

**EVALUATION
RESOURCE
GROUP**

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Occupational Ophthalmology – Vision Rehabilitation

March 25, 2007

Patient: XXXX
Employer: XXXX
D/I: XXXX
Claim No: XXXX
WCAB:

Dear Ms. XXXX,

Thank you for the opportunity to perform this qualified medical evaluation.

On XXXX, I had the opportunity to interview and evaluate XXXX regarding her medical and ophthalmic history, as well as her overall visual function.

The applicant arrived to my Albany office ahead of schedule accompanied by her husband, XXXX, and her son, XXXX. Mrs. XXXX was interviewed and examined with her family members present. She was advised that this was an evaluation of visual disability, not an ophthalmic examination *per se*, nor was the doctor-patient relationship established today, and that this report would be sent to the involved parties.

This history and optical evaluation is not intended to be construed as a general or complete ophthalmic evaluation. It is intended solely for medical-legal purposes and focuses on those industrial issues in question, as requested by the parties. By performing this medical legal examination, no treatment relationship is established or implied.

COMPLEXITY FACTORS AND FEE JUSTIFICATION

The revised medical-legal fee schedule indicates that ML104 may be billed if four complexity factors exist. The five complexity factors here are:

1. Two or more hours of face-to-face time by the physician with the patient;
2. Two or more hours of record review;
3. A bona fide issue of medical causation discovered in the evaluation and in any event a written request by the requesting party for discussion of the issue of medical causation;
4. A bona fide issue of apportionment discovered in the evaluation;
5. Two or more hours of medical research by physician.

I verify under penalty of perjury that I spent 3.25 hours in face-to-face interview time with XXXX. I further verify that I spent 4 hours reviewing the medical records and 2 hours in research. Finally, I spent 14 hours preparing this computationally intensive report for a total of 23.25 hours.

This report is being billed at ML104. This was clearly a complex medical-legal evaluation, involving Mrs. XXXX's general medical history, ophthalmic history, current visual status and the job requirements of a teacher of preschool children.

GENERAL BACKGROUND

Mrs. XXXX is a 62 year old, right eye dominant, diabetic, hypertensive teacher of pre-school children, who was assaulted in the course of employment by a special needs student on April 22, 2004. The consequent fall to a cement floor eventuated in a right humeral neck fracture, a right wrist (scapho-lunate) dislocation and a right orbital floor fracture (a.k.a. a "blowout fracture") with an associated traumatic optic neuropathy, a traumatic neuropathy of the inferior branch of the third cranial nerve and a presumed choroidal rupture that in turn led to an initial vitreous hemorrhage. Following a fourteen day course of intravenous corticosteroid infusions (April 29-May 12, 2004) to treat optic nerve compression, Mrs. XXXX underwent a surgical procedure to decompress the right orbit on May 5, 2004. The recuperation period was complicated by delayed functional recovery of the extra-ocular muscles and resultant double vision (diplopia).

Mrs. XXXX also has received laser treatment in the left eye prior to the date of injury for diabetic retinopathy, but never has been diagnosed as having *proliferative* diabetic retinopathy in either eye. More than two years after her original date of injury, Mrs. XXXX apparently suffered a recurrent vitreous hemorrhage on the right. The off-label use of Avastin™ (bevacizumab, Genentech) by intra-vitreous injection on October 2, 2006 was used in an attempt to clear the vitreous hemorrhage without resorting to surgical vitrectomy. Mrs. XXXX also has had a second focal laser treatment to the left eye on November 22, 2006, again to treat diabetic macular edema. At the time of this evaluation, Mrs. XXXX had a non-resolving vitreous hemorrhage on the right, which diminished her visual function.

JOB HISTORY

Mrs. XXXX has been in the employment of XXXX, since XXXX. She denies any other employers for the last 30+ years. She continues to work as a teacher of pre-school children, with work restrictions based upon her associated orthopedic, right upper extremity injury.

JOB DESCRIPTION

Average Day: 0700: Opens up school building; 1010 – 1150: Lunch Break; 1200 – 1500: Class time

Job Title: Pre-school teacher, three to five year olds.

Job Duties: Teaching and controlling behavior
Backfill for other teachers, including special needs teachers
Reading books to children and school-related paperwork

CONFLICTS OR HARASSMENT AT WORK

None reported.

JOB PERFORMANCE EVALUATIONS

None provided.

HISTORY OF INJURY

On XXXX, at 0945, co-incident with a field trip to the library that caused a temporary school staffing shortage, Mrs. XXXX was filling in for a special needs teacher at XXXX in XXXX, California. An altercation ensued between two of the children, and Mrs. XXXX utilized a non-violent restraint technique to subdue an unruly student, and thereby prevent a student-upon-student assault “with a large wooden block.” She placed the student bodily into a chair and released him. As she turned, she reports being kicked first in the back of the right knee, then as she buckled, was kicked again in the back of the left knee and pushed forward, thus knocking her to the ground. In her attempt to break her fall, she apparently fractured the neck of her humerus bone at the shoulder and dislocated the scaphoid from the lunate bones in her wrist. Unable to break her fall, her face made a direct impact with the cement floor, thus fracturing the orbital floor and entrapping the intra-orbital tissues in the bony leaves of the fracture. The fracture also caused an intra-orbital hemorrhage, traumatized her optic nerve and injured the inferior branch of the third cranial nerve on the right.

Mrs. XXXX was transferred, via ambulance to the XXXX Medical Center. For reasons unreported in the record, a seven day delay apparently occurred between Mrs. XXXX’s orbital floor fracture and her initial evaluation by oculo-plastics. Diagnostic evaluation by XXXX, MD at the XXXX revealed diminished color perception, reduced brightness testing and greatly diminished extra-ocular motility,

consistent with the diagnoses of traumatic optic neuropathy and traumatic ophthalmoplegia, secondary to the orbital fracture and associated intra-orbital hematoma. Mrs. XXXX was admitted emergently for high dose intravenous steroids.

Following three days of intravenous Solu-Medrol (250 mg every four hours), Mrs. XXXX underwent an orbital floor decompression, performed by Dr. XXXX in which entrapped orbital fat was freed from the fractured edges of the bones of the orbital floor. Post-operatively, Mrs. XXXX was switched to oral prednisone, and remained in the hospital for two additional days. Mrs. XXXX received consultations from internal medicine for her diabetes management and from orthopedics for the work-up of her upper extremity injury during this admission.

On XXXX, Mrs. XXXX was seen by XXXX, MD (XXXX Occupational Medicine) who evaluated her for her occupational injuries. In the course of her narration, Dr. XXXX described neurological symptoms consistent with a palsy of the inferior branch of the right, third cranial nerve, and also consistent with sparing of the right fourth, sixth and superior branch of the third cranial nerves.

On XXXX, Mrs. XXXX was seen by Dr. XXXX, who reported “pin hole” visual acuities of 20/60⁻³ on the right and 20/40⁻¹ on the left, as well as a dilated pupil on the right. (N.B. – Pin hole visual acuity is a rough estimation of best corrected visual acuity, which uses the central rays of light only to focus an image on the retina. The pin hole method is more likely to underestimate the best corrected visual acuities, upon which the AMA visual impairment ratings evaluations are based.

On XXXX, Mrs. XXXX was seen by XXXX, MD (XXXX Ophthalmology) who reported uncorrected visual acuities of 20/60 on the right (pin holing to 20/40) and 20/40 on the left. Of note is that this pin hole visual acuity was the best recorded post-injury estimation of pre-injury visual acuity. Dr. XXXX described pupillary abnormalities and an ophthalmoplegia consistent with the right, inferior, third cranial nerve palsy. The ophthalmoplegia was attributed to the initial trauma and not considered to be a complication of the orbital decompression surgery. Moderate cataracts were noted bilaterally. Dilated fundus examination revealed a “large area” of pre-retinal hemorrhage overlying the inferior temporal arcade of retinal blood vessels. The suspicion of a choroidal rupture was noted, as was evidence of prior focal laser treatment in the left eye. A Doctor’s Report of Occupational Injury by Dr. XXXX on the same day, diagnosed “probable traumatic ophthalmoplegia” and posed the question of a choroidal rupture as the cause of the pre-retinal hemorrhage. Neither B-scan ultrasonography, nor fluorescein angiography was ordered at this time.

