

Curriculum Vitae

David L. Horn M.D., M.S.

CURRENT POSITIONS/APPOINTMENTS

Associate Professor August 2016 – present Appointed Assistant Professor 2010	University of Washington School of Medicine Department of Otolaryngology – Head and Neck Surgery
Adjunct Faculty December 2013 – present	University of Washington School of Medicine Department of Speech and Hearing Sciences
Attending Physician August 2010 – present	Seattle Children’s Hospital Department of Surgery Division of Pediatric Otolaryngology

EDUCATION

M.D.	Medical College of Wisconsin	Aug 1998 – June 2002
M.S.	Georgetown University Physiology	Aug 1996 – June 1997
B.S.	University of California, Santa Barbara Biopsychology	Sept 1992 – June 1996

TRAINING AND RESEARCH EXPERIENCE

Fellow, Pediatric Otolaryngology July 2009 – June 2010	Children’s Hospital Pittsburgh Department of Pediatric Otolaryngology
Resident, Otolaryngology July 2005 – June 2009	Indiana University School of Medicine Department of Otolaryngology/Head and Neck Surgery
NIH Postdoctoral fellow July 2003 – June 2005	Indiana University School of Medicine Department of Otolaryngology/Head and Neck Surgery DeVault Otologic Research Laboratory
Internship, General Surgery July 2002 – June 2003	Indiana University School of Medicine Department of Surgery
Research Assistant Sept 1997 – July 1998	University of California, Los Angeles Department of Neurology Lab PI: Sally Frautschy, PhD
Research Assistant March 1996 – Aug 1996	University of California, Santa Barbara Department of Psychology Lab PI: Jack Loomis, PhD

ACTIVE LICENSURE

Washington State Medical License

ACADEMIC AND PROFESSIONAL HONORS

2014 - Seymour R. Cohen Award for Pediatric Laryngology and Broncho-esophagology, ABEA
2009 – 2nd place, resident research award, 25th Annual Manion-Lingeman Lecture
2007 – 2nd place, resident research award, 23rd Annual Manion-Lingeman Lecture
2007 – Resident travel award, Triological Society Middle Section
2006 – 2nd place, resident research award, 22nd Annual Manion-Lingeman Lecture
2006 – Walter Work Resident Award for Clinical Research, Triological Society Middle Section
2005 – Resident travel award, Association for Research in Otolaryngology Midwinter Meeting
2001 – Alpha Omega Alpha Medical Honors Society, elected as medical student
1996 – Distinction in Undergraduate Research, University of California, Santa Barbara
1996 – Academic Excellence Award in Biopsychology, University of California, Santa Barbara
1993 – Golden Key National Honors Society
1993 – Dean’s Honor Roll (2 academic quarters), University of California, Santa Barbara
1992 – Dean’s Honor Roll (1 academic quarter), University of California, Santa Barbara

ACTIVE PROFESSIONAL MEMBERSHIPS

American Academy of Otolaryngology-Head and Neck Surgery	Jul 2003 – present
Northwest Academy of Otolaryngology	Jan 2011 – present
International Congress on Infant Studies	Jan 2011 – present
Association for Research in Otolaryngology	Jan 2011 – present
American Society for Pediatric Otolaryngology	Apr 2014 – present
American Broncho-Esophagological Society	Apr 2014 – present

CURRENT RESEARCH INTERESTS/ACTIVITIES

Active Projects as primary investigator:

(1) Development of hearing sensitivity in children with cochlear implants

- a. Active study #1: Prospective, longitudinal study of infants’ sensitivity to spectral and temporal acoustic changes as a function of hearing experience and hearing method (CI versus NH).
- b. Active study #2: Validation of a method to measure infants’ spectral resolution and discrimination of spectral acoustic change.
- c. Active study #3: Comparison of two methods to measure temporal modulation detection in infants.
- d. Active study #4: Spectral ripple discrimination in normal hearing and cochlear implanted listeners: effect of hearing mechanism (CI versus NH) and age (child versus adult)
- e. Active study #5: Electrophysiological measures of spectral change detection in infants.

(2) Relationship between cochlear nerve canal width and speech understanding in pediatric hearing loss patients

- a. Retrospective study – Does preoperative CT CNC width predict postoperative speech perception in pediatric CI users?

