

# APPENDIX: C

## **Refraction Entry to Practice Competencies for Ontario Opticians**

### **Purpose of this document:**

This document contains the entry level competencies that opticians are expected to possess as an outcome of their education related to refraction in order to provide the public with safe and ethical care. When reviewing the document, the reader will observe two broad competency statements that encompass the primary areas of responsibility undertaken by the optician while performing a refraction. Within each of the broad competency statements are 'sub competencies' that define the minimum level of knowledge and skill required to meet each competency statement.

### **Competency Statements:**

- D. Assess patient vision and visual needs within the scope of practice.
- X. Perform as a refraction routine

The document serves as a common reference to which educational curricula may be directed and upon which the registration examinations administered by the College of Opticians will be based. The language used throughout the document for categorizing the level of competence expected in a given area has been derived from Bloom's Taxonomy (see appendix A).

### **Using this document**

Refraction is not currently within the scope of practice of Ontario Opticians, therefore these competencies are not considered to be "Entry to Practice" competencies by the College of Opticians of Ontario. This document will be integrated into the "Entry to Practice Competencies for Ontario Opticians (2003)" document once refracting is part of the scope of practice of Opticians. Until such time, this document is an addendum to the current Entry to Practice Document. The competencies contained in this document relate to refraction and build on the competencies included in the ETP document. This document should be read in conjunction with the ETP document and not be considered a stand alone document.

# DRAFT

## Refraction Entry to Practice Competencies

D1) Assess patient vision and visual needs within the scope of practice. (Advanced)

D1b) Demonstrate knowledge of anatomical systems

- D1.1 Describe the characteristics of blood, blood vessels and lymphatics.
- Name and discuss the functions of the formed elements of blood.
  - Describe the characteristics and function of plasma.
  - Describe the structure and function of blood vessels.
  - Name the structures of the lymphatic system and describe their function.
- D1.2 Describe the organization and function of the central and peripheral nervous systems.
- Describe the structure of the brain, spinal cord and meninges.
  - Describe the organization and function of the sympathetic and parasympathetic divisions of the autonomic nervous systems.

D2b) Demonstrate knowledge of ophthalmic pharmacology

- D4.1 Discuss modes of action and delivery of ophthalmic drugs.
- Explain routes of administration of ophthalmic drugs.
  - Differentiate between mydriatic and cycloplegic medications.
  - Discuss commonly used pharmaceuticals used for care of the eyes including:
    - Antibiotics
    - Antiviral agents
    - Antifungal medications
    - Corticosteroids
    - Anesthetic agents
    - Non steroidal anti-inflammatory medications
    - Miotics

# DRAFT

## D6 Demonstrate an advanced level of knowledge of accommodation

D6.1 Describe push-up-and- blur method of measurement of amplitude of accommodation, factors affecting the push-up-and-blur method as well as depth of field, luminance and blur tolerance, binocular amplitude of accommodation.

Describe reduction of amplitude with age including causes for the phenomenon.

D6.2 Discuss presbyopia related to accommodation.

Describe the near addition and its determination including estimated 'add' and its subjective adjustment with spherical lenses as well as the effective power in near vision and unequal right and left near vision 'adds'.

D6.3 Discuss hypermetropia related to accommodation.

Describe facultative, absolute, manifest and latent hypermetropia including accommodation in juvenile stress myopia.

## D9 Understand the correction of visual error and principles of refraction

Demonstrate knowledge of retinoscopy in terms of the static plane mirror theory, with and against movements, speed of reflex, determination of the spectacle refraction retinoscopy in astigmatism and streak retinoscopy.

Demonstrate understanding of the principles of phorometry.

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## X3 Refraction and Refraction Procedure

### X3.1 Apply knowledge of anatomy and physiology of the visual system to assess refractive status.

Apply an understanding of the general principles of the accommodative reflex in determining refractive correction.

Demonstrate an understanding of contrast sensitivity.

Demonstrate an understanding of the use of high and low contrast sensitivity charts to determine visual acuity in varying ambient room illuminations.

Demonstrate an understanding of visual acuity designations.

### X3.2 Demonstrate knowledge of instruments and procedures used in visual assessment.

Explain principles and procedures for use of the Topographer, Keratometer, Retinoscope, Slit lamp, Phoropter, Autorefractor, wave front devices and Trial lens sets.

Discuss the keratometer and slit lamp as diagnostic instruments.

Demonstrate an understanding of the principles of retinoscopy and objective refraction.

Explain the principles and procedures of the subjective examination.

