

**AMA DIRECTIVE 400-02**

**LASER REFRACTIVE SURGERY FOR CAF AIRCREW**

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**References:**

- A. CANFORGEN [69/08](#) Laser (eye) Refractive Surgery in CF Aircrew
- B. Flight Surgeon Guideline (FSG) [400-01](#) - Aircrew Visual Requirements
- C. CF H Svcs Gp [4030-57](#) Consent to Medical treatment
- D. [AMA 100-01](#) Medical Standards for CF Aircrew
- E. [CFP 154](#) Canadian Forces Medical Standards
- F. CF H Svcs Gp -Interim Guidance [4020-01](#)-Laser Eye Surgery

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**RECORD OF AMENDMENTS**

Date MM-YYYY	AMENDMENT
04-2019	Para 17 Pre-Op Refractive Errors updated to reflect the changes in AMA 100-01 Group A aircrew pre-op RE must not exceed -8.00 or +3.00 SE Group B aircrew RD may exceed -8.00 diopters with no retinal pathology. Maximum hyperopic SE limit is +5.00 D SE

## **INTRODUCTION**

1. This Directive is promulgated by the CAF Aeromedical Advisor (AMA) with approval from the Airworthiness Authority – Chief of the Air Staff (CAS) (ref A). Advances in technology, outcomes of research and community standard of practice in the field of Laser Refractive Surgery (LRS) enable the AMA to allow laser vision correction in CAF aircrew within the envelope of the guidelines in this Directive.
2. Where there are areas of uncertainty regarding application of the policy, inquiries should be directed through the usual professional-technical network. Resolution will rest with the Aerospace Medical Authority (AMA) where appropriate. Issues related specifically to the policy content should be referred to the Air Division Surgeon.

## **AIM**

3. The aim of this directive is to provide the revised policy on refractive surgery for all CAF aircrew including pilots and applicants.

## **BACKGROUND**

4. Laser Refractive Surgery is a widely practiced method to correct for moderate degrees of myopia, astigmatism, and to a lesser extent, hyperopia. Worldwide experience is now sufficiently advanced and robust to permit limited acceptance for potential and current CAF aircrew. All forms of refractive surgery are subject to this policy.
5. Background information relating to refractive surgery and the techniques acceptable to the CAF are to be found in Annex A.

## **POLICY**

### **Recommended Procedures**

6. For serving CAF aircrew and aircrew applicants who plan to undertake laser vision correction, the recommended procedures include any premium wavefront technology including WF- Guided, WF – Optimized, and Topo-guided Treatments (TCAT) with a femtosecond flap.
7. For serving CAF aircrew undertaking LRS, only the above procedures are acceptable. For aircrew applicants who undergo LRS prior to enrolment, other laser refractive and flap procedures may be acceptable provided the outcome is free from complications including glare and the candidate meets all required vision standards.

### **Non-Approved Procedures**

8. Radial Keratotomy (RK) is not approved for CAF aircrew duties.
9. Corneal reshaping with contact lenses is not a form of refractive surgery, however it is addressed in this directive as it may be offered as an alternative to refractive surgery. Orthokeratology (Ortho-K) and corneal refractive therapy (CRT) are procedures using special rigid gas permeable contact lenses to reshape the cornea for the temporary reduction of myopia. Ortho-K and CRT are not acceptable procedures for any CAF Aircre

## NOT CONTROLLED WHEN PRINTED

10. All other refractive procedures including Intrastromal Corneal Ring Segments (ICRS), thermal keratotomy and incisional astigmatic keratotomy are not acceptable procedures for any CAF Aircrew.
11. Corneal cross-linking procedures may be offered and performed for corneal stabilization in conjunction with LRS but are not approved for CAF aircrew undergoing LRS. Aircrew candidates who have had cross-linking as part of a LRS procedure may be considered based on a full evaluation. Keratoconus and corneal ectasia are disqualifying for CAF aircrew selection.
12. Irrespective of the type of LRS procedure, the individual must be free of complications and meet all CAF aircrew vision requirements (ref B) before being medically cleared for CAF aircrew duties.