Active Projects as co-investigator:

- (3) *Role of interarytenoid injection in pediatric dysphagia and aspiration*
 - a. *Active study #1: Inter-rater reliability and clinical validity of PASS score for quantification of the video-fluoroscopic feeding study in children with prolonged pharyngeal dysphagia.*
 - b. *Study #2 in IRB preparation: Prospective, randomized controlled trial of prompt versus delayed inter-arytenoid injection for treatment of children with prolonged pharyngeal dysphagia.*
- (4) *Drug-induced sleep endoscopy in pediatric population*
 - a. *Active study #1: Prospective, uncontrolled study of DISE outcomes for children with obstructive sleep apnea syndrome*

Completed Funding:

Clinician-Scientist Award	07/01/13- 06/30/14	50% time
American Otological Society	\$80,000	

Spectral and temporal resolution in infants with cochlear implants

This research examines development of acoustic spectral and temporal resolution in prelingually deaf infants who use cochlear implants and will investigate links between these abilities and later spoken-language abilities.

Role: PI

Mentors: Lynne Werner and Jay Rubinstein

Supplement to Clinician-Scientist Award	07/01/14- 06/30/15	50% time
American Otological Society	\$16,000	

Spectral and temporal resolution in infants with cochlear implants

This supplement to the Clinician-Scientist Award was provided by the AOS to augment the personnel salary support for the K23 award projects.

Role: PI

Surgical Pioneers Research Fund	08/01/13 – 01/31/16	0% time
Seattle Children's Foundation	\$12,000	

Amplitude Modulation Detection in Infants with Cochlear Implants

This pilot project will investigate temporal resolution and sound intensity discrimination in infants with CIs. The major goal is to determine if these skills are predictive of later speech and language development in CI infants.

Role: PI

Active Funding:

K23DC013055-01A1	07/01/14 – 06/30/19	75% time
NIH/NIDCD	\$230,306	

Spectral and Temporal Resolution in Infants with Cochlear Implants

This research project and career development plan will investigate basic auditory abilities in young infants and toddlers who use cochlear implants. Its major purpose is to develop methods to quantify auditory capacity and predict later speech and language development in CI infants.

Role: PI

Mentors: Lynne Werner and Jay Rubinstein

PUBLICATIONS

Published

Horn DL, Dudley DJ, Dedhia K, Nie K, Drennan WR, Won J, Rubinstein JT, Werner LA (2017). *Erratum: Effects of age and hearing mechanism on spectral resolution in normal hearing and cochlear-implanted listeners*. Journal of the Acoustical Society of America. 141(5):2977.

Horn DL, Dudley DJ, Dedhia K, Nie K, Drennan WR, Won J, Rubinstein JT, Werner LA (2017). *Effects of age and hearing mechanism on spectral resolution in normal hearing and cochlear-implanted listeners*. Journal of the Acoustical Society of America. 141(1):613-622.

Purcell PL, Shinn JR, Coggeshall SS, Phillips G, Paladin A, Sie KCY, **Horn DL** (2017). *Progression of Unilateral Hearing Loss in Children With and Without Ipsilateral Cochlear Nerve Canal Stenosis: A Hazard Analysis*. Otol Neurotol. 38(6):e138-e144

Miller C, Purcell PL, Dahl JP, Johnson K, **Horn DL**, Chen M, Chan D, Parikh S. (2017) *Clinically small tonsils are typically not obstructive in children during drug induced sleep endoscopy*. Laryngoscope 127(8):1943-1949.

Horn DL, Won JH, Jones G, Rubinstein JT, Werner LA (2017). *Spectral ripple discrimination in normal hearing infants*. Ear and Hearing. 38(2):212-222.

Dahl JP, Miller C, Purcell PL, Zopf DA, Johnson K, **Horn DL**, Chen ML, Chan DK, **Parikh SR** (2016). *Airway Obstruction during Drug-Induced Sleep Endoscopy Correlates with Apnea-Hypopnea Index and Oxygen Nadir in Children*. Otolaryngol Head Neck Surg. 2016 Oct;155(4):676-80.

Purcell, P, Iwata A, Phillips G, Paladin A, Sie K, **Horn DL** (2015). *Bony cochlear nerve canal stenosis and speech discrimination in pediatric unilateral hearing loss*. Laryngoscope 125(7):1691-1696.

Mase CA, Chen M, **Horn DL**, Parikh SR (2015). *Supraglottoplasty for sleep endoscopy diagnosed sleep dependent laryngomalacia*. International Journal of Pediatric Otorhinolaryngology, 79(4):511-5

Shinn J, Purcell PL, **Horn DL**, Sie KC, Manning SC (2015). *First branchial cleft anomalies: otologic manifestations and treatment outcomes*. Otolaryngology-Head and Neck Surgery, 152(3):506-12.

Mitchell RM & Horn DL (2015). *Migration of a cochlear implant ground electrode through the calvarium of a pediatric patient*. Int J Pediatr Otorhinolaryngol. 79(2):278-280.

Park MH, Won JH, **Horn DL**, Rubinstein JT (2014). *Acoustic temporal modulation detection in normal hearing and cochlear implanted listeners: effects of hearing mechanism and development*. JARO, 16(3):389-99.