Describe the uses of and protocols related to the ophthalmoscope including illumination of the fundus, angular magnification, and assessment of the linear field of view and corneal reflex.

Describe tests used to assess stereoscopic vision.

Describe instruments used in tonometry.

### X3.3 Assess Refractive Status

X3.3.1 Perform clinical procedures to assess refractive status.

- Conduct visual acuity measurements.
- Conduct testing for ocular motility/versions.
- Conduct cover-uncover/alternating cover testing.
- Conduct corneal reflex testing.
- Conduct near point convergence/accommodation test.
- Conduct testing for pupillary function.
- Assess colour vision
- Assess peripheral visual fields.

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## X3.2 Perform objective measurements of refractive error.

- Perform retinoscopy with a Phoropter or a trial lens set
- Analyze speed of reflex

## X3.3 Perform subjective examinations of refractive error.

- Use Jackson Cross Cylinder Test to refine axis/cylinder power.
- Perform spherical power refinement.
- Perform the Duochrome Test.
- Confirm end result by contrasting letter size/movement (away or toward).
- Perform binocular balance test.
- Assess near vision.
- Determine accommodative amplitude/ perform cross cylinder grid test for near vision.
- Perform binocular balancing tests for near.

## X4) Analyze meaning of data related to ocular status.

### Interpret objective findings.

### Interpret subjective findings.

## X5) Determine the corrective lens power.

### Apply findings to determine the corrective lens power.

### Understand the practical implications of the corrective lens power.

## Learning Skills Program

### Bloom's Taxonomy \*

Benjamin Bloom created this taxonomy for categorizing level of abstraction of questions that commonly occur in educational settings. The taxonomy provides a useful structure in which to categorize test questions, since professors will characteristically ask questions within particular levels, and if you can determine the levels of questions that will appear on your exams, you will be able to study using appropriate strategies.

Competence	Skills Demonstrated
<b>Knowledge</b>	<ul style="list-style-type: none"><li>• observation and recall of information</li><li>• knowledge of dates, events, places</li><li>• knowledge of major ideas</li><li>• mastery of subject matter</li><li>• <i>Question Cues:</i> list, define, tell, describe, identify, show, label, collect, examine, tabulate, quote, name, who, when, where, etc.</li></ul>
<b>Comprehension</b>	<ul style="list-style-type: none"><li>• understanding information</li><li>• grasp meaning</li><li>• translate knowledge into new context</li><li>• interpret facts, compare, contrast</li><li>• order, group, infer causes</li><li>• predict consequences</li><li>• <i>Question Cues:</i> summarize, describe, interpret, contrast, predict, associate, distinguish, estimate, differentiate, discuss, extend</li></ul>
<b>Application</b>	<ul style="list-style-type: none"><li>• use information</li><li>• use methods, concepts, theories in new situations</li><li>• solve problems using required skills or knowledge</li><li>• <i>Questions Cues:</i> apply, demonstrate, calculate, complete, illustrate, show, solve, examine, modify, relate, change, classify, experiment, discover</li></ul>

<p><b>Analysis</b></p>	<ul style="list-style-type: none"> <li>• seeing patterns</li> <li>• organization of parts</li> <li>• recognition of hidden meanings</li> <li>• identification of components</li> <li>• <i>Question Cues:</i> analyze, separate, order, explain, connect, classify, arrange, divide, compare, select, explain, infer</li> </ul>
<p><b>Synthesis</b></p>	<ul style="list-style-type: none"> <li>• use old ideas to create new ones</li> <li>• generalize from given facts</li> <li>• relate knowledge from several areas</li> <li>• predict, draw conclusions</li> <li>• <i>Question Cues:</i> combine, integrate, modify, rearrange, substitute, plan, create, design, invent, what if?, compose, formulate, prepare, generalize, rewrite</li> </ul>
<p><b>Evaluation</b></p>	<ul style="list-style-type: none"> <li>• compare and discriminate between ideas</li> <li>• assess value of theories, presentations</li> <li>• make choices based on reasoned argument</li> <li>• verify value of evidence</li> <li>• recognize subjectivity</li> <li>• <i>Question Cues</i> assess, decide, rank, grade, test, measure, recommend, convince, select, judge, explain, discriminate, support, conclude, compare, summarize</li> </ul>

\* Adapted from: Bloom, B.S. (Ed.) (1956) *Taxonomy of educational objectives: The classification of educational goals: Handbook I, cognitive domain*. New York ; Toronto: Longmans, Green.