On XXXX, Dr. XXXX dictated a summary letter for Mrs. XXXX which included restrictions from all work activities for an indefinite period of time with an estimation of 3-6 months for visual rehabilitation. Pre-operative ophthalmic findings of XXXX’s right orbital floor fracture, right traumatic optic neuropathy, right “complete” ophthalmoplegia and right pre-retinal hemorrhage were noted, as was the fracture of her right proximal humerus.

On XXXX, Mrs. XXXX was seen by XXXX, MD who reported neurological findings consistent with her aforementioned third cranial nerve palsy.

On XXXX, Mrs. XXXX was seen by XXXX, MD again, who reported corrected visual acuities on the right of 20/60⁻¹, “pin holing” to 20/50⁻² and on the left of 20/40⁻², “pin holing” to 20/40⁺². Additionally,

a 30 prism diopter right exotropia was noted, as was 2 mm of anisocoria (5mm on the right and 3 mm on the left). The above estimation of best corrected visual acuities by “pin hole” acuities suggests that the current prescription was not the best possible prescription, though no recommendation for an upgrade of Mrs. XXXX’s spectacle correction was made. Rather, patching of the right eye was recommended in the treatment plan to relieve the resolving symptom of diplopia. The relative dilation of the right pupil reflects the unbalanced action between the pupillary sphincter muscle, innervated by post-ganglionic sympathetic neurons derived from the superior cervical ganglion, against the paretic pupillary sphincter muscle, innervated by parasympathetic neurons originating in the inferior branch of the oculomotor nerve (CN III_{inf}).

On XXXX, Mrs. XXXX was seen by XXXX, MD, who initiated a diagnostic work-up of Mrs. XXXX’s persistent right wrist pain. Ophthalmic care was deferred to Drs. XXXX and XXXX.

On XXXX, Mrs. XXXX was seen by XXXX, MD, who noted loss of vision as one of Mrs. XXXX’s symptoms. Follow-up treatment for this visual disability was deferred to ophthalmology.

On XXXX, Mr. XXXX was seen by XXXX, MD, who reported continued work restrictions consistent with Mrs XXXX’s “lack of vision on the right eye,” again deferring to ophthalmology for definitive care.

On XXXX, Mrs. XXXX was seen by XXXX, MD, who reported a retinal hemorrhage on the right, as diagnosed by Drs. XXXX and XXXX.

On XXXX, Mrs. XXXX was seen by XXXX, MD, who did not note any interval ophthalmic findings and deferred care to ophthalmology.

On XXXX, Mrs. XXXX was seen by XXXX, MD, who reported a right scapho-lunate dislocation of her wrist, and was restricted from all work activities. Vision was subjectively improved, although Mrs. XXXX described symptoms consistent with a possible vitreous hemorrhage noted in her temporal visual field. Follow-up with ophthalmology was not planned until December, XXXX.

On XXXX, Mrs. XXXX was seen by XXXX, MD, who reported improvements in Mrs. XXXX’s self-perceived visual function, including the resolution of double vision.

On XXXX, Mrs. XXXX was seen by XXXX, MD, and was returned to work with modified work restrictions of: no lifting of more than 15 pounds on the right; no lifting or carrying children; and only occasional reaching above the shoulder level on the right. No work restrictions based upon Mrs. XXXX’s visual function were noted. Resolution of blurred and double vision was noted.

On XXXX, Mrs. XXXX was seen by XXXX, MD who reported visual acuities of 20/100 (pin holing to 20/60) on the right and 20/60⁻³ (pin holing to 20/40⁺²) on the left. Resolution of the double vision was reported and the extra-ocular motility was noted to be full. Bilateral mild nuclear sclerotic cataract changes were noted. Dr. XXXX noted the absence of both iris and retinal neovascularization, as well as the absence of clinically significant macular edema. Nevertheless, dilated fundus examination did reveal a “mild residual vitreous hemorrhage” on the right. The office records also noted possible “trace vitreous hemorrhage in the left eye,” *but specifically denied findings of neovascularization or clinically*

significant diabetic macular edema in either eye. A routine six month dilated fundus examination to identify early signs of diabetic retinopathy was scheduled for December, XXXX. An associated PTP Progress report (PR-2) prepared by XXXX, MD was attached.

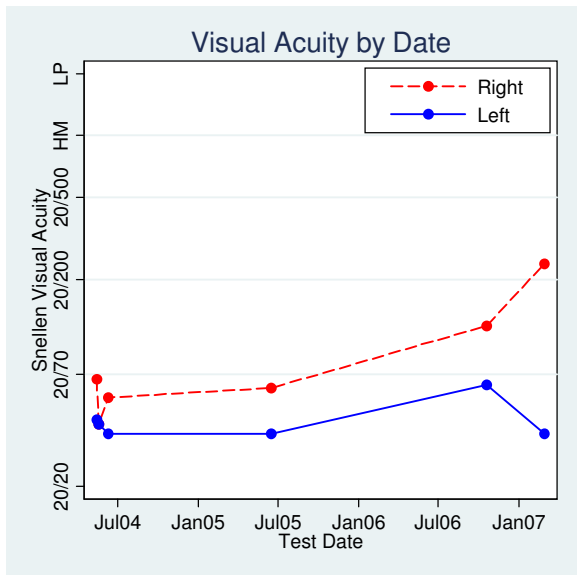
On XXXX, Mrs. XXXX was seen by XXXX, MD who re-issued the aforementioned modified work restrictions. Mrs. XXXX reported to Dr. XXXX that her blurred vision was attributed to “one of her other medical problems” and that her self-perceived visual function was “much better.”

On XXXX, Mrs. XXXX was seen by XXXX, MD who noted newly reduced, self-perceived functional visual loss on the right. Ophthalmic follow-up was reported as scheduled in four months for December, XXXX. No interval exams were reported.

More than a year later, on XXXX, Mrs. XXXX was seen by XXXX, MD who noted corrected visual acuities of 20/100-1 on the right and 20/60-1 on the left without pin hole improvement. Mrs. XXXX was diagnosed with a “three week history of non-resolving vitreous hemorrhage.” The off-label use of intra-vitreous Avastin™ (bevacizumab, Genentech) was recommended and Mrs. XXXX consented to this minimally invasive option.

On XXXX, Dr. XXXX issued a summary letter reiterating the presenting findings on XXXX, Mrs. XXXX’s subsequent hospital admission and her surgical decompression of the blowout fracture of the right orbit. The letter reported that the residual, post-operative extra-ocular muscle paresis caused double vision, and vitreous hemorrhage was reported as the cause of Mrs. XXXX’s visual acuity reduction. The indication for the aforementioned retinal consultation was noted.

The third paragraph of this letter describes the vitreous hemorrhage on the right as “a direct result of the injury that [Mrs.XXXX] sustained in XXXX.” The letter also refers to “underlying [non-proliferative] diabetic retinopathy and cataracts. No recommendation for visual rehabilitation other than cataract surgery is mentioned, despite a formidable medication regimen which includes drawing up her own insulin into hypodermic syringes.



← Best post-injury “pin hole” visual acuity = 20/40 (5/18/2004)

↑
Date of Injury

CURRENT WORK STATUS

Mrs. XXXX continues to work as a pre-school teacher

PERIODS OF TEMPORARY DISABILITY

Temporary total disability: April 22, 2004 – March 7, 2005, based upon right orbital trauma and right upper extremity injury.

Permanent partial disability: March 7, 2005 – present (based upon right upper extremity injury).

PREVIOUS WORKERS' COMPENSATION INJURIES

Temporary total disability for two months following May 19, 1996 emergency coronary artery bypass graft surgery.

Work-related back injury, 1994. WCAB status indeterminate.

CURRENT COMPLAINTS

Blurred vision, both eyes (left eye better than right, dominant eye).

HISTORY OF PRE-EXISTING DISEASE AT RISK FOR AGGRAVATION BY EMPLOYMENT

Ophthalmic:

Non-proliferative diabetic retinopathy, right eye, reportedly treated “years ago” with laser. Dr. XXXX’ note of XXXX noted focal laser scars on the left eye only. (A recall error on Mrs. XXXX’s part is presumed.)

