51**

72 year old male with quiescent thyroid eye disease presents with vertical binocular diplopia that has been stable for the past 3 years in primary and left gaze. He has a past medical history of smoking and cataract extraction. He is no longer able to drive due to diplopia and feels uncomfortable with one eye patched. His examination showed a -6 supraduction deficit on the right, with a 25PD left hypertropia in primary gaze.

Assessment: He has intractable diplopia in primary gaze which is not amenable to prism correction. This is preventing fulfillment of driving criteria. The plan was made for a right inferior rectus recession.

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
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	Immunocompromised	No			Moderate	Severe

	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 3: Retina case. **TOTAL SCORE: 44**

64 year old male initially referred in March during early COVID with reduced vision in the right eye secondary to ERM. Vision was stated at 20/40 by the referring provider late Feb 2020. The examination was initially deferred during lockdown but patient calls stating vision worse. In May, vision was assessed as OD 20/400 with marked pucker (much worse than original OCT). Left eye normal with 20/20 vision. His history is significant for hypertension treated with one medication.

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
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	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes
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Case 4: Glaucoma case. **TOTAL SCORE: 48**

A 46 year old Chinese lady with a family history of glaucoma and a 5 year history of CACG controlled medically and with iridotomies presented with early changes on OCT but stable visual fields. She recently developed irritation to some of her glaucoma drops and had stopped cosopt and alphagan and was using only xalatan qhs OU. She also had cataracts affecting her vision and was interested in surgery.

Her examination showed corrected acuities 20/40 OD and 20/25 OS. The right acuity was consistent with her level of cataract. IOPs were 13 mmHg OU which was well within her target of 18 OU. Central corneal thickness was 502 um OD and 510 um OS. She had a 0.6 cup OD and 0.65 cup OS with some inferior sloping OS. VFs were full however the right eye optic nerve OCT showed some early deterioration. Her IOP had fluctuated from 11-21 mmHg over the past few years. It was decided to lower her target to 12 mmHg OD.

Assessment: since she was on maximal medical therapy with xalatan qhs OU (intolerant of cosopt and alphagan) and there was confirmed deterioration of her right optic nerve OCT, and she was unhappy with the vision from her right eye secondary to cataract, a right phaco-trabeculectomy was recommended.

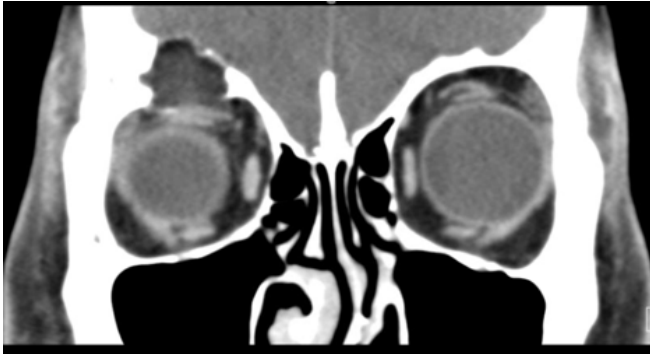
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	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 5: Orbit case. **TOTAL SCORE: 53**

37F with progressive enlarging mass of superior orbit over 5 months with normal vision/optic nerve function. She denied diplopia but endorsed significant discomfort due to globe displacement and proptosis of 3mm.

Assessment: Although there is no tissue diagnosis from a biopsy, multiple neuro-radiology opinions agree on intraosseous dermoid. Treatment requires orbitotomy with neuro-surgery on standby which is typically a team of 2 additional surgeons. No admission required if no CSF leak but potential 23hr observation if CSF repair needed.



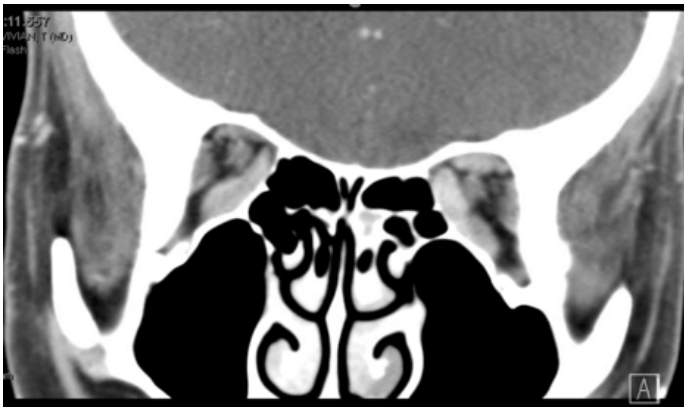
	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
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	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
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	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 6: Orbit case. **TOTAL SCORE: 45**