- Horn DL**, Demarre K, Parikh SR (2014). *Inter-arytenoid sodium carboxymethylcellulose gel injection for management of pediatric aspiration*. *Annals of Otolaryngology and Laryngology* 123(12):852-8.
- Chan DK, Liming, BJ, **Horn DL**, Parikh SJ (2014). *A new scoring system for upper airway pediatric sleep endoscopy*. *JAMA Otolaryngology-Head and Neck Surgery* 140(7):595-602.
- Edwards R, Chapman T, **Horn DL**, Paladin AM, Iyer RS (2013). *Imaging of Pediatric Floor of Mouth Lesions*. *Pediatric Radiology* 43(5):523-35.
- Horn DL**, Mehta DK, Simons JP, Maguire RC (2012). *Endoscopic Anterior Cricoid Split with Balloon Dilation in Infants with Failed Extubation*. *Laryngoscope* 122(1):216-219.
- Horn DL**, McSoley T, Klein N (2009). *External rhinoplasty excision of a nasal tip glioma in a 6-month old infant: Case report and review of the literature*. *International Journal of Pediatric Otorhinolaryngology (Extra)* 73(8):1175-1176.
- Horn DL**, Houston DM, Miyamoto RT (2007). *Speech discrimination skills in deaf infants before and after cochlear implantation*. *Audiological Medicine* 5(4): 232-241.
- Horn DL**, Fagan MK, Dillon CM, Pisoni DB, Miyamoto RT (2007). *Visual-Motor Integration Skills of Pre-lingually Deaf Children: Implications for Pediatric Cochlear Implantation*. *Laryngoscope*. 117(11):2017-25.
- Houston DM, **Horn DL**, Qi R, Ting JY, Gao S (2007). *Assessing speech discrimination in individual infants*. *Infancy*. 12(2): 119-145.
- Fagan, MK, Pisoni DB, **Horn DL**, Dillon, CM (2007). *Neuropsychological correlates of vocabulary, reading, and working memory in deaf children with cochlear implants*. *Journal of Deaf Studies and Deaf Education*. 12(4):461-471.
- Horn DL**, Pisoni DB, Miyamoto RT (2006). *Divergence of fine and gross motor skills in prelingually deaf children: implications for cochlear implantation*. *Laryngoscope*. 116(8):1500-6.
- Horn DL**, Pisoni DB, Davis RAO, Sanders M, Miyamoto RT (2005). *Behavioral assessment of prelingually deaf children before cochlear implantation*. *Laryngoscope*. 115(9):1603-11
- Horn DL**, Davis RAO, Pisoni DB, Miyamoto RT (2005). *Development of visual attention skills in prelingually deaf children who use cochlear implants*. *Ear and Hearing*. 26(4):389-408
- Horn DL**, Pisoni DB, Davis RAO, Miyamoto RT (2005). *Behavioral inhibition and clinical outcomes in children with cochlear implants*. *Laryngoscope*, 115(4):595-600
- Horn DL**, Loomis JM (2004). *Spatial updating of targets in front and behind*. *Paidéia*, 14(27):75-81

Hong RS, Rubinstein JT, Wehner D, **Horn DL**. (2003). *Dynamic range enhancement for cochlear implants*. *Otology Neurotology*, Jul;24(4):590-595

Frautschy SA, **Horn DL**, Sigel JJ, Harris-White ME, Mendoza JJ, Yang F, Saido TC, Cole GM (1998). *Protease inhibitor coinfusion with amyloid beta-protein results in enhanced deposition and toxicity in rat brain*. *Journal of Neuroscience*, Oct 15;18(20):8311-21

Non-Juried Articles/Proceedings/Book Chapters

Walker B, **Horn DL**, Rubinstein JT (2018). *Medical Management of Pediatric Hearing Loss*. Chapter in “Pediatric Audiology” Eds: Jane Madell & Carol Flexer. Theme. In Press.

Horn, DL (2016). *Management of Syndromic Children*. Chapter in “Decision Making in Otolaryngology” Eds: Alper C., Eibling DE. In Press.

Horn, DL (2014). *Surgical Hearing Rehabilitation*. Chapter in “Pediatric Otolaryngology – Head and Neck Surgery: A clinical reference guide.” Ed: Parikh S. San Diego, CA: Plural.

Horn, DL (2014). *Cholesteatoma*. Chapter in “Pediatric Otolaryngology – Head and Neck Surgery: A clinical reference guide.” Ed: Parikh S. San Diego, CA: Plural.

Pisoni, DB, Kronenberger, W, Conway, CM, **Horn, DL**, Karpicke, J & Henning, S (2008). *Efficacy and effectiveness of cochlear implants in deaf children*. In M. Marschark & P. Hauser (Eds.), *Deaf Cognition: Foundations and Outcomes*. New York: Oxford University Press.

