KCMC/CCBRT Fellowship Training in Vitreo-Retinal Surgery 2008

Aims
1. To enable the candidate to be competent in all vitreo-retinal procedures.
2. To teach the candidate about retina and treatment with laser techniques.

Methods
An apprenticeship with emphasis on practical and surgical teaching with a hands on exposure. During the Fellowship Training there will be little formal lecture type teaching. The candidate will help in the clinic, ward and laser clinic. On the occasions that there are no VR patients to attend to, the candidate is expected to help in the general clinic and/or theatre.

Duration
Minimum one year but 18 months is preferable. The duration will depend on the candidate's previous experience and the situation he/she will be returning to. VR Fellows undergo 50% of the training at CCBRT and 50% at KCMC. Candidates are encouraged to try and set up a link with a VR surgeon or unit that can provide continuous support after the fellowship.

Requirements for entry
The candidate must be a fully qualified ophthalmologist and should
1) have done at least 500 cataracts,
2) be competent at phacoemulsification,
3) be familiar with the indirect ophthalmoscope and biomicroscopy for examining the retina,
4) know the basic and standard level goals of the curriculum (see below).

To be accepted as a VR Fellow, CCBRT/ KCMC require assurances that vitreo-retinal services are required at the Fellow's base station, and that the necessary equipment, resources and consumables are available to perform the techniques taught.

Course fees:

Tuition:	Euro 5000
Visa/ Registration:	Euro 400
Books and literature:	Euro 1000
Accommodation:	Euro 400/ month
Food:	Euro 200/month

The accommodation is simple self contained rooms.

Curriculum:

The core material is based on the book *Retina* by Ryan. The main areas of the Felllowship Training are:

1) Retinal detachment and the surgery required.
2) Vitreous Haemorrhage and its treatment.
3) Diabetic retinopathy and its treatment.
4) Laser therapy.
5) Diagnosis of vitreo/retinal conditions (incl. HIV, Maculopathies, and other)

The detailed VR Fellowship curriculum has been adapted from *The Guidelines and Standards for Education of an Ophthalmologist: A Curricular Outline International Task Force on Ophthalmology for Resident and Specialist Training, on behalf of the International Council of Ophthalmology (ICO)*. The full Curriculum Guidelines are available online at www.icoph.org/ed/resgui.html

VR FELLOWSHIP CURRICULUM

VITREORETINAL DISEASE

BASIC LEVEL: PGY-2

A. Cognitive skills

1. To describe basic principles of retinal anatomy and physiology (layers of the retina, retinal physiology).
2. To describe fundamentals and demonstrate basic understanding of fluorescein angiography as applied to retinal vascular disease (e.g., indications, phases of the angiogram).
3. To describe etiologies and mechanisms of retinal detachment.
4. To describe macular anatomy and function and to describe typical features of common macular disease (e.g., age-related macular degeneration, macular hole, macular dystrophies, macular pucker).
5. To describe basic principles of laser photocoagulation.
6. To describe and recognize features of commotio retinae, traumatic choroidal rupture, and Purtscher's retinopathy.
7. To describe common forms of retinal vascular disease (e.g., branch, hemi- or central retinal vein and artery occlusion).
8. To describe typical features of retinitis pigmentosa.
9. To describe features of, recognize, and evaluate posterior vitreous detachments and retinal detachments.

B. Technical skills

1. To perform direct ophthalmoscopy.
2. To perform indirect ophthalmoscopy.
3. To perform slit lamp biomicroscopy with the Hruby, +78, +90 lenses, 3-mirror contact lens, and trans-equator (pan-funduscopic) contact lens.
4. To interpret basic fluorescein angiography in common retinal disorders (e.g., diabetic retinopathy, cystoid macular edema).

STANDARD LEVEL GOALS: PGY-3 (in addition to basic level goals)

A. Cognitive skills

1. To describe more advanced retinal anatomy and physiology.
2. To describe more advanced concepts of fluorescein/indocyanine green (ICG) angiography as applied to retinal vascular and other diseases (e.g., indications, phases of the angiogram).
3. To describe principles of retinal detachment recognition, various types of retinal detachment (e.g., exudative, rhegmatogenous, tractional), and their evaluation, management and repair (e.g., identify retinal break).
4. To describe and recognize typical features of less common macular disease (e.g., parafoveal telangiectasias, cone dystrophies, inherited macular dystrophies, fundus flavimaculatus, toxic maculopathies).
5. To describe indications for and complications of laser photocoagulation.
6. To describe the findings of major studies in retinal diseases, including the following:

    a. Diabetic Retinopathy Study (DRS)
    b. Diabetic Vitrectomy Study (DVS)
    c. Early Treatment of Diabetic Retinopathy Study (ETDRS)
    d. Macular Photocoagulation Study (MPS)
    e. Diabetes Control and Complications Trial (DCCT)

f. Branch Vein Occlusion Study (BVOS)
g. Central Vein Occlusion Study (CVOS)
h. United Kingdom Prospective Diabetes Study (UKPDS)
i. Age-Related Eye Disease Study (AREDS) ICO Guidelines, 48
j. Verteporfin in Photodynamic Therapy Study (VIP)
k. Treatment of Age-Related Macular Degeneration with Photodynamic Therapy Study (TAP)

