Ophthalmology Update

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RMAOEM Annual Meeting

February 3, 2012
Disclaimer

- I have no financial interest in any of the publications mentioned in this presentation.
The Ten OEM Competencies

- ACOEM has identified 10 core competencies for occupational and environmental medicine practitioners:
  1. Clinical Occupational and Environmental Medicine
  2. OEM Related Law and Regulations
  3. Environmental Health
  4. Work Fitness and Disability Integration
  5. Toxicology
  6. Hazard Recognition, Evaluation, and Control
  7. Disaster Preparedness and Emergency Management
  8. Health and Productivity
  9. Public Health, Surveillance, and Disease Prevention
  10. OEM Related Management and Administration
The physician has the knowledge and skills to provide evidence-based clinical evaluation and treatment for injuries and illnesses that are occupationally or environmentally related.

The physician provides clinical care with an understanding of the workplace, work exposures, and relevant statutes, such as workers’ compensation.

Throughout the course of care, the physician seeks to maximize the patient's functional recovery.
Clinical – Ophthalmology

- The OEM physician has the clinical and administrative knowledge and skills to:
  - 1) Evaluate and treat occupational eye injuries
  - 2) Develop and implement vision screening and protection programs
  - 3) Use information from the eye examination, such as visual acuity tests, to assist in the proper placement of workers
Clinical – Ophthalmology

- 1. Identify the need for specialized ophthalmologic services and surveillance (e.g., lasers, ethambutol use).
- 2. Recognize and treat occupational eye diseases and injuries and refer to an ophthalmologist when appropriate.
  - Diagnose and manage infectious and irritative conjunctivitis.
  - Diagnose and treat ultraviolet photokeratitis.
  - Identify and remove superficial foreign bodies from the eye, with follow-up care as indicated.
  - Identify and treat ocular chemical exposures and burns (including alkali, acid, and hydrofluoric acid).
  - Use fluorescein stain to evaluate the cornea when indicated.
ADDITIONAL CLINICAL SKILLS

- An OEM physician may develop competency in other clinical skills to enhance the quality of their medical practice. Skills may be learned by various means such as during residency training, additional continuing education courses, or going through a specialty organization’s certification process.
- Evaluate intraocular pressures or use a slit lamp to evaluate ophthalmologic conditions that may be work or environment related.
Work–related eye injuries

- Workers experience more than 700,000 eye injuries per year, 36,000 of which require time off from work*.
- The Bureau of Labor Statistics (BLS) reports that workplace eye injuries cost employers more than $934 million each year.
- Eye disorders account for approximately 4% of workers’ comp claims and 1% of total payments.
- 90% of those injuries are preventable by wearing the proper safety eyewear.

* Prevent Blindness America
ACOEM Practice Guidelines–Eye

- Occupational eye injuries are common and carry the potential for severe visual impairment and subsequent visual disability.
- The first responder’s evaluation on whether the problem is a red flag or non-red-flag condition, and the action taken can make the difference between a subsequently healed normal eye and blindness. Some cannot wait for referral to an ophthalmologist and require immediate action.
- This chapter provides comprehensive guidelines and practical recommendations for treating the following three major eye complaints seen most frequently in workers:
  - Red eye
  - Blurred vision (central or peripheral)
  - Visual fatigue
ACOEM Practice Guidelines–Eye

- **Red eye** refers to hyperemia of the superficially visible vessels of the conjunctiva, episclera, or sclera.
- Red eye can be characterized in three categories:
  - Infections
  - Sterile inflammation
  - Trauma to the eyeball and/or periorbita
- **Blurred vision** is a symptom of decreased visual acuity (central and peripheral). The central visual acuity is measured with an Early Treatment Diabetic Retinopathy Study (ETDRS) or Snellen chart at 20 feet (6 meters), at the working intermediate (i.e., computer operators 20 to 30 inches), and near (16 inches) distance. Peripheral vision (visual acuity) is measured by visual fields.
- **Visual fatigue** describes a phenomenon related to intensive use of the eyes. It includes complaints of eye or periocular pain, itching, burning, tearing, oculomotor changes, focusing problems, performance degradation, and/or after–colors
Recommendations for assessing and treating patients with eye complaints