Horn DL, Miyamoto RT (2005). *Cochlear implantation in meniere’s disease*. *Meniere’s Disease and Inner Ear Homeostasis Conference Proceedings*. Los Angeles, CA, April 2005. ISBN 0-9776204-0-9

Horn DL, Davis RAO, Pisoni DB, Miyamoto RT (2004). *Visuo-motor integration ability of pre-lingually deaf children predicts audiological outcome with a cochlear implant*. International Congress Series: CI2004 Proceedings, International Conference on Cochlear Implants. Indianapolis, IN, May 2004. ICS 1273

Horn DL, Davis RAO, Pisoni DB, Miyamoto RT (2004). *Visual attention, behavioral inhibition and speech/language outcomes in deaf children with cochlear implants*. International Congress Series: CI2004 Proceedings, International Conference on Cochlear Implants. Indianapolis, IN, May 2004. ICS 1273

Horn DL (1996). *Updating a target location during blind locomotion: effects of target location*. Unpublished undergraduate honors thesis, University of California, Santa Barbara.

CONFERENCE PRESENTATIONS

Juried Podium Sessions/Talks

Mitchell RM, Christianson E, Ramirez R, Grove NE, Horn DL, Durke L, Miller C, Norton S, Sie KC (2018). *Auditory Comprehension outcomes in children receiving cochlear implantation at early age*. Podium Presentation at the American Society of Pediatric

Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Coppess S, Padia R, **Horn DL**, Parikh SR, Inglis A, Dudley D, Law A, Johnson K (2018). *Standardizing laryngeal cleft evaluations: feasibility and reliability of the inter-arytenoid assessment protocol*. Podium Presentation at the American Society of Pediatric Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Padia R, Coppess S, Parikh SR, **Horn DL**, Hoang J, Johnson KJ (2018). *Pediatric Dysphagia: Is Inter-Arytenoid Mucosal Height Significant?*. Podium Presentation at the American Society of Pediatric Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Filipek N, Kirkham E, Chen M, Ma CC, **Horn DL**, Johnson K, Parikh SR (2018). *Drug-Induced Sleep Endoscopy-Directed Surgery Improves Polysomnography Measures in Overweight and Obese Children with Obstructive Sleep Apnea*. Podium Presentation at the American Society of Pediatric Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Kirkham E, Ma CC, Filipek N, **Horn DL**, Johnson K, Parikh SR (2018). *Drug Induced Sleep Endoscopy Improves Polysomnography Outcomes in Complex and Refractory Pediatric Sleep Apnea*. Podium Presentation at the American Society of Pediatric Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Miller C, Kirkham E, Ma C, Filipek N, **Horn DL**, Johnson K, Parikh SR (2018). *Drug-induced sleep endoscopy directed surgery improves polysomnography parameters in children with small tonsils*. Podium Presentation at the American Society of Pediatric Otolaryngology Spring Meeting, COSM, National Harbor, MD, April 2018.

Akkina SR, Ma CC, **Horn DL**, Chen ML, Parikh SR, (2017). *Sleep endoscopy in children with Down's Syndrome: findings and polysomnography outcomes*. Podium presentation at the American Society of Pediatric Otolaryngology Spring Meeting, Austin, May 2017.

Wick EH, Johnson K, Wijakkanalan P, Faherty A, Demarre K, Parikh SR, **Horn DL** (2017). *Reliability and validity of the penetration-aspiration scale and quantify outcomes after interarytenoid injection augmentation in children*. Podium presentation at the American Society of Pediatric Otolaryngology Spring Meeting, Austin, May 2017.

Miller C, Purcell P, Dahl JP, Johnson K, **Horn DL**, Chen ML, Chan DK, Parikh SR (2016). *Does Brodsky tonsil score correlate with lateral pharyngeal wall obstruction seen on pediatric sleep endoscopy?* Podium presentation at the Combined Section Meeting of The Triological Society, January 2016.

Horn DL, Meredith M, Norton S, Rubinstein JT, Werner LA (2015). *Sensitivity of Deaf Infants to Spectral and Temporal Acoustic Changes During the First Year of Cochlear Implant Activation*. Podium presentation at the Cochlear Implantation 2015 Symposium, Washington, CD. October 2015.

Horn DL, Rubinstein JT, Werner LA (2015). *Spectral ripple discrimination in normal hearing and cochlear implanted children*. Podium presentation and poster given at Auditory Development: From Cochlea to Cognition, Seattle, WA, August 14-15, 2015.