### **Eligibility for refractive surgery**

13. Refractive surgery is permissible for serving CAF aircrew and applicants for entry to the CAF. At the present time these procedures will not be funded at public expense.

### **Compliance.**

14. This policy applies to all CAF aircrew undergoing refractive surgery. All CAF aircrew who elect to have refractive surgery are to consult their Flight Surgeon and obtain formal approval from their CO (as per Annex C) prior to undertaking LRS.

### **Pre-operative considerations**

15. The decision to undergo laser refractive surgery and to accept the risk associated with such procedures ultimately lies with the individual member (ref C). Serving members need to be aware that there is a small but real risk that they may develop complications, some of which could result in the member becoming medically unfit for aircrew or military service (ref D). Personnel must give very careful consideration to whether the potential benefits are worth the small risk of losing their current medical employment status. (See Annexes A and B).
16. Prior to undertaking refractive surgery CAF aircrew must complete the Counseling and Approval for Refractive Surgery Form at Annex B to indicate their understanding of the current policy.
17. **Pre-Op Refractive Errors.**
  - a. Aircrew candidates with a pre-op refractive error  $\geq -6.00$  diopters spherical equivalent must undergo a specific, dilated retinal assessment to assess for any underlying retinal pathology. The presence of any retinal pathology including lattice is disqualifying for aircrew selection with a pre-op SE  $\geq -6.00$  diopters.
  - b. For Group A aircrew (Pilots, Search and Rescue Technicians and Aerospace Controllers), the pre-op refractive error must not exceed  $-8.00$  diopters or  $+3.00$  diopters spherical equivalent
  - c. For other aircrew, the maximum per-op myopic error may exceed  $-8.00$  diopters but there must be no evidence of retinal pathology. The maximum hyperopic limit is  $+5.00$  diopters SE.
  - d. Civilian aircrew candidates must provide their pre-op refractions when applying for CAF enrolment by completing DND2778 – Refractive Surgery- Information for Recruitment

## NOT CONTROLLED WHEN PRINTED

### **Approval for CAF Aircrew to undertake refractive surgery**

18. Unit commanders and CF aircrew members considering refractive surgery must be mindful of the potential to compromise individual readiness requirements and deployability (temporarily or permanently) as a consequence of these procedures. While the overall risk of permanent complications is extremely low, nevertheless consideration must be given by unit commanders and the individual member to the length of time an individual may be unfit for duty and deployment during the post-operative period.

19. All serving aircrew members must receive the written approval from their CO before any procedure is to occur (Ref F). The CO is to complete the appropriate section of the Counseling and Approval for Refractive Surgery Form at Annex C and forward it to the Wing/ Base Surgeon.

### **Recommended schedule for post-operative follow-up**

20. Post-operative clinical follow up is required for the first three months for myopia and six months for hyperopia and/or astigmatism and may include multiple visits for assessment.

21. All aircrew members must have a three-month (myopia, astigmatism) or six-month (hyperopia) assessment by an ophthalmologist/optometrist in order to be cleared for return to full and unrestricted duties (as per Annex D). All aircrew members who have had refractive surgery are to be reviewed by an ophthalmologist/optometrist 12 months post-surgery.

22. All aircrew who undergo any form of refractive surgery must have Annex B and E completed and forwarded to the Air Division Surgeon.

### **Return to non-flying duty**

23. CF aircrew members may be returned to non-flying duties at the discretion of the Flight Surgeon managing the case on the advice of the treating ophthalmologist/ophthalmic surgeon. In general, aircrew members who have undergone uncomplicated PRK or LASIK will be fit for non-flying duties within a week of undergoing surgery.

### **Return to flying duty**

24. Correction of myopia or myopic astigmatism. Three months following correction of myopia or myopic astigmatism, aircrew members may be authorized to return to full flight duties on the recommendation of the treating Ophthalmologist/refractive surgeon and with approval of the Air Division Surgeon. An earlier return to restricted flight duties may be considered by the Air Division Surgeon with the information as listed in para 25.