Cataract, described as mild nuclear sclerosis, both eyes.

Last spectacle change reported as 2002.

Unstable gait reportedly due to visual deficits. (N.B. *Tabes diabetica* has not been excluded.)

Medical:

1. Insulin dependent diabetes mellitus (129 units/day), supplemented with Glucophage™
2. Hypertension, treated with Catapres™, isosorbide dinitrate, atenolol, and furosemide
3. Hypercholesterolemia, treated with Vytarin™
4. Hypothyroidism, treated with levothyroxine
5. Obesity
6. History of myocardial infarction (May, 1996) and coronary bypass grafting
7. Venous insufficiency, both lower extremities following saphenous vein harvesting
8. Non-Hodgkin's Lymphoma (May, 2003) with partial thyroidectomy and left neck biopsy yielding two positive lymph nodes. Leg weakness as well as acanthotic facial skin changes reported as possible complications of the associated treatment with chemotherapy.

PRE-EXISTING PERMANENT DISABILITY

No ophthalmic disability was reported, although no pre-injury eye examinations were available for comparison to post-injury reports. No pre-existing permanent disability was reported.

RECREATIONAL TOXIC EXPOSURES

The applicant denies hobbies involved with stained glass, paints (except pre-school children's "non-toxic" paints), painting, woodworking, metal working, welding, photography or any recreational tasks that involve handling toxic chemicals. The applicant denies significant exposure to herbicides and/or pesticides, though she does enjoy working on her backyard organic vegetable garden. The applicant is unaware of any recreational exposures that would be contributing to his present symptom complex.

CURRENT MEDICATIONS

Medication List:

- Insulin NPH 54 units subcutaneously in the morning
- Insulin NPH 54 units subcutaneously after dinner
- Insulin Regular 54 units subcutaneously in the morning
- Insulin Regular 21 units subcutaneously at bedtime
- Levothyroxine 200* mg by mouth in the morning
- Catapres 0.2* mg two tabs by mouth at bedtime
- Isordil 10* mg tabs by mouth three times a day
- Vytarin 10/20* mg tab by mouth at bedtime
- Atenolol 50* mg two tabs by mouth in the morning
- Glucophage 500* mg two tabs by mouth daily
- Naproxen sodium 200 mg by mouth as needed for pain
- Reglan 10* mg by mouth as needed for nausea
- Prilosec 20* mg by mouth once daily
- Furosemide 20* mg by mouth three times daily

(* Denotes common daily dosage. The applicant was unable to provide this information.)

Ophthalmic medications:

None at present.

Traumatic optic neuropathy was treated with IV Solu-Medrol 250 mg every four hours for three days, followed by replacement with oral prednisone post-operatively with a rapid taper.

Erythromycin ophthalmic ointment was used post-operatively as a prophylaxis.

Drug Allergies:

Penicillin (rash)

Food Allergy:

None reported.

PAST MEDICAL HISTORY

Surgery:

Coronary artery bypass graft x 2 (May, 1996)

Partial thyroidectomy and cervical lymph node biopsy (May, 2003)

Caesarian section x 2

Medical:

Insulin dependent diabetes mellitus

Hypertension

Hypercholesterolemia

Obesity

Venous insufficiency, both lower extremities

Non-Hodgkin's Lymphoma

Ophthalmic:

Focal laser surgery (date unknown) likely for (presumed) clinically significant diabetic macular edema. Mrs. XXXX recalls the right eye, but Dr. XXXX noted old laser scars in the left eye.

Focal laser surgery, left eye, reportedly on November 11, 2006.

Psych: Non-contributory.

Emotional stress:

Work: The shock of being physically assaulted and gravely injured by an irate 4 year old was undoubtedly emotionally stressful. Additionally, the subsequent surgeries and periods of visual disability are independent emotional stressors. Nevertheless, Mrs. XXXX has been happily employed for more than three decades as a teacher of pre-school children and reported no emotional stressors associated with her co-workers.

Home: Mrs. XXXX lives with her husband XXXX and appears to have a harmonious family.

Her family medical history is remarkable for premature death. Her mother died at age 48, her sister died at age 50 and one brother died at age 52, all of heart disease. Her only other brother died of cancer at age 37 and Mrs. XXXX's only daughter died at age 19, in 1995, secondary to anaphylactic shock. Mrs. XXXX's adult son lives at home and suffers from non-insulin dependent type II diabetes mellitus, diet-controlled hypertension and hyperlipidemia.

FAMILY MEDICAL AND OPHTHALMIC HISTORY

Mother - Deceased secondary to cardiovascular disease. No visual difficulties reported.
Father - Deceased secondary to prostate cancer. Presbyopia only.
Siblings - 2 Brothers, both deceased (cardiac disease and cancer) No visual difficulties reported.
 1 Sister, deceased (cardiac disease). No visual difficulties reported.
Children - 1 Son, alive and well, diabetic hypertensive and hyperlipidemic. Spectacles only.
 1 Daughter, deceased (anaphylaxis and chronic asthma). No visual difficulties reported.

SOCIAL ACTIVITIES

Mrs. XXXX is an avid reader of fiction (novels and love stories) but cannot read small print easily and cannot maintain her reading endurance with her current spectacle correction. She also enjoys cooking but is finding meal preparation challenging due to her reduced near vision. She enjoys sewing, and has found that she can accomplish simple sewing tasks if her husband, Fred, threads the needle for her. Mrs. XXXX limits her activities due to a justified fear of falling; she feels her eyesight has reduced her depth perception.

SOCIAL HISTORY

School: Four year college degree. Graduate education: 42 units in early childhood development.
Marital: Married x 34 years
Smoking: Never smoked
Alcohol: Never drinks
Caffeine: One cup of decaffeinated coffee in the morning, daily.
Stress: No bankruptcy, felony convictions, drug abuse or alcoholism.
Home environment: Lives in a house in XXXX, California with her husband and son.

ACTIVITIES OF DAILY LIVING

Self Care/Personal Hygiene (toilet, dress, eat, groom): Independent.

Communication (write, see, hear, speak): Self-reported difficulty with visual tasks at distance and near. Otherwise independent.

Physical Activity (stand, walk, sit, lie, stairs): Mild, continuous difficulty ambulating independently, but does not use a support cane. Difficulty judging stairs and curbs due to deficient depth perception. Otherwise independent.

Sensory Function (hear, see, feel, taste, smell): Visual deficits as described below. Otherwise independent.

Hand, non-specialized activities (grasping, lifting, tactile discrimination): Difficulty raising right arm above shoulder. Otherwise grossly intact.

Travel (car, airplane, public transportation): Never held driver's license; husband provides driving. Otherwise independent.

Sexual (erectile and other forms of male/female dysfunction): Deferred in this setting.

Sleep (restful, nocturnal pattern, naps during day): Sleep reported as interrupted by twice nightly nocturia, secondary to furosemide diuretic effect.

REVIEW OF SYSTEMS

HEENT: Background diabetic retinopathy, history of focal laser treatment on left. Denies headache, hearing loss or naso-pharyngeal symptoms

LUNGS: Denies wheezing, shortness of breath

HEART: History of myocardial infarction, May 1996, and emergent coronary artery bypass grafting.

GI: Denies nausea, vomiting, constipation and diarrhea

GU: Denies kidney or bladder problems

PSYCH: Denies history of psychotherapy or pharmacologic treatment

Musculo-Skeletal: Fracture of the right proximal humerus. Right scapho-lunate dislocation, discovered more than four months following her injury

Neurological: Denies tremor, motor or sensory loss. Denies scalp tenderness or jaw claudication.