Dahl JP, Miller C, Purcell P, Zopf, DA, **Horn DL**, Chan D, Parikh SR. *Correlation of sleep apnea parameters with pediatric drug induced sleep endoscopy*. Podium presentation at the American Academy of Otolaryngology-Head and Neck Surgery Annual Meeting, 2015.

Horn DL, Rubinstein JT, Werner LA (2014). *Preliminary Findings on Spectral and Temporal Resolution in Cochlear Implanted Infants*. Podium presentation at the International Symposium on Cochlear Implantation in Children, Nashville, TN, December 2014.

Shinn J, Purcell P, **Horn DL**, Manning S (2014). *First branchial cleft anomalies: Otologic manifestations and treatment outcomes*. Podium presentation at the American Academy of Otolaryngology – Head and Neck Surgery Annual Meeting, September 2014.

Horn DL, Demarre K, Parikh SR (2014). *Inter-arytenoid injection sodium carboxymethylcellulose gel injection for management of pediatric aspiration*. Podium presentation at the Annual Meeting of the American Broncho-Esophagological Association, May 2014.

Kuo C, Chan M, **Horn DL**, Parikh SR (2014). *Pediatric drug-induced sleep endoscopy (DISE): Indications and surgical outcomes*. Podium presentation at the Annual Meeting of the American Broncho-Esophagological Association, May 2014.

Horn DL, Rubinstein JT, Werner LA (2013). *Amplitude Modulation Detection in Infants: separating temporal efficiency and resolution*. Podium Presentation given at the 11th European Symposium on Paediatric Cochlear Implantation, Istanbul, Turkey, May 23-26.

- Chan DC, **Horn DH**, Parikh SR (2013). *Validation of an assessment tool for pediatric sleep endoscopy*. Oral Presentation at the Annual Meeting of the American Broncho-Esophagological Association, Orlando, April 10th to 11th, 2013.
- Horn DL**, Werner LA, Rubinstein JT, Won JH (2013). *Spectral Ripple Discrimination in Infants: effects of depth and phase randomization*. Oral presentation given at the Association for Research in Otolaryngology Winter Meeting, Baltimore, MD, Feb 16-20.
- Horn DL**, Mehta DK, Simons JP, Maguire RC (2009). *Endoscopic anterior cricoid split with balloon dilation: a novel technique for treatment of infants with failed extubation*. Oral presentation at the Society For Ear, Nose, and Throat Advances in Children Annual Meeting, Salt Lake City, Utah, December 3-6.
- Horn DL**, Pisoni DB, Miyamoto RT (2009). *Behavioral assessment of prelingually deaf children after cochlear implantation*. Oral presentation at the American Society for Pediatric Otolaryngology Meeting, Seattle, WA, May 28-31.
- Horn DL**, Houston DM, Miyamoto (2008). *Speech discrimination in hearing-impaired infants: Assessing benefit from hearing aids and cochlear implants*. Oral presentation given at the Society For Ear, Nose, and Throat Advances in Children Annual Meeting, Boston, MA, December 4-7.
- Horn DL**, Conway C, Henning S, Pisoni DB, Kronenberger W, Miyamoto RT (2007). *Behavioral assessment of executive function in pre-lingually deaf children with cochlear implants*. Oral paper given at the Society For Ear, Nose and Throat Advances in Children Annual Meeting, Milwaukee, WI, November 29 – December 2.
- Horn DL**, Houston DM, Miyamoto RT (2007). *Non-word discrimination skills in hearing-impaired infants with hearing aids or cochlear implants*. Oral paper given at the 11th International Conference on Cochlear Implants in Children, Charlotte, NC. April 11-14.
- Horn DL**, Fagan MK, Dillon CM, Pisoni DB, Miyamoto RT (2007). *Visual-motor integration skills of prelingually deaf children after two or more years of cochlear implant use: relations to age at implantation and speech perception*. Oral paper given at the Triological Winter Meeting, Marco Island, FL. Feb 14-18.
- Horn DL**, Houston DM, Miyamoto RT (2006). *Non-word discrimination skills in deaf infants*. Oral paper given at the IX International Cochlear Implant Conference, Vienna, Austria. June 14-17.
- Horn DL**, Pisoni DB, Miyamoto RT (2006). *Divergence of fine and gross motor skills in prelingually deaf children: clinical and theoretical implications for cochlear implantation*. Oral paper given at the Triological Middle Section Meeting, San Diego, CA. Feb 2-5.

Horn DL, Bergeson TR, Pisoni DB (2005). *Some Preimplant Predictors of Speech and Language Skills in Prelingually Deaf Children with Cochlear Implants*. Oral paper given at the Society for Research in Child Development 2005 Meeting, Atlanta, GA. April 7-10.