7. To describe the fundamentals of, evaluate, and treat (or refer) peripheral retinal disease and vitreous pathology (e.g., vitreous haemorrhage, retinal breaks).
8. To describe, evaluate, and treat choroidal detachments, uveal effusion syndrome.
9. To identify and evaluate retinoschisis (e.g., juvenile, senile).
10. To diagnose, treat, and recognize the complications of retinopathy of prematurity (e.g., retinal detachment).
11. To diagnose, evaluate, and treat the following retinal vascular diseases:

    a. Arterial and venous obstructions
    b. Diabetic retinopathy
    c. Hypertensive retinopathy
    d. Peripheral retinal vascular occlusive disease
    e. Acquired retinal vascular diseases
    f. Ocular ischemic syndrome
    g. Sickle cell retinopathy. Retinal pigment epithelial detachment

12. To describe and recognize common and uncommon macular disorders:

    a. Age-related macular degeneration (ARMD)
    b. Choroidal neovascularization (e.g., ARMD, histoplasmosis)
    c. High myopia
    d. Macular dystrophies
    e. Macular pucker (e.g., epiretinal membrane)
    f. Macular holes
    g. Cystoid macular edema
    h. Central serous choroidopathy (retinopathy)
    i. Optic pit and secondary serous detachment
    j. Retinal pigment epithelial detachment

13. To describe the fundamentals of retinal electrophysiology.
14. To describe, recognize, and evaluate hereditary retinal and choroidal diseases (e.g., gyrate atrophy, choroideremia, retinitis pigmentosa, cone dystrophies, Stargardt's disease, Best's disease, congenital stationary night blindness).
15. To recognize, evaluate, and treat (or refer) retinal and choroidal toxicity (e.g., phenothiazine, hydroxychloroquine/chloroquine toxicity, tamoxifen).
16. To describe the techniques for retinal detachment repair (e.g., pneumatic retinopexy, scleral buckling, vitrectomy).
17. To describe the basics of surgical vitrectomy (e.g., indications, mechanics, instruments, and technique).
18. To describe the indications for and perform basic laser treatment for diabetic retinopathy (e.g. panretinal photocoagulation; macular grid).
19. To describe the fundamentals of special vitreoretinal techniques:

    a. Macular hole repair
    b. Epiretinal membrane peeling
    c. Complex vitrectomy for proliferative vitreoretinopathy

d. Use of heavy liquids and intraocular gases (e.g., perfluorocarbons)

20. To describe, evaluate, and treat posterior uveitis syndromes and endophthalmitis.

B. Technical skills

1. To perform indirect ophthalmoscopy with scleral indentation.
2. To perform ophthalmoscopic examination with contact lenses, including pan-funduscopic lenses.
3. To interpret fluorescein and ICG angiography.
4. To describe the indications for and interpret retinal imaging technology (e.g., ocular coherence tomography, retinal thickness analysis).
5. To perform posterior segment photocoagulation.
6. To perform diabetic focal/grid macular laser treatment.
7. To perform peripheral scatter photocoagulation (panretinal).
8. To perform laser retinopexy (demarcation) for isolated retinal breaks.
9. To describe the indications for and interpret basic electrophysiological tests (e.g., electroretinogram [ERG], electro-oculogram [EOG], visual evoked potential (VEP), dark adaptation).
10. To interpret basic ocular imaging techniques (e.g., B-scan echography, nerve fiber layer analysis).
11. To perform fundus drawings of the retina, showing complex vitreoretinal relationships and findings.
12. To perform cryotherapy of retinal holes and other pathology.
13. To describe indications, techniques, and complications of scleral buckling and to assist in a retinal surgery or perform the procedure under supervision.
14. To describe indications, techniques, and complications of pars plana vitrectomy and to assist in a retinal surgery or perform the procedure under supervision.