Skin: Multiple facial dyskeratoses consistent with acanthosis nigricans

MEDICAL RECORD REVIEW

1. XXXX. Operative Report - XXXX, MD. Repair of right orbital floor fracture with placement of a 1 mm Medpor™ barrier implant.
2. XXXX: Discharge Summary per XXXX, MD –, for hospital admission XXXX. Surgical decompression performed XXXX.
3. XXXX. PTP Progress report (PR-2) per XXXX, MD, reporting the need for orbital decompression and orbital floor fixation surgery.
4. XXXX. Total temporary disability projected for two months per XXXX, MD
5. XXXX. Doctor's First Report of Occupational Injury per XXXX, MD. Neurological findings consistent with a palsy of the inferior branch of the right third cranial nerve, with sparing of cranial nerves four, six and the superior branch of three.
6. XXXX. PTP Progress report (PR-2) per XXXX, MD, reporting post-operative persistence of the right cranial nerve III palsy and consequent double vision.
7. XXXX. Complete ophthalmic examination per XXXX, MD, reporting planned conservative observation for “probable traumatic ophthalmoplegia” and a “large pre-retinal hemorrhage on the right.” Pin hole visual acuity of 20/40 on the right.
8. XXXX. Doctor's First Report of Occupational Injury per XXXX, MD, reporting probable traumatic ophthalmoplegia and a pre-retinal hemorrhage in the right eye.
9. XXXX. Summary letter per XXXX, MD, restricting Mrs. XXXX from all work activities for at least 3 months. Dr. XXXX described Mrs. XXXX's pre-operative right proximal humerus fracture, right orbital floor fracture, right traumatic optic neuropathy, right “complete” ophthalmoplegia and right pre-retinal hemorrhage.
10. XXXX. PTP Progress report (PR-2) per XXXX, MD, reporting persistence of symptoms of diplopia and neurological signs consistent with a palsy of the inferior branch of the right, third cranial nerve.
11. XXXX. PTP Progress report (PR-2) per XXXX, MD, reporting improvements in vision and ocular motility.
12. XXXX. PTP Progress report (PR-2) per XXXXX, MD initiating work-up for persistent right wrist pain.
13. XXXX. PTP Progress report (PR-2) per XXXX, MD noting vision loss as a symptom.
14. XXXX. PTP Progress report (PR-2) per XXXX, MD reporting continued restrictions from work due to “lack of vision in the right eye.”
15. XXXX. PTP Progress report (PR-2) per XXXX, MD reporting the discovery of a retinal hemorrhage by Drs. XXXX and XXXX.
16. XXXX. PTP Progress report (PR-2) per XXXX, MD reporting the continued follow-up for her ocular symptoms per ophthalmology.
17. XXXX. PTP Progress report (PR-2) per XXXX, MD reporting improved visual acuity, visual disturbances consistent with “floaters” and scheduled ophthalmic follow-up in December.
18. XXXX. PTP Progress report (PR-2) per XXXX, MD reporting partial resolution of Mrs. XXXX's eye symptoms, including the perception of improved visual acuity on the right, but

the persistence of right temporal visual phenomena described as “rainfall” and blurring of the image.

19. XXXX. PTP Progress report (PR-2) per XXXX, MD returning Mrs. XXXX to work with modified work restrictions based upon her right upper extremity injury.
20. XXXX. Ophthalmology interval examination per XXXX, MD, describing the resolution of double vision and recurrent vitreous hemorrhage on the right.
21. XXXX. Progress report (PR-2) per XXXX, MD. Persistent visual deficits ascribed to “one of her other medical problems.
22. XXXX. PTP Progress report (PR-2) per XXXX, MD reissuing the same modified work restrictions defined on XXXX. Problems with “blurriness” in the right eye was noted.
23. XXXX. PTP Progress report (PR-2) per XXXX, MD reissuing the same modified work restrictions. The permanent and stationary status of Mrs. XXXX’s visual disability was deferred to ophthalmology.
24. XXXX. Ophthalmic examination per XXXX, MD (XXXX Retina) reporting a 3 week history of right vitreous hemorrhage and the indication for off-label use of intra-vitreous Avastin™ (bevacizumab, Genentech).
25. XXXX. Summary letter per XXXX, MD relating all vision problems on the right to the work-related injury.
26. XXXX (time stamp only, date unknown, form unsigned). PTP Progress report (PR-2) per XXXX, MD reporting follow-up care by Drs. XXXX and XXXX.

SUMMARY OF RELEVANT OPHTHALMIC DIAGNOSTIC STUDIES

Goldmann Kinetic Perimetry – Constricted fields, both eyes
 Maddox Rod Test: 7 Prism Diopter exophoria, right eye
 1 Prism Diopter hyperphoria, right eye
 (equivalent to 7.1 Prism Diopters at 352°)

VISUAL EVALUATION

Distance Visual Acuity with current correction (Testing distance, 3 meters)

Right eye	20/400
Left eye	20/50
Both eyes	20/40 ⁻²

Manifest Refraction

(MRx @ 3 m)	Best corrected visual acuity	
OD _{3m} : -1.00 + 2.50 Ax 20	20/240	7 PD BI; 1 PD BD
OS _{3m} : -0.75 + 1.50 Ax 145	20/40 ⁺²	

Near Visual Acuity

OU: Reads: 1 M print @ 3.50 D with + 3.50 D add
with excellent fluency and excellent accuracy.

OD: Reads: 7 M print @ 3.50 D with + 3.50 D add
with good fluency and good accuracy.

OS: Reads: 1 M print @ 3.50 D with + 3.50 D add
with excellent fluency and excellent accuracy.

AMA FUNCTIONAL ACUITY SCORE:	= 71
AMA FUNCTIONAL FIELD SCORE	= 88
AMA FUNCTIONAL VISION SCORE	= 71 x 88/100 = 62
AMA VISION-RELATED IMPAIRMENT RATING	= 38 %

Individual Adjustments

1. Glare sensitivity (veiling glare) – moderate to severe difficulty in bright sunshine. In my professional opinion, Mrs. XXXX's degree of vision loss due to glare sensitivity is equivalent to: **1%**.
2. Binocularity and stereopsis – moderate difficulty with depth perception at near and intermediate distances. In my professional opinion, the difficulty Mrs. XXXX has with depth perception does add to her fall risk, but may be partially ameliorated by correction with her best spectacle correction, and thus adds: **1%**
3. Reduced or delayed light and dark adaptation – severe difficulty ambulating in dim light. In my professional opinion, this component of Mrs. XXXX's vision loss adds an additional: **2%**

DIAGNOSES

1. Moderately severe vision loss, both eyes secondary to:
 - a. Vitreous hemorrhage, right eye, secondary to
 - b. Presumed choroidal rupture
 - c. Background diabetic retinopathy, both eyes
 - d. Mild cataract, nuclear sclerotic type, both eyes
 - e. Uncorrected refractive error, both eyes
 - i. mixed myopic astigmatism
 - ii. presbyopia
 - f. Generalized constriction of the visual fields (by Goldmann visual field testing)
 - g. Glare sensitivity (by history)
 - h. Reduced depth perception (by history)
 - i. Diminished dark adaptation (by history)
 - j. Sluggish pupillary response, right eye
 - k. Anisocoria; right pupil 5mm, left pupil 3mm
 - l. 7 prism diopter right exophoria
 - m. 1 prism diopter right hyperphoria
 - n. Asthenopia (i.e. diminished reading endurance)

2. Physical assault on April 22, 2004, in the course of employment, resulting in
 - a. "Blowout" fracture of right orbital floor (i.e. the roof of the maxillary sinus) and
 1. Orbital hematoma
 2. Entrapment of the orbital fat
 3. Traumatic optic neuropathy
 4. Traumatic palsy of the inferior branch of the right, third cranial nerve, with near complete recovery of function
 5. Status-post three days of high-dose intravenous steroids
 6. Status-post surgical decompression with implantation of a Medpor™ 1mm orbital floor implant
 - b. Fracture of the right proximal humerus
 - c. Dislocation of the right wrist (scapho-lunate)

3. Insulin dependent diabetes mellitus } This constellation of symptoms
4. Hypertension } is consistent with the so-called
5. Acanthosis Nigricans skin changes } Insulin Resistance Syndrome
6. Obesity
7. Hyperlipidemia
8. Hypothyroidism
9. History of Myocardial Infarction
 1. Status-post Coronary Artery Bypass Grafting with Saphenous vein grafts (2)
10. History of lower extremity edema
11. History of Non-Hodgkin's Lymphoma
 1. Status-post partial thyroidectomy and cervical lymph node biopsy
 2. Status-post chemotherapy
12. Constant, moderate ambulation difficulty, not fully diagnosed or rehabilitated.