25. Correction of hyperopia/ hyperopic astigmatism. Following correction of hyperopia or hyperopic astigmatism recovery time to achieve stable vision may take up to six months and may require further surgery to achieve the desired outcome. Because of the individual variability in recovery time COs must be informed of the potential for delays of up to six months before returning to full duty. For any CF aircrew, at least six months must have elapsed since the procedure to be considered for return to full duty following laser refractive surgery for hyperopia/hyperopic astigmatism. Approval by the Air Division Surgeon is required, based on the recommendation of the refractive surgeon.

## NOT CONTROLLED WHEN PRINTED

26. Personnel may return to full duty when:
- a. the mandated time periods detailed in paragraphs above have been met;
  - b. they have confirmed, stable refraction;
  - c. existing visual standards for the trade/specialization are met;
  - d. there is an absence of unwanted symptoms or post-operative effects, including but not limited to: decrease in best corrected visual acuity; corneal haze; reduced contrast sensitivity; significant dry eyes; pain; blurred vision; glare or flare, halos around lights or objects; degraded night vision; and other problems such as corneal erosions or increased intraocular pressure. (\*Note: Members who have these post-operative symptoms will be referred back to an ophthalmologist for medical treatment and/or a refractive surgeon to assess for increased corneal aberrations so possible laser re-treatment can be discussed.); and
  - e. they have discontinued the use of all topical eye drops including steroids or anti-inflammatory agents, but artificial tears may be used as needed.
27. Following the three-month (myopia, astigmatism) or six-month (hyperopia) clearance by an ophthalmologist/optometrist, aircrew are to be confirmed as fit to return to unrestricted operational duty by the attending Flight Surgeon (Annex E).
28. The forms at Annex D and E must be completed by the ophthalmologist/refractive surgeon and CF Flight Surgeon prior to a member returning to full duties.

### **Aircrew Applicants (civilian or military occupational transfer).**

29. Aircrew applicants who have had refractive surgery must meet the following requirements:
- a. a minimum period of four months must have elapsed following refractive surgery.
  - b. they must have confirmed, stable refraction;
  - c. have no history or evidence of unwanted symptoms or post-operative effects including but not confined to: decrease in best corrected visual acuity; raised intra-ocular pressure; corneal haze; reduced contrast sensitivity; corneal ulcers; pain; blurred vision; glare or flare; halos around lights or objects; degraded night vision; and other visual aberrations.
  - d. have discontinued the use of all topical eye drops including steroids or anti-inflammatory agents but artificial tears may be used as needed;
  - e. meet all vision standards for the relevant military occupation;
30. Aircrew applicants are required to provide the details of their pre-operative assessment including refraction which must meet the required refractive limit of  $\pm 7.00$  diopters in the better eye. CFRG medical staff must ensure that applicants who present for enrolment into the CF and who declare a history of refractive surgery provide full details of their pre- and post-operative refractions by completing form DND2778 (available in DND forms and included as Annex I). It is important to recognize that refractive surgery has the potential to conceal pre-operative refraction below the visual standard required for entry and will not be detectable during routine examination at CFRCs. All CAF pilot applicants will be screened with corneal topography during medical screening at CFEME Toronto.

**ANNEXES**

- A. Background Information – Refractive Surgery
- B. Counselling and Approval Form for Corneal Refractive Surgery
- C. Approval of Commanding Officer
- D. Post-operative Medical Clearance Corneal Refractive Surgery
  - Appendix 1- Standards for return to full duty
- E. CF Flight Surgeon Endorsement following Corneal Refractive Surgery
- F. Refractive Surgery Adverse Event Reporting
  - Appendix 1- Refractive surgery adverse events report
- G. Refractive Surgery check-List

