**List of Illustrated Curriculum Gaps as of January 5, 2018**

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| **Location** |
| I.A. Bony Anatomy –2. Bony Communications – a. Superior Orbital Fissure |
| I.A. Bony Anatomy –2. Bony Communications – c. Inferior Orbital Fissure |
| I.A. Bony Anatomy –2. Bony Communications – d. Ethmoidal Foramina |
| I.A. Bony Anatomy – 3. Skull – a. Anterior Cranial Fossa |
| I.A. Bony Anatomy –3. Skull – b. Middle Cranial Fossa |
| I.A. Bony Anatomy –3. Skull – c. Posterior Cranial Fossa |
| I.B. Anatomy of the Orbit |
| I.D. Anatomy of the Eyelids |
| I.D. Anatomy of the Eyelids - 1. Anatomy of the Lacrimal Pathways |
| I.F. Afferent Visual Pathways—2. Retina – a. Macula |
| I.F. Afferent Visual Pathways—5. Optic Tract |
| I.F. Afferent Visual Pathways—6. Lateral Geniculate |
| I.F. Afferent Visual Pathways—7. Optic Radiations |
| I.G. Efferent Visual Pathways—4. Ocular Motor Nerves –b. Trochlear (IV) |
| I.H. Facial Motor Anatomy |
| I.I. Sensory Anatomy (Trigeminal System) |
| I.J. Autonomic Anatomy |
| I.J. Autonomic Anatomy – 2. Parasympathetic –a. Lacrimal |
| I.K. Vascular Anatomy –1. Arterial Anatomy –a. Internal Carotid Arteries and their Branches |
| I.K. Vascular Anatomy –1. Arterial Anatomy –a. Internal Carotid Arteries and their Branches---ii. Posterior Communicating Artery |
| I.K. Vascular Anatomy –1. Arterial Anatomy –b. Circle of Willis |
| I.K. Vascular Anatomy –1. Arterial Anatomy –c. External Carotid Arteries and their Branches |
| I.K. Vascular Anatomy –1. Arterial Anatomy –d. Vertobrobasilar System |
| I.K. Vascular Anatomy –1. Arterial Anatomy –d. Vertobrobasilar System---i. Vertebral Artery |
| I.K. Vascular Anatomy –1. Arterial Anatomy –d. Vertobrobasilar System---ii. Posterior Inferior Cerebellar Artery |
| I.K. Vascular Anatomy –1. Arterial Anatomy –d. Vertobrobasilar System---iii. Basilar Artery and Its Branches |
| I.K. Vascular Anatomy –1. Arterial Anatomy –e. Aortic Arch |
| I.K. Vascular Anatomy –1. Arterial Anatomy –f. Blood Supply of the Orbit and Eye |
| I.K. Vascular Anatomy – 1. Arterial Anatomy – g. Blood Supply of the Optic Nerve |
| I.K. Vascular Anatomy –2. Venous Anatomy—a. Cerebral Venous Sinuses |
| I.K. Vascular Anatomy –2. Venous Anatomy—a. Cerebral Venous Sinuses---ii. Superior and Inferior Petrosal Sinuses |
| I.K. Vascular Anatomy –2. Venous Anatomy—a. Cerebral Venous Sinuses---iii. Deep Venous System |
| I.K. Vascular Anatomy –2. Venous Anatomy –b. Cortical Veins |
| I.K. Vascular Anatomy –2. Venous Anatomy—c. Venous Drainage in the Neck |
| I.K. Vascular Anatomy – 2. Venous Anatomy – e. Superior and Inferior Ophthalmic Veins |
| I.L. Fluids and Secretions –1. Cerebrospinal Fluid |
| II.A.1.a.i. Visual Acuity Testing |
| II.A.1.a.ii. Stereopsis |
| II.A.1.a.iii. Color Vision Testing |
| II.A.1.a.iv. Contrast Sensitivity |
| II.A.1.a.v. Basics of Refraction |
| II.A.1.a.vii. Amsler Grid |
| II.A.1.a.viii. Photostress Testing |
| II.A.1.b.i. Intraocular Pressure |
| II.A.1.b.ii. Resistance to Retropulsion |
| II.A.1. Ocular Evaluation –c. Pupillary Examination |
| II.A.7. Examination of Children –a. Developmental Milestones for Children |
| II.B.1. Visual Field Testing |
| II.B.1. Visual Field Testing –a. Automated Perimetry |