59F non-english speaking with thyroid eye disease with significant congestive symptoms
 Examination: VA 20/40 OD 20/30 OS, Color 11/15 OU. No RAPD. OU restriction on upgaze -1
 but no diplopia on primary and only subjective on horizontal extreme gaze. VISA score:
 chemosis 1, injection 1, lid edema 1, retrobulbar ache 2, diurnal variation 1. Small disc but no
 edema, c/d 0.4. Hertel base 110, 23mm OD 22.5 OS. She had a trial of prednisone (1mg/kg) x 3
 days without significant improvement in eye pain or congestive symptoms (predictor for
 response to radiation therapy).

Assessment: Will likely get enough decompression with just medial and floor decompression, so
 avoidance of power tool use for lateral wall. No additional surgeons needed but assume 1
 resident or fellow will be there. No admission required.



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Case 7: Oncology. **TOTAL SCORE: 43**

65M with recurrent SCC of the upper lid likely starting from conjunctival SCC, involving 90% of the upper lid. No orbital extension, no nodal metastasis. Patient presented with worsening eye pain for the past 3-6 months. No bulbar involvement noted clinically and visual acuity was 20/30 OU.

Plan: Instead of frozen section doing staged rush permanent section but reconstruction needs extended OR time due to Cutler-Beard and possible cryotherapy needed. Could treat with radiation therapy but will have significant ocular surface side effects and also need repeated hospital visits which increase COVID exposure and spread. At high risk of loss of local regional control if disease progresses into orbit or starts to involve >50% of ocular surface.



	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with activity of daily living (ADL) or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, May be central involving	Partially reversible, May be non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none

	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/ Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (\leq 1 med)	Moderate (2 meds)	Severe (\geq 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 8: Nasolacrimal case. **TOTAL SCORE: 56**

44M with lower canaliculitis on and off for 6 months treated with repeated courses of vigamox for 3 months with resolution of canaliculitis. He has been partially successful at emptying the sac with digital pressure on a daily basis. He is symptomatic with tearing that impacts his ability to work but describe this as a nuance. On examination there is NLDO with mucus and pus on irrigation. No episode of acute dacryocystitis yet but risk is not low given pus on irrigation
 Plan: Endonasal DCR would be needed and surgical time for surgeon is average of 17 min. Due to higher risk of COVID exposure, surgeon decides not to have resident assist in this case

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with activity of daily living (ADL) or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, May be central involving	Partially reversible, May be non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP	

	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 9: Cataract surgery. **TOTAL SCORE: 45**

58F with complaints of a 6 month history of progressive visual loss of the left eye. Past medical history significant for type 2 diabetes x 20 years, BMI 36, and hypertension. She takes insulin and an ARB. Examination reveals visual acuity 20/50 OD and 20/200 OS. Posterior subcapsular cataract 1+ OD and 3+ OS. Mild non proliferative diabetic retinopathy. She is the primary driver for family because of husband’s disability and is now experiencing difficulty driving in any conditions.

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with activity of daily living (ADL) or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, May be central involving or oncology cases	Partially reversible, May be non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)

	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 10: Pediatric cataract case **TOTAL SCORE: 39**

A 3-year-old child presents for referral of blunted red reflex in one eye. On examination the child's vision is 20/200 in the right eye and 20/40 in the left eye by LH symbols. Slit lamp examination reveals a visually significant unilateral cataract and fundus examination was normal. There was also an intermittent sensory exotropia. The child was otherwise healthy. Plan: Surgical plan is for lens extraction with intraocular lens placement and anterior vitrectomy.

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with ADLs or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, central involving	Partially reversible, non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)	

	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 11: Exam under anesthesia: **TOTAL SCORE: 41**

A 9-year-old child that is autistic and non-verbal is un-examinable in the office. With repeated effort one cannot obtain any useful information. Retinoscope reveals a very dull red reflex. Mom states she feels strongly that the child doesn't see well, is bumping into things and standing very close to the television. Socially, mom is a single mother that works out of the home. She has 2 other children at home and finds it very difficult to come to appointments, especially with COVID as she is not allowed to bring any of her other children with her to the appointments. The child also has asthma, but is controlled.