**ANNEX A – AMA DIRECTIVE 400-02**

**BACKGROUND INFORMATION—REFRACTIVE SURGERY**

1. All military personnel rely on vision for the effective conduct of their basic and, in many cases, specialist military duties. Yet, nearly 40 per cent of the Canadian Forces (CF) population have imperfect vision and require visual aids to achieve best correction. In most situations use of spectacles or contact lenses provides CF personnel with adequate visual acuity correction.
2. Refractive surgery is a treatment for refractive errors of the eye (myopia, hyperopia, astigmatism). The most common treatments have been:
  - a. Radial Keratotomy (RK);
  - b. Photorefractive Keratectomy (PRK), including Laser Epithelial Keratomileusis (LASEK) and Epi-LASIK
  - c. Laser Assisted In Situ Keratomileusis (LASIK)
  - d. Intrastromal Corneal Ring Segments (ICRS).
  - e. Phakic intraocular lens implants
3. Only two types of refractive surgery are permitted for CF Aircrew members: PRK (including LASEK and Epi-LASIK) and LASIK.
4. Although the Canadian Forces support the use of laser refractive surgery in appropriate circumstances, the decision to undertake any such procedure is entirely the decision of the individual, and all related costs are the responsibility of the individual. Before proceeding with a laser refractive procedure, individuals are encouraged to become fully informed about the risks and benefits of such procedures. For any aircrew-specific questions, treating ophthalmologists may contact the RCAF consultant ophthalmologist through the CFEME Orderly Room at 416-635-2016.

**Photorefractive Keratectomy (PRK)**

5. PRK involves the use of an ultraviolet laser to change the shape of the cornea by ablating small amounts of the central corneal tissue. PRK involves completely removing the corneal epithelium and then lasering the superficial cornea to a new shape. Optimal results are achieved in a person at least 21 years old with a stable refraction and a mild to moderate refractive error. A soft contact lens is inserted after the surgery to reduce pain and to aid the growth of new corneal epithelium.

**Laser Epithelial Keratomileusis (LASEK) and Epi-LASIK**

6. LASEK and Epi-LASIK are modifications of PRK that attempt to preserve the corneal epithelium. The LASEK technique involves loosening the corneal epithelium with alcohol and then rolling back the epithelium. The surface ablation is performed and then the epithelium is rolled back over the central cornea. The Epi-LASIK uses a mechanical epikeratome to create an epithelial flap. LASEK and Epi-LASIK are both surface ablating procedures as the cornea immediately under the epithelium is ablated. After LASEK and Epi-LASIK a soft contact lens is usually placed on the eye to reduce discomfort and speed up recovery of the eye. Despite preserving the epithelium, the discomfort and recovery time is similar to PRK and it is not clear whether LASEK or Epi-LASIK have any benefit over standard PRK.



## NOT CONTROLLED WHEN PRINTED

### Laser Assisted In Situ Keratomileusis (LASIK)

7. LASIK has evolved to create a more stable flap. A thin flap of corneal epithelium and anterior stroma tissue is cut and reflected, and then the deeper underlying cornea is ablated to a new shape and the flap is then replaced. The LASIK flap can be cut with a mechanical keratome or a femtosecond laser. As the flap is thicker and the epithelium is undisturbed, LASIK has the advantages of much less post-operative pain and a rapid visual recovery. LASIK has a lower incidence of corneal haze and regression of the refractive effect. The disadvantage is the small risk of flap complications such as wrinkling or displacement of the LASIK flap.

8. For Canadian Forces aircrew undergoing LASIK, a femtosecond laser is the preferred approach for creating the flap.

### Wavefront –guided technology

9. Wavefront guided ablation patterns are available on several newer laser systems for PRK and LASIK. Wavefront analysis makes a detailed map of the standard and the higher order optical aberrations in an eye and WFG ablations correct for these individual aberrations. Wavefront technology corrects irregular astigmatism and reduces the induction of new higher order aberrations. This may lead to improved quality of vision under dim lighting conditions relative to conventional LASIK or PRK.

### Other surgical methods

10. Radial Keratotomy (RK) was the original form of refractive surgery and is currently rarely performed in Canada. It may be associated with unstable refraction post-operatively and unacceptable aberrations of vision. Intrastromal Corneal Ring Segments (ICRS) involve the surgical insertion of crescent shaped plastic rings in the outer edge of the cornea. The effect is to reshape the cornea and adjust the refraction. RK and ICRS procedures are not suitable for military personnel. Orthokeratology (Ortho-K) and corneal refractive therapy (CRT) involve corneal reshaping with hard contact lenses. These procedures are not allowed for Canadian Forces enrolment and must be discontinued for a minimum of six months prior to recruitment medical assessment. Phakic intraocular lens (PIOL) implants which involve insertion of a refractive lens in front of the existing natural lens are not permitted for Canadian Forces aircrew.