| II.B.1. Visual Field Testing –b. Goldmann Perimetry (should be able to perform) |
| II.B.1. Visual Field Testing –c. Tangent Screen (should be able to perform) |
| II.B.2. Electrophysiology –a. Visual Evoked Responses |
| II.B.6. Imaging – d.Ophthalmodynamometry |
| II.B.6. Imaging – e. CTA |
| II.B.6. Imaging – f. MRA |
| II.B.6. Imaging – g. CTV |
| II.B.6. Imaging – h. MRV |
| II.B.6. Imaging – i. Conventional Angiogram |
| III.B. Positive Visual Phenomena |
| III.J. Ptosis |
| III.J. Ptosis---8. Levator Dehiscence |
| III.K. Lid Findings ---3. Lag Ophthalmos |
| III.M. Pupillary Changes |
| IV.B. Diseases of the Optic Nerve –1. Ischemic Optic Neuropathy –d. Optic Neuropathy with Retinopathy |
| IV.B. Diseases of the Optic Nerve –2. Inflammation –b. Infectious –i. Optic Perineuritis |
| IV.B. Diseases of the Optic Nerve –7. Nutritional |
| IV.B. Diseases of the Optic Nerve –8. Metabolic |
| IV.C.2.a.iii. Benign vs malignant neoplasm |
| IV.C.2.c. Sphenoid Wing Meningioma |
| IV.C.2.h. Orbital Schwanoma |
| IV.C.2.i. Orbital Rhabdomyosarcoma |
| IV.C.2.k. Adenoid Cystic Carcinoma of Lacrimal Gland  |
| IV.C.2.l. Frontal Mucocele |
| IV.C.3.g. Fungal Infections of the Orbit and Orbital Apex |
| IV.C.4.a. Orbital Varix |
| IV.D.2.b. Hypophysitis, Lymphocytic |
| IV.E. Diseases of the Retrochiasmal Visual Pathways |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—2. Lateral Geniculate |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—3. Radiations |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—4. Calcarine Cortex |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—5. Association Areas |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—c. Balint Syndrome |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—d. Gerstmann Syndrome |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—e. Cerebral Achromatopsia |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—g. Acalculia |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—k. L-R Confusion |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—l. Akinetopsia |
| IV.E. Diseases of the Retrochiasmal Visual Pathways—6. Specialized Syndromes—m. Concept of “Blindsight” |
| IV.E.6.q. Sturge Weber |
| IV.F. Pupillary Pathology—3. Congenital Pupillary Abnormalities |
| IV.F. Pupillary Pathology—4. Pupillary Changes Secondary to Ocular Diseases—a. Traumatic, Foreign Body |
| IV.F. Pupillary Pathology—4. Pupillary Changes Secondary to Ocular Diseases—b. Inflammation |
| IV.F. Pupillary Pathology—4. Pupillary Changes Secondary to Ocular Diseases—c. Neovascularisation |
| IV.F. Pupillary Pathology—4. Pupillary Changes Secondary to Ocular Diseases—c. Neovascularisation—i. Ocular Surgery, Laser |
| IV.F. Pupillary Pathology—5. Traumatic Pupillary Changes |
| IV.F. Pupillary Pathology—8. Evaluation and Management of Specific Pupillary Disorders—d. Correctopia |
| IV.F. Pupillary Pathology—8. Evaluation and Management of Specific Pupillary Disorders—j. Flynn Phenomenon, Paradoxical Pupillary Reflex (not in UMLS) |
| IV.G. Eye Movement Systems Pathology—9. Specific Ocular Motor Syndromes—f. Divergence Insufficiency |
| IV.G. Eye Movement Systems Pathology—9. Specific Ocular Motor Syndromes—g. Decompensation of Phorias |