- Initial assessment should focus on detecting indications of potentially serious ocular pathology, termed red flags, and determining an accurate diagnosis.
- Red flags are defined as a sign or symptom of a potentially serious condition indicating that further consultation, support, or specialized treatment may be necessary.
Recommendations for assessing and treating patients with eye complaints

- Visual acuity should be assessed and documented carefully at each examination prior to other examinations or treatment, except for cases of chemical burns.
- Corneal discomfort can be relieved safely with a topically applied (NSAID), a systemic nonprescription analgesic, or an IM or IV narcotic in severe ocular/face injuries when symptoms or physical findings mandate.
- Patients requiring narcotic analgesics generally should be referred for ophthalmologic care.
Recommendations for assessing and treating patients with eye complaints

- In the absence of red flags, occupational or primary care physicians can safely and effectively handle work-related eye disorders.
- Conservative treatment can proceed for 48–72 hours for superficial foreign bodies, corneal abrasions, conjunctivitis, and UV radiation injuries.
- If eye damage is not well on the way to resolution within 48 to 72 hours, referral to a specialist is indicated.
Recommendations for assessing and treating patients with eye complaints

- Avoid using topical anesthetics for purposes other than diagnosis or treatment because they may obscure worsening pathology and thus inadvertently cause further injury.
- Patients recovering from acute eye injury or infection should be encouraged to return to modified work as their condition permits.
- Nonphysical factors, such as psychosocial, workplace, or socioeconomic problems, should be addressed in an effort to resolve delayed recovery
Red Flag Conditions

- Blunt Trauma
- Retrobulbar Hemorrhage
- Orbital Floor Fracture
- Hyphema
- Burn
- Corneal ulcer
- Open globe injury
# Symptoms of Red Eye

## Table 1. Symptoms of Red Eye

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Referral Advisable if Present</th>
<th>Acute Glaucoma</th>
<th>Acute Iridocyclitis</th>
<th>Keratitis</th>
<th>Bacterial Conjunctivitis</th>
<th>Viral Conjunctivitis</th>
<th>Allergic Conjunctivitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurred vision</td>
<td>Yes</td>
<td>3</td>
<td>1-2</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pain</td>
<td>Yes</td>
<td>2-3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Photophobia</td>
<td>Yes</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Colored halos</td>
<td>Yes</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Exudation</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0-3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Itching</td>
<td>No</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2-3</td>
</tr>
</tbody>
</table>

*Note: The range of severity of the symptom is indicated by 0 (absent) to 3 (severe).*

### Guidelines for Modification of Work Activities and Disability Duration

Table 17. Guidelines for Modification of Work Activities and Disability Duration

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Activity Modifications and Accommodation</th>
<th>Recommended Target for Disability Duration†</th>
<th>NHIS Experience Data‡</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>With Modified Duty</td>
<td>Without Modified Duty</td>
</tr>
<tr>
<td>Corneal abrasion</td>
<td>If not patched, generally none. Modification for loss of binocular visual acuity, stereopsis, fields of vision if patched.</td>
<td>0-3 days</td>
<td>0-5 days</td>
</tr>
<tr>
<td>Chemical splash (mild) (alkaline and acid)</td>
<td>Modification for loss of visual acuity.</td>
<td>1-3 days</td>
<td>1-5 days</td>
</tr>
<tr>
<td>Foreign body on external eye</td>
<td>Modification for loss of binocular visual acuity, stereopsis, fields of vision if patched, otherwise generally none.</td>
<td>0 days</td>
<td>0-5 days</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>Provision for hygiene to prevent spread of infection by direct contact or shared articles.</td>
<td>0 days</td>
<td>0 days</td>
</tr>
<tr>
<td>UV radiation From radiation therapy</td>
<td>Modification for loss of visual acuity, stereopsis, fields of vision if patched.</td>
<td>1 day</td>
<td>1 day</td>
</tr>
<tr>
<td>UV radiation From radiation therapy</td>
<td></td>
<td>1 day</td>
<td>1 day</td>
</tr>
<tr>
<td>Nonspecific eye symptoms (visual disturbances)</td>
<td>Workstation adjustment</td>
<td>0 days</td>
<td>0 days</td>
</tr>
</tbody>
</table>
References