11. Corneal cross-linking procedures may be offered and performed for corneal stabilization in conjunction with LRS but are not approved for CAF aircrew undergoing LRS. Aircrew candidates who have had cross-linking as part of a LRS procedure may be considered based on a full evaluation. Keratoconus and corneal ectasia are disqualifying for CAF aircrew selection.

12. Irrespective of the type of LRS procedure, the individual must be free of complications and meet all CAF aircrew vision requirements before being medically cleared for CAF aircrew duties.

13. **Pre-Op Refractive Limits.** Current Medical Standards for the Canadian Forces (CFP 154) limit the degree of refractive error to  $\pm 7.00$  diopters in the better eye. Aircrew candidates, both civilian and serving CAF members, are required to meet these pre-op refractive limits, ie pre-operative refractive errors  $> \pm 7.00$  diopters in the better eye are disqualifying regardless of the post-op outcome.

## NOT CONTROLLED WHEN PRINTED

14. Civilian aircrew candidates are required to provide full details regarding their refractive procedures including pre-op refractions, post-op results including any complications, and a detailed retinal evaluation for lattice or other retinal pathology when applying for CAF enrolment by completing DND2778 – Refractive Surgery- Information for Recruitment. A minimum of four months observation period is required after laser refractive surgery for myopic astigmatism, and six months for hyperopia before Canadian Forces enrolment.

### Post-operative effects

15. **PRK, LASEK and Epi-LASIK.** Immediately after the procedure, the eye is extremely painful for up to four days. A soft bandage is usually applied until the corneal epithelium has healed and the eye is comfortable. During this time the visual acuity is diminished, making it impossible for the person to perform work or normal daily activities. Photophobia and light sensitivity may persist for a period of several weeks to even months and fine scarring or corneal haze may be evident during this time.

16. **LASIK.** There are fewer troublesome symptoms following treatment by LASIK, due to the immediate replacement of the corneal epithelium. Vision is rehabilitated almost at once. Haze is less of a problem and the period of follow-up generally not as long as for other procedures. LASIK is the most popular treatment of choice in Canada, but the choice of surgery will be made by the treating eye surgeon after discussion with the member.

### Longer-term problems

17. The most common problems with both PRK (including LASEK) and LASIK are ‘under-correction’ and ‘regression’. Under-correction (failure to achieve 6/6 uncorrected visual acuity) and regression over the first few months to a worse refraction than immediately following the operation occurs in approximately 5% of cases with a correction of less than two Diopters of myopia, and up to 15 % where the correction is from four to six Diopters of myopia. In these cases, repeat surgery may be required. In most series there is a re-operation rate from 4% to 7%. United States Navy studies have also identified potential problems with contrast sensitivity and increased visual and corneal optical aberrations following LASIK and PRK. Dry eye symptoms can develop or be worsened by LASIK or PRK.

18. Loss of best-corrected visual acuity (BCVA) is an uncommon but serious complication of refractive surgery. Persistent loss of BCVA at 6 months post-laser can occur from a number of rare complications such as corneal ulcers, flap dislocations, corneal scarring, etc. Aircrew must have one eye that corrects to 6/6 and the other eye must correct to 6/9. If an eye corrects to 6/6 pre-laser and loses more than 2 lines of BCVA after refractive surgery then this eye is below the 6/9 vision requirement for the weaker eye. Loss of 2 or more lines of BCVA after PRK or LASIK for low to moderate myopia varies between 0 to 1%. WFG PRK showed a loss of only one line of BCVA in 1%. In astigmatic eyes, 0 to 3% lost two or more lines of BCVA. The risk of losing BCVA is higher with mild to moderate hyperopia where studies report that 3% to 12% of patients lost 2 or more lines of BCVA. These numbers are improving as laser technology improves.