DISCUSSION

This highly complex case represents the situation in which the degree of vision loss directly attributable to the work-related injury suffered by Mrs. XXXX must be apportioned from her current visual disability, which includes cataract and background diabetic retinopathy. Nevertheless, the challenge of making this apportionment is based upon the absence of pre-injury eye examinations and recurrent vitreous hemorrhaging in Mrs. XXXX's course, making the date of maximal medical improvement indeterminate.

Absent the provision of pre-injury optometric and ophthalmic evaluations with which to establish the visual impairment rating prior to the injury, an approximation must be made which hinges on the applicant's self-perceptions, rather than actual measured psychometric values. Furthermore, the apportionment is obligated to compare pre-injury enumerations based upon "only available" rather than "best corrected" spectacle visual acuities. This limitation notwithstanding, the use of pin hole visual acuities provides an available, if uncertain, estimation of best corrected visual acuity. The pin hole approximation of best corrected visual acuity obtained by Dr. XXXX on XXXX will be utilized as a baseline estimation of pre-injury visual acuity in lieu of actual best corrected values.

Regarding Mrs. XXXX's uninvolved left eye, her visual acuities have remained stable from the date of injury and need not be considered in apportionment. The discrepancy between Mrs. XXXX's recollection of pre-injury laser surgery being on the right eye, and Dr. XXXX' finding of old laser scars in the left eye shall be assumed to be an error in recall on Mrs. XXXX's part. The finding of a generally constricted visual field is consistent with the diagnosis of long standing background diabetic retinopathy and cataract.

Regarding Mrs. XXXX's involved right eye, her current visual impairment rating is considerably worse than her post-operative visual impairment rating, due to recurrent vitreous hemorrhaging that has not yet resolved. Mrs. XXXX has received an injection of Avastin™ (bevacizumab, Genentech) in an effort to forestall the need for vitrectomy to clear the vitreous hemorrhage in the right. The second vitreous hemorrhage is likely to have occurred sometime before Mrs. XXXX's visit to Dr. XXXX on XXXX, when she noted "more [recent] ... problems with blurriness in the right eye." A third hemorrhage apparently occurred in XXXX.

Regarding her ophthalmoplegia, the pattern of deviation from orthophoria found by Maddox Rod testing of the extra-ocular muscles on the right was consistent with an injury to the inferior branch of the third cranial nerve. The 7 prism diopter exophoria and 1 prism diopter hyperphoria is consistent with unbalanced action of the right lateral rectus muscle (sixth cranial nerve) on the paretic right medial rectus muscle. Similarly the subtle right hyperphoria is consistent with unbalanced action of the right superior rectus muscle and right inferior oblique muscle (elevators) against the paretic right inferior rectus muscle and uninvolved right superior oblique muscle (fourth cranial nerve).

While the changes in visual field found today are medically probable to be the result of diabetic retinopathy, the asthenopic symptoms experienced by Mrs. XXXX are caused by a need to overcome her exophoria by convergence mechanisms, and fuse the images from her eyes to avoid double vision. These symptoms are directly attributable to the work-related injury via the intermediary of the traumatic

palsy of the inferior branch of the right, third cranial nerve.

Regarding maximal medical improvement for the ophthalmoplegia, the key evidentiary note is from November 11, 2004, approximately six months post-operatively. Dr. XXXX noted:

“Luckily, the patient’s eye symptoms have seemed to resolve greatly (*sic*). She still has some visual changes, but no longer has the paresis of the ocular muscles. I did tell the patient that because she’s not going to see the eye doctor until December to check with them to see if they think she can return to work in January. It seems to me that as far as safety is concerned, she probably could because she can now see out of that eye.”

This excerpt from the treatment plan is the best indication in the medical records provided that Mrs. XXXX’s vision had returned to baseline, or near pre-injury levels. Regarding the meaning of “some visual changes,” one can only speculate that this reference included the asthenopic symptoms as well as the vision changes secondary to vitreous hemorrhaging, uncorrected refractive errors, diabetic eye disease and cataract.

The diagnostic possibility posed by Dr. XXXX in his note of XXXX, that the inferior vitreous hemorrhage may have been caused by a choroidal rupture was not fully worked up. The relevance of this point may be moot however, since any new visual changes caused by recurrent vitreous hemorrhage essentially overshadows any visual changes caused by the first. The issue of whether the first reported vitreous hemorrhage a) might have been pre-existing or b) was caused by the violence of the trauma itself, as Dr. XXXX infers in his XXXX summary letter, was not addressed in the medical records provided. Notably, Dr. XXXX did not mention pre-retinal hemorrhage in his discharge summary, but rather focused on the valid indications for high-dose intravenous steroids and orbital decompression surgery.

Therefore, Dr. XXXX’ assertion in his XXXX that the “persistent problems in the right eye related to persistent bleeding in the eye which is a direct result of the injury that she sustained in 2004,” must be examined. The medical records provided are inadequate to justify the absolute certainty of this assertion in a patient with diagnosed background diabetic retinopathy in the contralateral eye. Nevertheless, assuming 1) the vitreous hemorrhage was not present prior to the date of injury, for this would have likely caused symptoms of floaters and sudden blurring of vision (for which Mrs. XXXX would have likely sought medical attention) *and* 2) that the degree of diabetic retinopathy elsewhere in the right eye does not substantiate the diagnosis of *proliferative* diabetic retinopathy, then one can consider essentially all visual loss in the right eye stemming from vitreous hemorrhage as attributable, either directly, or as a late complication, of the work-related injury.

Thus, Dr. XXXX’ assertion that the “persistent bleeding in the eye is a direct result of the injury” is only in dispute semantically. Indeed, the initial vitreous hemorrhage can be presumed to be consistent with the primary injury or the subsequent treatments for that injury. Late choroidal neovascularization at the edge of a presumed choroidal rupture can lead to the sequela of vitreous hemorrhage, which *is ultimately attributable* as a late complication of the initial injury.

Since proliferative changes of diabetic retinopathy elsewhere in the eye were not noted, Mrs. XXXX’s vision loss on the right still must be apportioned between her cataract and the vitreous hemorrhage. Even if her cataract was not immature, the vitreous hemorrhage on the right is medically probable to be the predominant cause of visual acuity loss on the right. From a visual function perspective, this more recent

and denser hemorrhage completely overshadows the effects of both the initial vitreous hemorrhage and the cataract.

Therefore, if one assumes that the pin hole visual acuities at the XXXX ophthalmic examination by Dr. XXXX is representative of the pre-injury baseline visual function, then one can deduct that visual impairment rating from the one derived from this evaluation to establish that apportionment component. This difference would then be added to those elements of visual disability related to Mrs. XXXX's paretic right inferior rectus and medial rectus muscles, for which no underlying pre-existing disease would explain today's findings.

Returning a discussion of an extrapolation from the chart of the estimated AMA visual impairment ratings prior to the injury, one also must take into account the generalized constriction of the visual fields. This is presumed to be secondary to the mild-moderate cataract on both eyes and to a lesser degree in the right eye, due to the overshadowing effect of the vitreous hemorrhage. A recalculation of the visual impairment rating, utilizing 20/40 as a best-corrected visual acuity on the right and assuming no related visual field changes secondary to the injury, yields an estimated pre-injury AMA visual impairment rating of **25%**.

Thus, the difference between ratings due to visual loss secondary to the injury (and its sequelae) minus the estimated pre-existing AMA visual impairment rating is therefore 13% of the total vision loss ($38\% - 25\% = 13\%$).

Among the three individual adjustments, glare sensitivity (1%), loss of binocularity and stereopsis (1%) and reduced or delayed dark adaptation (2%), only the first two are associated with the work-related injury. The third adjustment regarding delayed dark adaptation is either related to the cataracts, the diabetic eye disease or both, but must be discounted from the work-related injury, since this effect would not be disabling if the uninjured left eye were not similarly involved.

Thus in addition to the 13% relative difference attributable to the work-related injury, an additional 2% for veiling glare plus her loss of depth perception totals to a difference of 15%. The adjusted apportionment percentage is therefore 15% divided by 42% or a final apportionment of 36% of her total vision related impairment rating attributable to the work related injury and 64% of her vision loss (including vision loss on the uninjured left eye) attributable to cataract and diabetic eye disease.