Horn DL, Davis RAO, Pisoni DB, (2004). *Visual attention, behavioral inhibition and speech/language outcomes in deaf children with cochlear implants*. Oral paper given at the VIII International Cochlear Implant Conference, Indianapolis, IN. May 10-13.

Juried Poster Sessions

Horn DL, Rubinstein JT, Norton S, Meredith M, Werner LA. (2017). *Relationship of Early Auditory Acuity and Spoken-language Outcomes in Prelingually-deaf Infants Using Cochlear Implants*. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA, July 2017.

Horn DL, Rubinstein JT, Meredith M, Norton S, Walker B, Werner LA. (2017). *Acoustic Spectral Resolution in Cochlear Implanted Infants: Methods to Determine Threshold*. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA, July 2017.

Meredith M, Norton S, Rubinstein JT, Werner LA, **Horn DL**. (2017). *Relationship between Cochlear Implant Map Parameters and Auditory Spectral Resolution in Prelingually-Deaf Children*. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA, July 2017.

Horn DL, Meredith M, Norton S, Won J, Rubinstein JT, Werner LA. (2017). *Spectral Resolution and Auditory Language Growth in Prelingually-deaf Infants with Cochlear Implants*. Poster presented at the Association for Research in Otolaryngology, Baltimore, MD, February 2017.

Knapp, CH, Phillips, GS, Paladin, AM, Christianson, E, Norton, SJ, Sie, KC, **Horn, DL**. (2016). *Incidence of Bony Cochlear Nerve Canal Stenosis in Pre-Linguually Deaf Cochlear Implant Users*. Poster presented at the Combined Otolaryngologic Spring Meeting, Chicago, May 2016.

Johnson KA, Wijakkanalan P, Faherty A, Demarre K, Parikh SR, Soares JJ, **Horn DL** (2016). *Inter-arytenoid augmentation for persistent pharyngeal dysphagia: methods of predicting successful outcomes*. Poster presented at the American Society of Pediatric Otolaryngology 2016, Chicago, May 2016.

Shinn JR, Purcell PL, Coggeshall SS, Phillips GS, Paladin AM, **Horn DL**. (2016). *Bony Cochlear Nerve Canal Stenosis and Progression of Pediatric Unilateral Hearing Loss*. Poster Presented at the Combined Otolaryngologic Spring Meeting, Chicago, May 2016.

Horn DL, Gerhards C, Werner LA (2016). *Temporal modulation cutoff frequency in normal hearing infants*. Poster presented at the Association for Research in Otolaryngology, San Diego, CA, February 2016.

Horn DL, Dudley DJ, Dedhia K, Drennan WR, Nie K, Rubinstein JT, Werner LA (2016). *Spectral resolution and across-channel intensity resolution in school-age children versus adults: effects of age and cochlear implant use*. Poster presented at the Association for Research in Otolaryngology, San Diego, CA, February 2016.

Horn DL, Rubinstein JT, Werner LA (2015). *Spectral ripple discrimination in normal hearing and cochlear implanted children*. Podium presentation and poster given at Auditory Development: From Cochlea to Cognition, Seattle, WA, August 14-15, 2015.

Dedhia K, Nie K, Drennan WR, Rubinstein, JT, **Horn DL** (2015). *Relationship between spectral modulation depth and spectral ripple discrimination in normal hearing and cochlear implanted listeners*. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA, July 2015.

Purcell P, Iwata A, Phillips G, Paladin A, Sie K, **Horn DL** (2014). *Incidence of progressive hearing loss in pediatric patients with bony cochlear nerve canal stenosis and unilateral hearing loss*. Poster accepted at the American Society for Pediatric Otolaryngology meeting, Boston, MA, May 2015.

Johnson KA, Dudley D, Inglis AI, Parikh SR, Demarre K, **Horn DL** (2015). *Standardizing laryngeal cleft evaluations: feasibility of the inter-arytenoid region assessment*. Poster presented at the American Broncho-esophageal Association meeting, Boston, MA, May 2015.

Mulligan CA, Chen M, **Horn DL**, Parikh SR (2014). *Supraglottoplasty for sleep endoscopy diagnosed sleep dependent laryngomalacia as treatment for obstructive sleep apnea syndrome*. Poster presented at the American Society for Pediatric Otolaryngology meeting, Las Vegas, NV, May 2014.

Horn DL, Rubinstein JT, Werner LA (2014). *Does spectral ripple resolution mature during infancy?* Poster accepted for the Association for Research in Otolaryngology Winter Meeting, San Diego, CA, February 2014.

Purcell P, Iwata A, Phillips G, Paladin A, Sie K, **Horn DL** (2014). *Bony cochlear nerve canal width is associated with pure tone average and word recognition score in pediatric patients with unilateral hearing loss*. Poster presented at the American Society for Pediatric Otolaryngology meeting, Las Vegas, NV, May 2014.