### Benefits of refractive surgery

18. Improved unaided visual acuity can be dramatic, to the extent in many cases of no longer requiring visual aids. This can enhance the combat effectiveness of all warfare groups. It is of particular benefit to individuals who have a refractive error and are required to wear headgear as part of their regular duties, such as divers, aviators, and users of night vision goggles and masks, such as Special Forces personnel.

**ANNEX B – AMA DIRECTIVE 400-02  
COUNSELING AND APPROVAL FORM FOR CORNEAL REFRACTIVE SURGERY**

1 I,

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(Rank, First name, Last name, Service number, military occupation) am seeking to have corneal refractive surgery performed. My initials next to each of the following paragraphs indicate I have read and understand each section.

2 I have been counselled by a refractive surgeon/ophthalmologist and a CF Flight Surgeon. I understand there are different types of corneal refractive surgery, and that I may subsequently be found disqualified from entry into, or continued service in certain trades or specializations, depending on the outcome of the surgery and that there is an unlikely possibility that I may be unfit for military service.

3 I understand that I must obtain the prior approval of my Commanding Officer (CO) to have corneal refractive surgery. Any time away from work required as part of the pre-operative evaluation, surgery and post-operative follow-up must be approved by my CO and will be taken as annual leave. I can anticipate to be unfit for operational deployment for three months. (Note: Aircrew may not considered fit to return to flying duties for six months following correction of hyperopia.)

4. I have been provided with a copy of the *Medical Clearance Form Following Corneal Refractive Surgery*. I have been directed to have my specialist complete this form after my surgery. I will return it to the CF health facility where my Unit Medical Records are kept, at which time a determination for fitness and continued service may be made by a CF Flight Surgeon.

5 I understand that I will be referred for a Medical Employment Limitations (MEL) in the event of an irreversible adverse outcome that affects the ability to perform the duties of my rank or trade.

6 I have read and understood AMA Directive 400-02 Laser refractive Surgery for CF Aircrew dated April 2015.

7 I have had my questions answered by my ophthalmologist/refractive surgeon or CF Flight Surgeon and understand that this document will be placed in my Service medical record.

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**Service member's signature**

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**CF Flight Surgeon signature**

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**Printed name of CF Flt Surg**

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**Date**

\*Forward a copy of completed ANNEX B to Air Division Surgeon office

**ANNEX C – AMA DIRECTIVE 400-02**  
**APPROVAL OF COMMANDING OFFICER**

1. Corneal refractive surgical procedures are designed to reduce the need or dependence on glasses or contact lenses in people with near sightedness, far sightedness and some types of astigmatism
  
2. Refractive surgery is conducted to enhance operational capability and is not considered to be a clinical necessity. The overall risk of permanent complications is extremely low. Approval for selected individuals to undergo refractive surgery rests with the member's CO taking into consideration the length of time an individual may be unfit for duty and deployment during the post-operative period. It is anticipated the aircrew member should be able to return to non-flying duties within a week, and may be able to return to restricted flying duties after one month. Pilots will be initially restricted to fly with another pilot qualified on type. Aircrew including pilots should be able to return to full flying duties including deployments approximately three months after surgery. An exception is for correction of hyperopia (far sightedness), which may require six months before returning to unrestricted flight duties.
  
3. Approval is/is not granted for \_\_\_\_\_ to undergo refractive surgery.

\_\_\_\_\_  
**CO Signature**                      **CO Printed Name**                      **Date**

**\* Forward a copy of completed Annex C to the Wing/Base Surgeon**

**ANNEX D – AMA DIRECTIVE 400-02**

**POST-OPERATIVE MEDICAL CLEARANCE CORNEAL REFRACTIVE SURGERY**

From: \_\_\_\_\_(Name of eye care provider)

\_\_\_\_\_ (Address)

(\_\_\_\_) \_\_\_\_\_(Office telephone number)

**To: Canadian Forces Flight Surgeon**

MEDICAL CLEARANCE FOR \_\_\_\_\_ (Rank, First name, Last name, Service number) FOLLOWING CORNEAL REFRACTIVE SURGERY

1 The above named member had \_\_\_\_\_ (type of corneal refractive surgery) performed in the right eye/left eye/both eyes on \_\_\_\_\_(date). As an ophthalmologist/refractive surgeon who has evaluated the member following surgery, the purpose of this letter is to recommend when he or she may return to work on a full-time basis without any further restrictions based on the guidelines provided in appendix 1. I understand this document will be placed in the member's outpatient military health record.