An alternative description of this complex mathematical construct would be to state that had Mrs. XXXX had an AMA visual impairment rating of 0% prior to the work-related injury (i.e. no cataract or diabetic eye disease), her current AMA visual impairment rating, attributed exclusively to the work related injury and its sequelae, would be approximately 15%.

The extent and scope of current or further medical treatment regarding orbital floor fractures, in reference to the American College of Occupational and Environmental Medicine (ACOEM), Second Edition, are specifically addressed on page 438. The surgical decompression of the orbit by Dr. XXXX was medically indicated as delineated in the third paragraph which states:

“Surgery within two weeks is recommended in cases of symptomatic diplopia with positive forced ductions and evidence of orbital soft tissue entrapment on computed tomographic (CT) scan...”

Regarding the recurrent and non-resolving vitreous hemorrhage and presumed choroidal rupture, the ACOEM guidelines are not contributory. Nevertheless, Mrs. XXXX has already been treated with the off-label use of intravitreal Avastin™ (bevacizumab, Genentech) and, if that is not effective in inhibiting neovascular growth (as it has been suggested to be in a case report of two patients with vitreous hemorrhage associated with proliferative diabetic retinopathy³), and the vitreous hemorrhage does not resolve spontaneously, then a pars plana vitrectomy with endolaser may be indicated. I defer final judgment in this regard to Dr. XXXX, Mrs. XXXX's retina specialist. Nevertheless, the off-label uses of bevacizumab are too new in the literature to be referenced in official guidelines and still must be considered experimental at this time.

Regarding her difficulties with reading, ambulating and the self-administration of insulin, Mrs. XXXX is in need of professional vision rehabilitation. Her treatment should include a low-vision refraction, repeat Maddox rod testing with incorporation of the results in up to three customized spectacle corrections. Additionally, various optical aids may be required, including, but not limited to, optical magnifiers, syringe magnifiers, telescopes, glare filters and non-optical devices, such as a folding support cane. Vision rehabilitation is mandatory to reduce Mrs. XXXX's risk of making a medication error or falling, besides improving her overall visual function, her work productivity and her quality of life.

Regarding the question of whether maximal medical improvement has been reached, the answer is no. The final prognosis regarding Mrs. XXXX's vitreous hemorrhage is guarded but optimistic. In the best case scenario, the vitreous hemorrhage will clear and neither Mrs. XXXX's cataract nor diabetic eye disease will progress. In this scenario, Mrs. XXXX will return to her estimated pre-injury visual acuity on the right of 20/40. Her AMA visual impairment rating then would be reduced then to 1% representing only the long-term effect of the palsy of the inferior branch of the right, third cranial nerve. In the worst case scenario, the right eye would go blind. Though highly unlikely, this catastrophic situation would leave Mrs. XXXX totally blind on the right and her resulting visual impairment rating would be estimated at 55%.

Regarding the need for future care, Mrs. XXXX requires attention in three areas: vision rehabilitation, routine ophthalmic follow-up care and internal medical management. With her existing spectacles, Mrs. XXXX has severe vision loss in the right eye (20/400) and mild vision loss in the left eye (20/50). As such, she has decreased visual reserve, especially for near tasks and can expect to benefit from vision rehabilitation. In addition to potential improvements available with proper spectacle correction, various magnifiers and other adaptive devices are available to help Mrs. XXXX's overall function, physical safety and quality of life.

As previously mentioned, if Mrs. XXXX's vitreous hemorrhage on the right does not resolve substantially, a *pars plana* vitrectomy may be indicated. At the time of surgery, endolaser may be used if the area of neovascularization can be identified. One known risk of this complex retinal surgery is that it may also accelerate the progression of the cataract on the right eye. Cataract surgery itself is an independent risk factor for the acceleration of diabetic macular edema and diabetic retinopathy.

Mrs. XXXX's overall medical status is representative of several risks for recurrent cardiovascular disease, though her last cardiologic work-up was reportedly as far back as four years ago. She is an obese diabetic woman, dependent on a relatively large dose of insulin daily, hypertensive and hypercholesterolemic. While she denies current cardiac symptoms, in my medical opinion, Mrs. XXXX

would benefit from a re-visitation of her extensive pharmaceutical regimen by an endocrinologist, and comparison studies of her baseline electrocardiographic results by a qualified internist. Two excellent physicians in this office, Drs. Ira Fishman and Adam Duhan, have offered to perform this evaluation at your request.

Regarding work restrictions or preclusions from her pre-injury occupation, from a visual point of view, Mrs. XXXX's serviceable vision in the left eye gives her adequate visual function for her job as a pre-school teacher. From an anatomic point of view, due to the recurrent vitreous hemorrhaging, it is my professional opinion that Mrs. XXXX be restricted from any activities that would tend to cause rapid acceleration/deceleration motions, such as running or jumping that could lead to shearing forces inside of her eye and lead to additional hemorrhaging. Related to her job description, this would preclude her from involvement in physical altercations with the students or physical education. Until such time as Mrs. XXXX has had a successful vitrectomy, this restriction shall be considered permanent. Therefore, modified work duty that includes only her administrative duties and light (or assisted) teaching duties is prudent at this time.

1. Maitra SK, Rowland Payne CM. The obesity syndrome and acanthosis nigricans. Acanthosis nigricans is a common cosmetic problem providing epidemiological clues to the obesity syndrome, the insulin-resistance syndrome, the thrifty metabolism, dyslipidaemia, hypertension and diabetes mellitus type II. *J Cosmet Dermatol.* 2004 Dec;3(4):202-10.
2. Yeung L, Chen TL, Kuo YH, Chao AN, Wu WC, Chen KJ, Hwang YS, Chen Y, Lai CC. Severe vitreous hemorrhage associated with closed-globe injury. *Graefes Arch Clin Exp Ophthalmol.* 2006 Jan;244(1):52-7. Epub 2005 Jul 26.
3. Spaide RF, Fisher YL. Intravitreal bevacizumab (Avastin) treatment of proliferative diabetic retinopathy complicated by vitreous hemorrhage. *Retina.* 2006 Mar;26(3):275-8.

PERMANENT AND STATIONARY STATUS

Regarding the palsy of the inferior branch of the right, third cranial nerve, the applicant is now more than thirty months post-operative from her orbital decompression and no further improvement in extra-ocular muscle function is expected at this time. Therefore, Mrs. XXXX's traumatic right third cranial neuropathy, secondary to her work-related injury is, in my professional opinion, permanent and stationary at this time.

Regarding the vision acuity loss Mrs. XXXX is experiencing on the right secondary to vitreous hemorrhage, Mrs. XXXX has not reached maximum medical improvement at this time. Therefore the vision loss secondary to her work related injury is neither permanent nor stationary.

While Mrs. XXXX's reduction in binocular vision and resulting self-reported depth perception is related to her vision loss and therefore also is not permanent and stationary

The generalized visual field constriction Mrs. XXXX experiences bilaterally is medically probable to be caused by cataract, diabetic eye disease or both. While this component of her visual function is not permanent or stationary, neither is it work-related based on Mrs. XXXX's current claim.

Regarding her related upper extremity injuries, deference is made to occupational medicine regarding the established musculo-skeletal impairments not detailed in this report.

FORMULATION SUMMARY REGARDING CAUSATION OF INJURY

Mrs. XXXX suffered a work-related assault on XXXX with injuries to her right upper extremity and a right orbital blowout fracture, which eventuated in a right traumatic optic neuropathy, a traumatic neuropathy of the inferior branch of the right oculomotor nerve, a presumed choroidal rupture and an initial vitreous hemorrhage. Orbital decompression surgery was performed on XXXX and Mrs. XXXX's long-term post-operative course was remarkable for a delayed and partial recovery of the oculomotor nerve injury and a *presumed* complete recovery of baseline vision by XXXX. In order to enumerate this sense of return of visual function, the XXXX visit with Dr. XXXX is referenced for a best pin hole corrected value of 20/40. Insofar as no pre-injury ophthalmic or optometric records were provided, no better estimation can be made for this formulation. Of course, should records of a better pre-injury vision be made available, this formulation can be amended.