Horn DL, Won JH, Lovett, RES, Dasika VK, Rubinstein, JT, Werner LA (2013). *Spectral ripple discrimination in infants with immature or atypical spectral resolution*. Poster presented at the Conference on Implantable Auditory Prostheses, Lake Tahoe, CA, July 14-19.

Horn DL, Parikh SR (2013). *Interarytenoid injection laryngoplasty as a diagnostic tool for workup and treatment of pediatric aspiration*. Poster presented at the American Society for Pediatric Otolaryngology meeting, Washington, DC, April 25-27.

- Horn DL, Sie KC, Ramsdell, L** (2012). *Variability of clinical presentation of patients with enlarged vestibular aqueduct*. Poster presented at the Combined Otolaryngology Spring Meeting - American Society for Pediatric Otolaryngology section, San Diego, CA, April 2012.
- Horn, DL, Werner, LA, Rubinstein JT, Won, J, Jones, GL.** (2012). *Spectral ripple inversion detection in normal hearing infants*. Poster presented at the Association for Research in Otolaryngology 2012 35th Midwinter Meeting, San Diego, CA, February 25-29, 2012
- Anderson de Moreno L, Matt B, **Horn DL**, Kim Y, Montgomery G (2010). *Propranolol in the treatment of subglottic hemangiomas*. Poster presentation at the American Academy of Otolaryngology – Head and Neck Surgery National Meeting. Boston, MA. September 28, 2010
- Horn DL, Chi DH** (2010). *Cognitive developmental assessment of hearing impaired infants before cochlear implantation*. Poster presentation at the American Society for Pediatric Otolaryngology Meeting, Las Vegas, NV. April 30 – May 2, 2010
- Horn DL, Klein N, McSoley T** (2008). *External rhinoplasty excision of a nasal tip glioma in a 6-month-old infant: A case report and review of the literature*. Poster presented at the Combined Otolaryngological Spring Meeting – American Society for Pediatric Otolaryngology section, Orlando, FL, May 1-4.
- Horn DL, Davis RAO, Pisoni DB, Miyamoto RT,** (2005). *Adaptive Behavioral Assessment of Pre-lingually Deaf Children with Cochlear Implants*. Poster presented at the Society for Research in Child Development 2005 Meeting, Atlanta, GA. April 7-10.
- Horn DL & Miyamoto RT,** (2005). *Cochlear Implantation in Patients with Meniere's Disease*. Poster presented at the 5th International Symposium for Meniere's Disease & Inner Ear Homeostasis Disorders, Los Angeles, CA. April 2-5.
- Horn DL, Houston DM, Miyamoto RT,** (2005). *Assessing Speech Discrimination in Individual Infants Using the Visual Habituation Paradigm*. Poster presented at the 10th Symposium on Cochlear Implants in Children, Dallas, TX. March 15-19.
- Horn DL, Hay-McCutcheon M, Pisoni DB,** (2005). *A Longitudinal Study of Spoken Digit Recall in Deaf Children with Cochlear Implants*. Poster presented at the 10th Symposium on Cochlear Implants in Children, Dallas, TX. March 15-19.
- Horn DL, Houston DM, Miyamoto RT,** (2005). *Discrimination of Audio-visually Presented Nonsense Words by Normal Hearing Infants and Hearing-Impaired Infants Who Use Cochlear Implants*. Poster presented at the Association for Research in Otolaryngology 2005 Midwinter Meeting, New Orleans, LA. February 19-24.

Horn DL, Davis RAO, Pisoni DB, Miyamoto RT, (2004). *Development of Sustained Visual Attention in Deaf Children With Cochlear Implants: important factors*. Poster presented at the International Conference on Newborn Hearing Screening, Diagnosis, and Intervention, Cernobbio, Italy. May 27-29.

Horn DL, Davis RAO, Pisoni DB, Miyamoto RT, (2004). *Motor development of pre-lingually deaf children: pre-implant predictor of audiological outcomes with a cochlear implant*. Poster presented at the International Conference on Newborn Hearing Screening, Diagnosis, and Intervention, Cernobbio, Italy. May 27-29.

Horn DL, Davis RAO, Pisoni DB (2004). *Visuo-motor integration ability of pre-lingually deaf children predicts audiological outcome with a cochlear implant*. Poster presented at the VIII International Cochlear Implant Conference, Indianapolis, IN. May 10-13.

INVITED PANELS/WORKSHOPS

“Does single-sided hearing loss in children need to be treated?” Panel for Northwest Academy of Otolaryngology Winter Conference, January 2017, Whistler, BC. Role: Moderator.

“Controversies in pediatric cochlear implantation.” Panel for American Society for Pediatric Otolaryngology Spring Meeting. May 2017, Austin, Tx. Role: Panelist.