2 I understand that most members are able to resume routine daily work activities within a few days after surgery. However, due to the need for follow-up care in the immediate post-operative time period, Aircrew members usually will not be returned to full and unrestricted duty or operational deployment until approximately three-months following surgical correction of myopia, and possibly as long six months after surgical correction of hyperopia. Full and unrestricted duty is defined as the ability to perform all responsibilities of their rank and military occupation, as well as being suitable for deployment to isolated duty locations where routine eye care services are not readily available.

3. I certify the ophthalmological prerequisites for return to full and unrestricted duty in Appendix I to Annex D have been met.

**or**

The service member is not fit to return to full and unrestricted duty and requires review \_\_\_\_\_(date)

\_\_\_\_\_  
**Signature of Refractive Surgeon/Ophthalmologist**

\_\_\_\_\_  
**Date**

Appendix 1. Standards for return to full duty

**APPENDIX 1 TO ANNEX D – AMA DIRECTIVE 400-02**  
**STANDARDS FOR RETURN TO FULL DUTY**

CF Aircrew may return to full duty when:

- a. they have confirmed, stable refraction;
- b. existing visual standards for the trade/specialization are met (to be determined by CF Flight Surgeon);
- c. there is an absence of unwanted symptoms or post-operative effects (including but not confined to: decrease in best corrected visual acuity, raised intra-ocular pressure, corneal haze, reduced contrast sensitivity, corneal ulcers, pain, blurred vision, glare or flare, halos around lights or objects, degraded night vision etc);
- d. the use of all topical eye drops including steroids or anti-inflammatory agents have been discontinued but artificial tears may be used as needed;
- e. at least three months must have elapsed following correction of myopia or myopic astigmatism;
- f. at least six months must have elapsed following correction of hyperopia or hyperopic astigmatism.

**ANNEX E – AMA DIRECTIVE 400-02**

**CF FLIGHT SURGEON ENDORSEMENT FOLLOWING CORNEAL REFRACTIVE SURGERY**

1. I have reviewed Annex D, the Medical Clearance Form Following Corneal Refractive Surgery for \_\_\_\_\_  
(Rank, Given name, Surname, Service number).

2 As part of the assessment of fitness for duty, I have determined that the member meets the specified visual acuity requirement to perform the duties of their military occupation. (If the service member's uncorrected visual acuity following surgery does not meet the specified corrected standard, then the member must receive additional vision correction in the form of glasses or contact lenses that enables them to fulfill the visual acuity requirements before returning to duty).

AND

The member's ophthalmologist has verified that all of the prerequisites identified in appendix 1 Annex D Post-Operative Medical Clearance Refractive Surgery form have been satisfied. Effective \_\_\_\_\_(date), the member is medically fit to return to full and unrestricted duty, which is defined as the ability to perform all job responsibilities of their rank, as well as being suitable for deployment to isolated duty locations where routine eye care services are not readily available.

OR

The member has been evaluated by an ophthalmologist and is not fit to return to full and unrestricted duty. One or more of the prerequisites identified in appendix 1 to Annex D Of the AMA Directive 400-02 Laser Refractive Surgery for CF Aircrew were not satisfied and/or the member does not meet the visual standards required for their military occupation. AR-Medical Employment Limitations action is/is not required.