Accepting the limitation of a pre-injury estimation of vision affected by a temporal disassociation that cannot be overcome, an AMA impairment rating was calculated for a visual acuity on the right of 20/40 and the same values for Mrs. XXXX's current visual acuity on the left versus her current visual function values. Her visual deficits on the left have been reported as solely secondary to cataract and diabetic eye disease. Mrs. XXXX's pre-injury visual function on the right has been presumed to be similarly affected. Therefore, the assumption is made for this formulation that the only difference caused by the effects of persistent vitreous hemorrhaging on the right is the decrease in visual acuity, not in visual field.

Subtracting the presumed pre-injury visual impairment rating from the current AMA visual impairment rating yields a difference of 13%. Two rating adjustments were then made: 1% for the loss of stereopsis and binocularity, which is manifested as a loss of depth perception, and another 1% for veiling glare on the right, due to the effects of persistent and recurrent vitreous hemorrhage. The third individual adjustment, for delayed dark adaptation (2%) is discounted, for this functional visual effect is certainly bilateral and therefore can be considered caused largely, if not exclusively, due to cataract and diabetic eye disease. Therefore, by dividing this adjusted difference (15%) by her current impairment rating (42%) yields an attributable vision loss of 36%. In other words, at most 64% of Mrs. XXXX's current visual deficits are based upon her pre-existing cataract and diabetic eye disease, and at least 36% of her current visual deficits are based upon late effects related to her work-related injury.

The late effects of the nearly completely resolved paresis of the right inferior branch, oculomotor nerve palsy are amenable to prismatic correction in a pair of spectacles. This clinically relevant exophoria is considered a component of the loss of stereopsis and binocularity. Although indisputably a result of the work-related injury in question, the clinical effect of asthenopic symptoms are not considered separately in the AMA guides, but are only indirectly referenced as a loss of reserve for reading.

Mrs. XXXX reports that she was right eye dominant prior to the injury. If the pre-injury visual acuity on the right was better than 20/40, as it might have been, then the apportionment of her injury would increase. The aforementioned limitations therefore create an uncertainty that can only be overcome with an upwards adjustment the apportionment. If, for example, the pre-injury visual acuity on the right had been 20/30, rather than 20/40, it would have been her better eye and reduced her pre-injury impairment rating to 24%. By the same method of attribution, the percentage would jump from 36% to 38% ($((38-24)+2)/42$).

This formulation has two uncertain components. The first is that her best available spectacle correction was little more than presbyopic reading glasses and the current formulation was made after a painstaking low-vision refraction. The second is that the extrapolation of pre-injury status by best post-injury pin hole correction may have caused an underestimation of the pre-injury visual status on the right eye.

In summary, insofar as Mrs. XXXX's visual function on the right has not reached maximum medical improvement, the limitation of extrapolation of pre-injury visual acuities may be moot. At such time in the future that she has attained maximum medical improvement and can be declared permanent and stationary with regard to her vitreous hemorrhage, this report can be amended. A thorough search of Mrs. XXXX's ophthalmic and optometric records for pre-injury visual acuity values would make that amendment definitive with regard to apportionment.

The formulation regarding the right upper extremity injury is not considered in this report.

FORMULATION SUMMARY REGARDING CAUSATION OF PERMANENT DISABILITY

If additional information regarding this case is made available to me in the future, then one or more supplemental reports shall be issued as required to modify these interpretations. Such information may or may not change the overall conclusions rendered in this evaluation. The above analysis is based upon the subjective complaints, the history given by the applicant, the review of medical records and tests made available to me, the optical and psychometric evaluations and an on-line review of the appropriate medical literature. The cited reference materials are assumed to be correct.

The evaluator's opinions are based upon experience with the full range of visual disability in addition to the principles of reasonable medical probability and are independent of bias in favor of or against the opinions expressed by the requesting party. Vision is a multidimensional sensory function. Clinical optics is both an art and science. There is no guarantee that the applicant will not experience continued dissatisfaction with her eyesight or suffer additional eye disease or visual impairment. If applicable, the employer should follow the process established in the Americans with Disabilities Act, Title 1. The opinions expressed here do not constitute a recommendation that specific claims be made or denied, nor that administrative actions be made into force.

This visual disability evaluation is not intended or sanctioned for use in any other civil or criminal proceedings. The ophthalmic and medical issues discussed herein have been analyzed exclusively from the perspective of a state-appointed Qualified Medical Evaluator in the course of preparing an industrial evaluation report for the California Workers' Compensation system. Therefore, should ocular, vision-related or medical issues pertaining to the applicant arise in a different legal forum, such as a civil suit or criminal proceeding, obtaining a separate report to evaluate such ophthalmic, medical and legal issues from the appropriate perspective would be absolutely mandatory.

DISABILITY STATUS/DATE OF MAXIMAL MEDICAL IMPROVEMENT

1. Traumatic Optic Neuropathy. XXXX, per note by Dr. XXXX relating self-report of return of

- eyesight.
2. Traumatic neuropathy of inferior branch of right oculomotor nerve. XXXX, per note by Dr. XXXX relating resolution of double vision.
 3. Vitreous Hemorrhage, right eye, secondary to presumed choroidal rupture. Date of maximal medical improvement is indeterminate pending further evaluation by Dr. XXXX
 4. Cataract. Indeterminate, pending cataract surgery per Dr. XXXX' note of XXXX.
 5. Diabetic Eye Disease. Indeterminate, but prior laser scars on the left and a patient report of additional focal laser surgery on left (XXXX) suggest the right eye is not primarily involved with either proliferative diabetic retinopathy or clinically significant macular edema.

FACTORS OF DISABILITY

- SUBJECTIVE:
1. Blurred vision, right eye worse than left
 2. Glare sensitivity, right eye worse than left
 3. Loss of depth perception due to reduced binocularity
 4. Reduced dark adaptation, both eyes

- OBJECTIVE:
1. Severe vision loss, right eye
 2. Mild vision loss, left eye
 3. Vitreous Hemorrhage, right eye
 4. Mild Cataract, both eyes
 5. Background diabetic retinopathy, left eye
 6. Exophoria (7 prism diopters), right eye
 7. Hyperphoria (1 prism diopter), right eye

PERMANENT DISABILITY/IMPAIRMENT

Discussion utilizing AMA Guides to the Evaluation of Permanent Impairment, 5th edition, Chapter 12 “The Visual System” (Tables 12-3, 12-6 and 12-10).

Calculation of the Visual Acuity-Related Impairment Rating

1. Measured Snellen Values **Calculated Visual Acuity Scores**
 (WITH BEST SPECTACLE CORRECTION (PER MANIFEST REFRACTION TODAY))

OU: letter chart acuity: 20/50	→	VAS _{OU} : 80 x 3 = 240
OD: letter chart acuity: 20/240	→	VAS _{OD} : 45 x 1 = 45
OS: letter chart acuity: 20/50	→	VAS _{OS} : 85 x 1 = 80

2. Add the visual acuity scores 3 x OU, plus OD and OS = 365

3. Divide by 5 to calculated the weighted average = 73

$$FAS_D = \text{Functional Acuity Score}_{\text{letter chart}} = \frac{(3 \cdot VAS_{OU}) + VAS_{OD} + VAS_{OS}}{5}$$

4. Distance Acuity-Related Impairment Rating = 100 - FAS_D = 27

5. Reading Acuity Values **Calculated Reading Acuity Scores**

OU: reads: 1 M @ 3.5 D (≈ 1/M*D)	→	NVAS _{OU} : 75 x 3 = 225
OD: reads: 7 M @ 3.5 D (≈ 1/M*D)	→	NVAS _{OD} : 30 x 1 = 30
OS: reads: 1 M @ 3.5 D (≈ 1/M*D)	→	NVAS _{OS} : 75 x 1 = 75

6. Add 3 x OU, plus OD and OS = 330

7. Divide by 5 to calculated the weighted average = 66

$$FAS_N = \text{Functional Acuity Score}_{\text{reading}} = \frac{(3 \cdot NVAS_{OU}) + NVAS_{OD} + NVAS_{OS}}{5}$$

$$8. FAS_{\text{global}} = \frac{FAS_{\text{letterchart}} + FAS_{\text{reading}}}{2} = \frac{73 + 66}{2} = 70$$

Step 3 Step 7

9. Global Acuity-related Impairment Rating = 100 - FAS_{global} = 100 - 70 = 30
Step 8

(N.B. A comparison was made to an estimated value of the pre-injury visual acuity on the right of 20/40, in which case the FAS would equal 85.)