ADVANCED LEVEL GOALS: PGY-4 (in addition to Standard Level goals)

A. Cognitive skills

1. To apply in clinical practice the most advanced knowledge of retinal anatomy and physiology (e.g., surgical anatomy).
2. To apply in clinical practice the most advanced concepts of fluorescein/ICG angiography in complex retinal vascular and other diseases (e.g., occult choroidal neovascular membranes, recurrent neovascularization, vascular tumors, diseases of choroid and retinal pigment epithelium).
3. To evaluate, treat or refer the most complex retinal detachments (e.g., recurrent retinal detachment, proliferative vitreoretinopathy).
4. To evaluate, treat or refer the most complex macular disease (e.g., subfoveal or recurrent neovascular membranes).
5. To describe the indications for laser photocoagulation, including photodynamic therapy for the most complex retinal pathology (e.g., subfoveal neovascular membranes).
6. To describe the findings of the major studies in retinal diseases and describe the indications and exceptions for application to individual patients:

    a. Diabetic Retinopathy Study (DRS)
    b. Diabetic Vitrectomy Study (DVS)
    c. Early Treatment of Diabetic Retinopathy Study (ETDRS)
    d. Macular Photocoagulation Study (MPS)
    e. Diabetes Control and Complications Trial (DCCT)

f. Branch Vein Occlusion Study (BVOS)
g. Central Vein Occlusion Study (CVOS)
h. United Kingdom Prospective Diabetes Study (UKPDS)
i. Treatment of Age-related Macular Degeneration with Photodynamic Therapy (TAP; VIP)

7. To apply in clinical practice understanding of the most complex peripheral retinal disease and vitreous pathology (e.g., Goldmann-Favre disease, incontinentia pigmenti, familial exudative vitreoretinopathy).
8. To evaluate and treat complications of retinal photocoagulation (e.g., vitreous hemorrhage, chorioretinal anastomoses).
9. To recognize and treat or refer complex retinal detachments (e.g., giant tear).
10. To evaluate, treat or refer the more complex cases of retinopathy of prematurity (e.g., tractional retinal detachment).
11. To evaluate, treat or refer the most complex forms of retinal vascular disease:

    a. Combined arterial and venous obstructions
    b. Advanced diabetic retinopathy
    c. Advanced hypertensive retinopathy
    d. Peripheral retinal vascular occlusive disease
    e. Acquired retinal vascular diseases

12. To evaluate and treat or refer the uncommon manifestations or presentations of the following macular diseases:

    a. Age-related macular degeneration (ARMD)/choroidal neovascularization, (e.g., recurrent subfoveal neovascularization).
    b. Uncommon macular dystrophies
    c. Refractory cystoid macular edema
    d. Recurrent central serous choroidopathy (retinopathy)
    e. Acute posterior multifocal placoid pigment epitheliopathy (choroidopathy)
    f. Multiple evanescent white dot syndromes
    g. Serpiginous choroiditis
    h. Acute zonal outer retinopathy
    i. Triangular syndrome
    j. Polypoidal choroidopathy

13. To apply in clinical practice the more complex retinal electrophysiology (e.g., multifocal electroretinography).
14. To apply in clinical practice the more complex techniques for retinal detachment repair:

    a. Repeat scleral buckling
    b. Pars plana vitrectomy (e.g., diagnostic tap; core vitrectomy, extensive vitrectomy)
    c. Repair of uveal effusion

15. To apply in clinical practice the more complex principles of surgical management of diabetic retinopathy (e.g., vitrectomy, membrane release).
16. To apply in clinical practice complex vitreoretinal techniques:

    a. Macular hole repair
    b. Epiretinal membrane peeling
    c. Complex vitrectomy for proliferative vitreoretinopathy
    d. Use of heavy liquids

17. To evaluate and treat or refer the etiologically more complex or uncommon cases of posterior uveitis (e.g., sympathetic ophthalmia) and endophthalmitis (e.g., endogenous).

B. Technical/surgical skills

1. To perform indirect ophthalmoscopy with scleral indentation in complex retinal cases (e.g., multiple holes, documented with detailed retinal drawing).
2. To perform ophthalmoscopic examination with pan-funduscopic or other lenses in complex retinal conditions (e.g., giant retinal tears, proliferative vitreoretinopathy).
3. To interpret and apply in clinical practice the results of fluorescein and ICG angiography and optical coherence tomography (OCT) in complex retinal or choroidal pathology (e.g., ocult subretinal neovascular membrane).
4. To perform posterior segment photocoagulation in more complicated retinal cases:

    a. Diabetic focal/grid macular treatment (e.g., monocular patient, repeat treatment)
    b. Repeat peripheral scatter photocoagulation (panretinal)
    c. Laser retinopexy (demarcation) of large or multiple breaks; cryotherapy

5. To interpret and apply in clinical practice electrophysiology (e.g., ERG, EOG, VEP, dark adaptation) in more complicated retinal pathology.
6. To interpret and apply in clinical practice ocular imaging techniques (e.g., B-scan echography) in more complex cases (e.g, choroidal osteoma).
7. To perform detailed fundus drawings of the retina with vitreoretinal relationships in the most complex retinal cases (e.g, recurrent retinal detachment, retinoschisis with and without retinal detachment).
8. To perform laser therapy or cryotherapy of retinal holes and other more complex retinal pathology.
9. To assist/perform scleral buckling in complex retinal detachment.
10. To assist/perform advanced pars plana vitrectomy.