| IV.G. Eye Movement Systems Pathology—9. Specific Ocular Motor Syndromes—j. Cyclic Oculomotor Paresis |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—a. Foville |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—b. Millard-Gubler |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—e. Locked In Syndrome |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—f. Nothnagel |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—g. Benedikt |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—h. Weber |
| IV.G. Eye Movement Systems Pathology—10. Classical Brain Stem Syndromes—k. Syndrome of the Anterior Inferior Cerebellar Artery |
| IV.H. Nystagmus and Disorders of Ocular Stability |
| IV.H. Nystagmus and Disorders of Ocular Stability—5. Specific Types of Nystagmus and Their Localizing Value—c. Left Beat Nystagmus |
| IV.H. Nystagmus and Disorders of Ocular Stability—5. Specific Types of Nystagmus and Their Localizing Value—i. Divergence Nystagmus |
| IV.H. Nystagmus and Disorders of Ocular Stability—6. Induced Nystagmus—a. Valsalva |
| IV.H. Nystagmus and Disorders of Ocular Stability—6. Induced Nystagmus—b. Sounds (Tullio’s Phenomena) |
| IV.H. Nystagmus and Disorders of Ocular Stability—6. Induced Nystagmus—c. Calorics: Hot or Cold Water in Ear |
| IV.H.7.d.i. Other Saccadic Abnormalities (Dysmetria, Macrosaccadic Oscillations, etc) |
| IV.H. Nystagmus and Disorders of Ocular Stability—7. Ocular Oscillations—e. Ocular Bobbing |
| IV.H.7.e.i. Ocular Dipping, Inverse Bobbing, etc. |
| IV.H. Nystagmus and Disorders of Ocular Stability—7. Ocular Oscillations—g. Oculomasticatory Myorhythmia |
| IV.I. Eyelid Position Abnormalities—2. Ptosis—a. Pseudoptosis |
| IV.I. Eyelid Position Abnormalities—2. Ptosis—b. Congenital |
| IV.I. Eyelid Position Abnormalities—2. Ptosis—c. With Elevator Palsy |
| IV.I. Eyelid Position Abnormalities—2. Ptosis—e. Blepharophimosis |
| IV.I. Eyelid Position Abnormalities—2. Ptosis—f. Levator Dehiscence |
| IV.I.2.g.ii. Myotonic Dystrophy |
| IV.I.2.g.iii. Oculopharyngeal |
| IV.I.2.h.i.a. Lambert-Eaton |
| IV.I. Eyelid Position Abnormalities—5. Lid Bobbing |
| IV.J. Facial Nerve Dysfunction—1. Central and Peripheral Facial Palsy |
| IV.J. Facial Nerve Dysfunction—6. Oculomasticatory Myorhythmia (Whipple’s) |
| IV.J. Facial Nerve Dysfunction—7. Facial Tics |
| IV.J. Facial Nerve Dysfunction—8. Facial Dystonia (Meige’s Syndrome) |
| V.A.4. Congenital Hydrocephalus |
| V.A.5. Cranial Dysotoses (Craniosynotosis) |
| V.A.7. Other Disc Anomalies—a. Congenital Optic Nerve Anomalies |
| V.A.7. Other Disc Anomalies—a. Congenital Optic Nerve Anomalies—i. Bergmeister Papilla |
| V.A.7.a.v. Optic Nerve Aplasia |
| V.A.7.a.viii. Bridge Coloboma or Second Disc |
| V.A.8. Common Malformations of the Eye and Orbit |
| V.B.1.a.i. Marfan Syndrome |
| V.B.1.a.iii. Fibromuscular Dysplasia |
| V.B.1.a.iv. Ehlers-Danlos Syndrome |
| V.B.3. Vascular Disease—a. Vascular Risk Factors |
| V.B.3. Vascular Disease—b. Prevention of Vascular Disease |
| V.B.6. Autoimmune Diseases, Classification of Vasculitudes—a. Specific Vasculitides with Ocular and Neurologic Manifestations—iv. Antiphospholipid Antibody Syndrome |
| V.C.1.d.i. Third (Oculomotor) |
| V.C.1.d.ii. Fourth (Trochlear) |
| V.C.1.d.iii. Sixth (Abducens) |
| V.C.2. Increased Intracranial Pressure—a. Differential Diagnosis and Management of Intracranial Hypertension—ii. Meningitis |