Calculation of the Field-Related Impairment Rating

Measured Field Plots **Calculated Visual Field Scores**

10. Binocular field plot (OU) → VFS_{OU}: 92 x 3 = 276
11. Field plot right eye (OD) → VFS_{OD}: 84 x 1 = 84
12. Field plot left eye (OS) → VFS_{OS}: 81 x 1 = 81
13. Add the visual field scores 3 x OU, plus OD and OS = 441
14. Divide by 5 to calculate the weighted average = 88
- FFS = Functional Field Score = $\frac{(3 \cdot VFS_{OU}) + VFS_{OD} + VFS_{OS}}{5}$
15. Visual Field-related Impairment Rating = 100 - FFS = 12

Calculation of the Unadjusted Visual System Impairment Rating

16. FVS = Functional Vision Score = $\frac{\text{Functional.Acuity.Score} \times \text{Functional.Field.Score}}{100}$
- = (70 * 88) * 0.01 = 62
- min(Step 3, Step 8) Step 14
17. *AMA Vision-related Impairment Rating* = 100 - FVS = *38%*

Individual Adjustments (independent of visual acuity and field losses)

"Although visual acuity loss and visual field represent significant aspects of visual impairment, they are not the only factors that can lead to a loss of functional vision. This edition of the Guides does not provide detailed scales for other functions..." AMA Guides to the Evaluation of Permanent Impairment, Fifth Edition.

18. Glare sensitivity (veiling glare) - moderate to severe difficulty in bright sunshine. In my professional opinion, Mrs. XXXX's degree of vision loss due to glare sensitivity is equivalent to: 1%.
19. Binocularity and stereopsis - moderate difficulty with depth perception at near and intermediate distances. In my professional opinion, the difficulty Mrs. XXXX has with depth perception does add to her fall risk, but may be partially ameliorated by correction with her best spectacle correction, and thus adds: 1%
20. Reduced or delayed light and dark adaptation - severe difficulty ambulating in dim light. In my professional opinion, this component of Mrs. XXXX's vision loss adds an additional: 2%
21. Total adjusted AMA visual impairment rating = 42%

APPORTIONMENT OF PERMANENT DISABILITY BASED ON CAUSATION

(Relying on guidelines set forth in Escobedo v. Marshalls and CNA Insurance Inc. WCAB en banc., April 2005; Rio Linda School District v. Scheftner, July 2005; and Yeager Const. Co. v. WCAB (Gatten) November 2006).

SEC. 34. Labor Code Section 4663

(c) In order for a physician's report to be considered complete on the issue of permanent disability, it must include an apportionment determination. A physician shall make an apportionment determination by finding what approximate percentage of the permanent disability was caused by the direct result of injury arising out of and occurring in the course of employment and what approximate percentage of the permanent disability was caused by other factors both before and subsequent to the industrial injury, including prior industrial injuries. If the physician is unable to include an apportionment determination in his or her report, the physician shall state the specific reasons why the physician could not make a determination of the effect of that prior condition on the permanent disability arising from the injury. The physician shall then consult with other physicians or refer the employee to another physician from whom the employee is authorized to seek treatment or evaluation in accordance with this division in order to make the final determination.

SEC. 35. Labor Code Section 4664

(a) The employer shall only be liable for the percentage of permanent disability directly caused by the injury arising out of and occurring in the course of employment.

(b) If the applicant has received a prior award of permanent disability, it shall be conclusively presumed that the prior permanent disability exists at the time of any subsequent industrial injury. This presumption is a presumption affecting the burden of proof.

VOCATIONAL REHABILITATION

From an ophthalmic point of view, Mrs. XXXX requires a low-vision rehabilitation evaluation, and surgical vitrectomy may be indicated on the right for her non-resolving vitreous hemorrhage, but owing to her satisfactory vision in the left eye, she is not considered "legally blind," and is not eligible for vocational rehabilitation at this time.

FUTURE MEDICAL CARE

1. Ophthalmic:

- a. Orbital blowout fracture and its neuro-ophthalmic consequences
 - a. None
- b. Continued evaluation of non-resolving vitreous hemorrhage on the right from presumed work-related choroidal rupture.
 - a. Observation
 - b. Indication for surgical vitrectomy, though high-risk given applicant's cardiovascular profile
 - c. Possible future indications for treatment of complications arising post-operatively
- c. Vision rehabilitation consultation to establish better overall function using adaptive devices
 - a. Best spectacle correction
 - b. Incorporation of prism in spectacle correction to overcome residual exophoria from traumatic oculomotor nerve palsy
 - c. Adaptive devices as indicated
- d. Continued evaluation of clinically significant diabetic macular edema on the left
 - a. Possible future indication for additional focal laser therapy
- e. Continued evaluation for signs of proliferative diabetic retinopathy, both eyes
 - a. Possible future indication for pan-retinal laser therapy

- b. Possible future indication for evolving therapies from genomics and/or pharmaceuticals

2. Additional Medical

- a. Endocrinologic work-up with attention to the possibility of the Insulin Resistance Syndrome
- b. Cardiovascular work-up with attention to risks for stroke and recurrent heart attack
- c. Neurologic work-up of her wide based gait (rule out *Tabes Diabetica*)
- d. Dermatologic work-up of her skin changes

RECOMMENDATIONS

Full-time spectacle wear, especially while driving, reading and performing computer work.

Tight control of her blood glucose level.

Ocular lubricants (i.e. artificial tears) as needed for asthenopic symptoms.

A low fat, low cholesterol diet and low-impact aerobic activity that does not exacerbate the underlying disease process are always desirable.

Thank you for allowing me to interview and examine Mrs. XXXX regarding her complex and interesting ophthalmic case. If you have any other questions, or require further clarification of any of the comments I have made regarding Mrs. XXXX's case, please feel free to contact me at any time.

END OF REPORT

DECLARATION/SIGNATURE PAGE

I personally took the history from the applicant on the date indicated at the beginning of the report in the medical-legal office located at 1498 Solano Ave, Albany, California, performed the physical examination, reviewed the medical records and prepared this report entirely myself. The medical-legal opinions expressed in this report are solely my own. If medical testing is required, authorization will be requested first and the tests will be performed by an outside hospital or medical entity completely unaffiliated with myself. The results of any medical testing will be addressed by an appropriate supplemental report. For QME reports, additional medical records may be requested and reviewed.

For AME reports, if either additional medical records or medical testing are required to complete the report, a request will be made simultaneously to both requesting parties to avoid the prohibition on ex parte communications for AMEs.

I declare under penalty of perjury that the information obtained in this report and its attachments, if any, is true and correct to the best of my knowledge and belief, except as to the information that I have indicated that I received from others. As to that information, I declare under penalty of perjury that the information accurately describes the information provided to me and, except as noted herein, that I believe it to be true to the best of my knowledge.

The evaluation of this applicant and the time spent performing the evaluation was in compliance with the guidelines established by the Administrative Director pursuant to paragraph (5) of subdivision (j) of Section 139.2 or Section 5307.6 of the California Labor Code or any other relevant sections or revisions of the Labor Code.

I further declare under penalty of perjury that I have not knowingly violated the provisions of the California Labor Code Section 139.3 with regards to the evaluation of this applicant or the preparation of this report. I have not offered, delivered, received, or accepted any rebate, refund, commission, preference, patronage, dividend, discount or other consideration, whether in the form of money or otherwise, as compensation or inducement for any referred exam or evaluation.

In summary, I have not violated Labor Code Section 139.3, and the contents of the report and bill are true and correct to the best of my knowledge. All statements on this declaration page are made under penalty of perjury.

PERSONALLY WRITTEN AND EDITED, WITH MEDICAL LEGAL OPINION VERIFIED, AS ATTESTED HERETO BY MY ORIGINAL SIGNATURE:

Signed: ___/___/200_ in _____, California, County of _____.

Daniel C. Schainholz, M.D., M.P.H.
Diplomate: American Board of Ophthalmology (Board Certified in Ophthalmology 1994, Maintained Certification, 2004)
California Medical License #G70452