\_\_\_\_\_  
CF Flight Surgeon Signature

\_\_\_\_\_  
Rank

\_\_\_\_\_  
Printed name or stamp

\_\_\_\_\_  
Date

**\* Forward a copy of this completed Annex E to the Air Division Surgeon**

**ANNEX F – AMA DIRECTIVE 400-02**

**REFRACTIVE SURGERY ADVERSE EVENT REPORTING**

1. All adverse events following refracting surgery must be reported irrespective of the funding source. The *Refractive surgery adverse events report* at Appendix 1 of this Annex is to be completed in all instances and forwarded to the Medical Consult services/Aerospace and Undersea Sciences Centre at CFEME Toronto and the Air Division Surgeon's office. Distribution of copies is addressed in appendix 1 to this Annex F.

Reportable Adverse events following refractive surgery include but are not limited to:

- Loss of two or more lines of best-corrected visual acuity (BCVA) at six months post-operation or later.
- Persistent corneal epithelial defect or corneal erosion.
- Diplopia (ghost images), glare, haloes or other significant visual aberrations
- Rainbow glare as a complication of femtosecond laser flaps
- Persistent corneal edema.
- Corneal infiltrate or ulcer.
- Corneal ectasia (Progressive corneal steepening)
- Corticosteroid complications including elevated intraocular pressure or cataract.
- Slipped, wrinkled or lost flap following Laser Assisted In Situ Keratomileusis (LASIK).
- Epithelial ingrowth into the flap interface following LASIK.
- Acute or late onset Diffuse Lamellar Keratitis following LASIK
- Development or exacerbation of moderate to severe dry eye symptoms.
- Reactivation of Herpes Simplex Virus
- Penetrating eye trauma
- Endophthalmitis
- Retinal breaks, vascular events. (Although adverse retinal events have been reported post refractive surgery, it is unknown whether these are occurring any more often than in a comparable myopic population)

Appendix 1. Refractive surgery adverse events report



**APPENDIX 1 TO ANNEX F – AMA DIRECTIVE 400-02**  
**REFRACTIVE SURGERY ADVERSE EVENTS REPORT**

SN Number	Rank	Family name	Given name(s)	Date of birth
Health Facility		Unit, ship, section		Military occupation

Refractive procedure: \_\_\_\_\_

Date of procedure: \_\_\_\_\_

Procedure location: \_\_\_\_\_

Affected eye: \_\_\_\_\_

Date of event: \_\_\_\_\_

Operating specialist: \_\_\_\_\_

Adverse event: \_\_\_\_\_

What was the outcome of the adverse event?

\_\_\_\_\_  
**CF Flight Surgeon Signature      Rank      Printed name or stamp      Date**

**Distribution:**

The original is to be forwarded to AUMS Centre/CFEME Toronto and a copy to 1 Cdn Air Division Surgeon and a copy put on the service member's 2034

**ANNEX G – AMA DIRECTIVE 400-02**

**REFRACTIVE SURGERY CHECKLIST**

There are numerous steps and criteria that must be met/completed in order to achieve an optimum outcome for a refractive surgery procedure from both a medical and career perspective. Please ensure that the follow steps are appropriately completed:

<b><u>ITEM</u></b>	<b><u>OPI/TASK</u></b>	<b><u>Date Completed</u></b>
Annex A – Background Information – Refractive Surgery	Member - Read	
Annex B – Counseling and Approval Form for Corneal Refractive Surgery	Member – Sign	
	CF Flight Surgeon – Complete and Sign	
Annex C – Approval of Commanding Officer	CO – Complete and Sign	
AMA Directive 400-02 Laser Refractive Surgery for CF Aircrew	Member to provide a copy of the AMA Directive to the Refractive Surgeon	
Annex D – Post-Operative Medical Clearance – Corneal Refractive Surgery	Refractive Surgeon/Ophthalmologist – Complete and Sign	
Annex E – CF Flight Surgeon Endorsement following Corneal Refractive Surgery	CF Flight Surgeon - Complete and Sign	
Annex F – Refractive Surgery Adverse Event Reporting        *if indicated	CF Flight Surgeon – Complete and Sign*	
	Original Forwarded to AUMS Centre/CFEME*	
	Copy sent to 1 Cdn Air Div Surg*	
	Copy placed on member’s CF2033*	
Annex G – Information for Refractive Surgeon	CF Member to provide information sheet to Refractive Surgeon prior to procedure taking place	