- ACOEM Clinical Practice Guidelines
  - [http://www.acoem.org/apg-i.aspx](http://www.acoem.org/apg-i.aspx)
  - Free 1 month online subscription for ACOEM members
Visual Requirements for Commercial Motor Vehicle Drivers (49 CFR 391.41(b)(10))

- The current requirements are made up of widely accepted and easily administered vision tests, which evaluate CMV drivers’ central static “visual acuity,” i.e., clearness of vision, and static peripheral horizontal visual field. Under the requirements drivers must have:

1. Distant visual acuity of at least 20/40 (as measured by the standard Snellen chart test) in each eye without corrective lenses, or visual acuity separately corrected to 20/40 or better with corrective lenses.
2. Distant binocular acuity of at least 20/40 in both eyes, with or without corrective lenses.
3. A field of vision of at least 70 degrees in the horizontal meridian in each eye.
4. The ability to recognize the standard red, green, and amber colors in traffic signals and similar devices.
FMCSA Vision Waiver Application

- Driver must be qualified under all of the other physical standards in 49 CFR 391.41 without any other waivers or exemptions.
- An exemption will only be issued if granting it is likely to achieve a level of highway safety equivalent to, or greater than, the level if none were granted.
FMCSA Vision Waiver Application

- Driver must possess a valid “intrastate” CDL or a license (non–CDL) to operate a CMV
- Driver operated a CMV with the vision deficiency for the 3–year period immediately preceding the date of the application
- Good driving record
- Driver has been examined by an ophthalmologist or an optometrist in the previous 3 months and certifies that in his/her medical opinion, the driver has sufficient vision to perform the driving tasks required to operate a commercial vehicle.
FMCSA Vision Waiver Application—

Ophthalmologist /optometrist:

- Identifies and defines the nature of the vision deficiency, including how long the deficiency has been present
- Certifies that the visual deficiency is stable
- Identifies the visual acuity of each eye, corrected and uncorrected
- Identifies the field of vision of each eye, including central and peripheral fields, testing to at least 120° in the horizontal. Formal perimetry required
- Identifies if driver has the ability to recognize the colors of traffic control signals and devices showing red, green, and amber
FMCSA Vision Waiver Application

- 4 exemptions granted in December 2011
- 2 drivers had central scotomas, one with a hx of amblyopia and one lost an eye due to childhood trauma
- Exemptions granted for 2 years
CDL vision waivers—Colorado

- *For intrastate commerce only*
- Colorado State Patrol, Motor Carrier Safety Section
- 42–4–235 CRS
- Form CSP 36C
- Need to submit:
  - Application with medical waiver form filled out and signed by an ophthalmologist or optometrist
  - Official driving record and any valid medical waivers
  - FMCSA long form
  - Letter from the employing motor carrier indicating support
  - May be required to complete a driving Skill Performance Evaluation
Vision Impairment Ratings–Colorado

- Steps necessary to calculate an impairment rating; calculate and record:
  - Loss of central vision (CV) for each eye separately
  - % loss of visual field for each eye separately (VF) or for both eyes together
  - % loss of ocular motility (OM)

- Equipment necessary
  - Visual acuity test charts
  - Validated perimeter
  - Refraction equipment
Vision Impairment Ratings–Colorado

- Total loss of vision in one eye:
  - 24% whole person impairment
- Total loss of vision in both eyes:
  - 85% whole person impairment
- An additional 10% impairment may be combined with the WP impairment caused by the visual system for these conditions:
  - Permanent orbital deformities
  - Scars
  - Other cosmetic deformities that do not alter ocular function
AMA Guides™ to the Evaluation of Ophthalmic Impairment and Disability

- **Author**: Bernard R. Blais, MD
- **ISBN**: 978-1-60359-103-4

  A comprehensive guide on vision and visual impairment that can be used to determine if visual impairment or disability exists, the severity of the diagnosis, and how this translates into whether a person is able to perform activities of daily living (ADLs) and/or possibly related occupational duties.
Eye and Vision Basics; Session 320
TRACK: OEM Clinical Practice

Every fitness-for-duty certification must answer the following question, "How do I fulfill the visual requirements of the ADA?" This course will provide the basic four competencies:

1) Clinical ophthalmology
2) OEM-related law and regulations
3) Work fitness and disability integration
4) OEM related management and administration regarding eye issues.
Questions?

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