| V.C.2. Increased Intracranial Pressure—a. Differential Diagnosis and Management of Intracranial Hypertension—iii. Subarachnoid Hemorrhage |
| V.C.2. Increased Intracranial Pressure—b. Neuro-Ophthalmic Manifestations and Complications |
| V.C.3.a.viii. Posterior Reversible Encephalopathy |
| V.C.3.b.iv. Cogan Syndrome |
| V.C.3.b.v. Acute Posterior Multifocal Placoid Pigment Epitheliopathy |
| V.C.3.b.vi. Behcet’s Disease |
| V.C.3. Vascular Disease of the Brain and the Eye—c. Basics of Acute Treatment and Secondary Prevention of Stroke |
| V.C.3. Vascular Disease of the Brain and the Eye—d. Neuro-Ophthalmologic Manifestations of Stroke |
| V.C.3. Vascular Disease of the Brain and the Eye—f. Venous Sinus Thrombosis |
| V.C.3. Vascular Disease of the Brain and the Eye—g. Hemorrhage |
| V.C.3. Vascular Disease of the Brain and the Eye—g. Hemorrhage—i. Subarachnoid |
| V.C.3. Vascular Disease of the Brain and the Eye—g. Hemorrhage—iii. Thalamic Hemorrhage |
| V.C.3.g.vi. Cerebellar Hemorrhage |
| V.C.3.g.vii. Optic Nerve Hemorrhage |
| V.C.3.g.viii. Optic Chiasm Hemorrhage |
| V.C.3. Vascular Disease of the Brain and the Eye—g. Hemorrhage—ix. Midbrain Hemorrhage |
| V.C.3. Vascular Disease of the Brain and the Eye—h. Intracranial Vascular Malformations, Diagnosis, and Neuro-Ophthalmologic Manifestations |
| V.C.3.h.i.b. Cavernous Sinus Aneurysms |
| V.C.3. Vascular Disease of the Brain and the Eye—h. Intracranial Vascular Malformations, Diagnosis, and Neuro-Ophthalmologic Manifestations—ii. Arteriovenous Malformations |
| V.C.3.h.iii. Retinal Arteriovenous Malformations |
| V.C.3.h.vi. Orbital Venous Malformations |
| V.C.4. Seizures with Neuro-Ophthalmologic Manifestations—b. Pupillary Changes, Ocular Movement Changes During Seizures |
| V.C.5. Neuro-Ophthalmic Manifestations of Neoplasms—f. Orbital Neoplasms—i. Choroidal Folds From Orbital Mass |
| V.C.8. Metabolic Diseases—a. Wilson’s Disease |
| V.C.9. Neuro-Degenerative Diseases—c. Vascular Dementias |
| V.C.10. Polyradiculopathies—a. Guillain-Barré |
| V.C.11. Neuro-Muscular Transmission Deficits—c. Lambert-Eaton Myasthenic Syndrome |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—a. Congenital Myopathies/Oculopharyngeal Muscular Dystrophy—i. Dystrophies/Ion Channel Disorders (Myotonia) |
| V.C.12.a.i.a. Myotonic Dystrophy |
| V.C.12.a.i.a.i. Ocular Myotonia |
| V.C.12.b.i. Sporadic CPEO |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—c. Ischemic |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—d. Metabolic – Toxic- Melissa |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—d. Metabolic – Toxic—i. Drug Induced, Toxic |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—e. Inflammatory—ii. Orbital Inflammatory Disease |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—g. Congenital Syndromes Involving the Extraocular Muscles—i. Anomalous Muscle Insertions |
| V.C.12. Myopathies (Involving the Extraocular Muscles)—g. Congenital Syndromes Involving the Extraocular Muscles—ii. Brown’s Syndrome |
| V.C.13. Headache and Facial Pain—a. Classification of Headaches and Facial Pain Proposed by the International Headache Society (IHS) |
| V.C.13. Headache and Facial Pain—b. Migraine—i. Migraine Without Aura |
| V.C.13. Headache and Facial Pain—b. Migraine—vi. Hemianopia After Migraine |