Surgical plan: Examination under anesthesia

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with ADLs or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, central involving	Partially reversible, non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP

	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe
	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Case 12: Strabismus: **TOTAL SCORE: 42**

A 5-year-old child who has been followed for partially accommodative esotropia and amblyopia has been patching for 1 year and vision is finally equal in both eyes (20/25 in both eyes). The child does not have any stereoacuity and has a 25 PD esotropia.

Surgical plan: Bilateral strabismus repair

	Variable	1	2	3	4	5
Procedure Factors	OR time, min	< 30	30-60	60-120	120-180	≥180
	Surgical team size, n**	1	2	3	4	>4
	Estimated LOS	Outpatient	<23 hrs	24-48 hrs	≤ 3 d	>4 d
	Need for GA	No			Yes	
Disease Factors	Availability & acceptability/effectiveness of non-surgical treatment option**	None available or high SE	Available but <40% as effective as surgery or moderate SE	Available and 40% to 60% as effective as surgery	Available and 60% to 95% as effective as surgery, low risk of SE	Available and equally effective
	Vision that falls below functional needs**	Monocular patient	Difficulty with ADLs or significant impact on development	Below driving/occupational requirements or moderate impact on development	Approaching driving/occupational requirements or minimal impact on development	No functional limitation or impact on development
	Disease process causes irreversible vision loss	Never reversible	Partially reversible, central involving	Partially reversible, non-central involving		Always reversible
	Risk of significant vision loss or progressive disease with 6-week delay	Extremely high	High	Moderate	Low	Extremely low or none
	Impact of 6 week delay in increase surgical difficulty, surgical risk, or risk of additional intervention	Significantly worse	Worse	Moderately worse	Slightly worse	No worse
	COVID-19 exposure risk of non-operative treatment compared to surgery**	Not Applicable/Significantly worse	Somewhat worse	Equivalent	Somewhat better	Significantly better
Patient Factors	Age, years	<20	20-50	51-69	70-79	>80
	Fall risk	High risk	Moderate risk		Minimal risk	No fall risk
	Degree of pain or poor QOL (ie. diplopia)	Extreme distress or discomfort	Moderate distress or discomfort		Low distress or discomfort	No distress or discomfort
	Social factors complicating care**	Significant social factors	Few social factors			No social factors
	Lung disease (asthma, COPD, CF)	None	--	-	Minimal (rare inhaler)	> Minimal
	Obstructive sleep apnea	Not present	-	-	Mild/moderate (no CPAP)	On CPAP
	CV disease (HTN, CHF, CAD)	None	Minimal (no meds)	Mild (≤ 1 med)	Moderate (2 meds)	Severe (≥ 3 meds)
	Diabetes	None	-	Mild (no meds)	Moderate (PO meds only)	> Moderate (insulin)
	Immunocompromised	No			Moderate	Severe

	ILI symptoms (fever, cough, sore throat, body aches, diarrhea)	None (Asymptomatic)	-	-	-	Yes
	Exposure to known COVID-19 positive person in past 14 days	No	Probably not	Possibly	Probably	Yes

Appendix 2: Members of COS Council on Advocacy

Kashif Baig
Ron Baldassare
Alan Berger
Mark Bona
Andrew Boswall
Guy Boswall
Andrew Budning
Yvonne Buys
Karim Damji
Alex de Saint Sardos
Jean Deschênes
Stephanie Dotchin
James Farmer
Bryce Ford
Sylvie Gariépy
Chloe Gottlieb
Phil Hooper
Chris Jackman
Mary Lou Jackson
Bill Johnston
Amin Kherani
Femida Kherani
Marcia Kim
Salim Lahoud
Lindsay Lee
Len Levin
Ian MacLeod
Colin Mann
Ravi Nrusimhadevara
Michael O'Connor
Paul Rafuse
Jennifer Rahman
Raj Rathee
Ken Roberts
Guillermo Rocha
Amadeo Rodriguez
Briar Sexton
Alan Slomovic
James Taylor
Geoff Williams
Vivian Yin