| V.C.13. Headache and Facial Pain—c. Tension Headaches—i. Episodic |
| V.C.13. Headache and Facial Pain—c. Tension Headaches—ii. Chronic |
| V.C.13. Headache and Facial Pain—e. Headache Associated with Increased Intracranial Pressure |
| V.C.13. Headache and Facial Pain—f. Headache and Facial Pain of Vascular Origin |
| V.C.13. Headache and Facial Pain—g. Ocular Pain Related to Ocular of Optic Nerve Disease |
| V.C.13. Headache and Facial Pain—h. Trigeminal Neuralgia (Fifth Nerve) |
| V.C.14. Psychiatric Illness |
| V.D.1. Retinal Disorders—a. Vascular |
| V.D.1.c.ii. Idiopathic retinal vasculitis |
| V.D.1.c.iii. AMPPE |
| V.D.1.d.iii. White Dot Syndromes |
| V.E.3. Various Drugs with Specific Neuro-Ophthalmologic Complications, Including—a. Cyclosporine |
| V.E.3. Various Drugs with Specific Neuro-Ophthalmologic Complications, Including—g. Vasoconstritors |
| V.E.3. Various Drugs with Specific Neuro-Ophthalmologic Complications, Including—h. Steroids |
| V.F.1. Terminology—a. Factitious (Münchausen’s) |
| V.F.1. Terminology—b. Malingering |
| V.F.1. Terminology—c. Conversion Reaction |
| V.F.1. Terminology—d. Exaggeration—i. Hypochondriasis |
| V.F.1. Terminology—d. Exaggeration—ii. Somatization Disorder |
| V.F.2. Clinical Presentations—b. Visual Field Defects |
| V.F.3. Specific Techniques of Evaluation |
| VI.A.2. Principles and Complications of Strabismus Surgery |
| VI.A.7. CSF Shunting Procedures |
| VIII.A. Administration—1. Credentialing, Career Development, Recruitment, Budgeting, Health Care Financing, Managed Care, Public Relations, Personnel Management, Marketing, Hospital Administration, Practice Management, Contracts, Work Schedule |
| VIII.A. Administration—2. JCAHO Requirements Relating to Neuro-Ophthalmolog (Staffing, Equipment and Supplies, Facilities, Quality Insurance) |
| VIII.B. Research—Read and Analyze Scientific Articles |
| VIII.B. Research—4. Ethical Issues in Research, Including Consent and Researchers’ Interactions with Corporate Funding Sources (Conflict of Interest) |
| VIII.B. Research—5. Write and Publish a Manuscript |
| VIII.D. Ethics and Professionalism—2. Knowledge of Cost, Resource Allocation, Quality of Care, and Access to Care Issues |
| VIII.D. Ethics and Professionalism—3. Basic Familiarity with Medical Malpractice |
| VIII.D. Ethics and Professionalism—4. Physician-Physician Relationships |
| VIII.D. Ethics and Professionalism—5. Laws Relating to Drug Dispensing, Regulation, and Abuse |
| VIII.D. Ethics and Professionalism—6. Role of Expert Witness in Medico-Legal Procedures |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—a. NANOS |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—b. INOS |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—c. EUNOS |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—d. AAN |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—e. ANA |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—f. AAO |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—g. ARVO |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—h. Regional Organizations |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—i. NEI |
| VIII.E. Neuro-Ophthalmologic Resources—1. Organizations—j. NINDS |
| VIII.E. Neuro-Ophthalmologic Resources—2. Journals |
| IX. ReferencesA – K |