“Challenging cases in pediatric ossiculoplasty.” Panel for American Society for Pediatric Otolaryngology Spring Meeting. May 2017, Austin, Tx. Role: Panelist.

“Hearing loss in school-age children: state of the art.” Panel for Spring Pediatrics Seminar at Seattle Children’s Hospital. May 2016, Seattle, WA. Role: Moderator.

“Cognitive outcomes in Pediatric Cochlear Implantation.” Invited Panel Moderator. 14th International Conference on Cochlear Implants. May 2016, Toronto, On. Was unable to attend.

“Pediatric neck mass: a case based forum.” Panel for Northwest Academy of Otolaryngology Winter Meeting. January 2016, Seattle, WA. Role: Panelist.

“Common issues in pediatric otology: cases for the primary care physician.” Workshop for Practical Pediatrics: Improving Pediatric Practice. February 2014, Seattle WA. Role: moderator.

“Management of Posterior Laryngeal Clefts.” Conversations in Pediatric Otolaryngology 2013. September 2013, Seattle, WA. Role: moderator.

INVITED TALKS

“Development of Auditory Acuity in Prelingually-deaf Cochlear Implant Users” Invited podium session for the 2017 Conference on Implanted Auditory Prostheses. July 2017, Tahoe, CA.

“Congenital and Prelingual Hearing Loss.” Everett Pediatrics Seminar. March 2016, Everett, WA.

“Management of pediatric hearing loss.” St. Francis Hospital Pediatrics Section Meeting. July 8, 2015.

“Management of congenital cochlear anomalies: implications of radiographic findings.” Society for Pediatric Radiology National Meeting, April 30, 2015. Bellevue, WA.

“Children with chronic aspiration who have normal laryngeal anatomy: what to do?” University of Pittsburgh Department of Otolaryngology Alumni Day, March 12, 2015. Pittsburgh, PA

“Audiological monitoring of pediatric middle ear disease: *Most recent evidence based guidelines.*” Audiology Online Webinar, March 5, 2015.

“Discrimination of spectral acoustic changes by infants with normal hearing and cochlear implants.” Northwest Auditory and Vestibular Research Meeting, Seattle, WA, October 9, 2014.

“Discrimination of spectral and temporal acoustic changes by infants with normal hearing and cochlear implants.” Virginia Merrill Bloedel Hearing Research Center Board of Trustees Meeting, July 23, 2014.

“New measures of auditory capacity in infants with cochlear implants.” University of Pittsburgh Department of Otolaryngology – Dr. Casselbrandt’s Retirement Research Seminar. May 2014. Was invited but unable to attend.

“Assessment and Management of children for placement of PE Tubes: who needs tubes and why?” Practical Pediatrics: Improving Pediatric Practice. February 2014, Seattle, WA.

“Pediatric Sleep Endoscopy: Indications and Findings.” Northwest Academy of Otolaryngology 2014 Winter Conference. Seattle, WA, January 2014.

“Interarytenoid sodium carboxymethylcellulose gel injection for management of pediatric aspiration.” Conversations in Pediatric Otolaryngology 2013. September 2013, Seattle, WA.

“*Pediatric Hearing Loss Workup and Treatment – Beyond Serous Otitis Media and Ear Tubes.*” Pediatric Grand Rounds – Seattle Children’s Hospital, August 2, 2012

“Assessment of Spectral Resolution in Individual Infants.” University of Washington Department of Otolaryngology-Head and Neck Surgery Alumni Day, UWMC, June 15, 2012

“Spectral ripple inversion detection in infants.” Invited speaker at New Ideas in Hearing 2012 – Hot Topics in Audiology, Ecole Normale Supérieure, Paris, Fr. April 2-4, 2012.

“Executive Function in Children with Cochlear Implants.” Childhood Communication Center Family Information Session May 2011. Seattle Children’s Hospital.

“Update in Pediatric Sensorineural Hearing Loss.” Northwest Academy of Otolaryngology 2011 Winter Conference. Seattle, WA, January 8, 2011

“Update in Pediatric Hearing Loss.” University of Washington School of Medicine Otolaryngology Update for Primary Care 2010. Seattle, WA, October 9, 2010

“Visual-motor Integration and Executive Function Skills of Pre-lingually Deaf Children: Implications for Pediatric Cochlear Implantation”. Talk for 6th Annual Lingeman Lectureship, Indianapolis, IN, November 2007.

“Motor Development and Visual-motor Integration Skills in Deaf Children Who Use Cochlear Implants”. Talk given at House Ear Institute, Los Angeles, CA. April 2004

EDUCATIONAL TALKS/LECTURES

“Pediatric Cochlear Implantation.” Didactic lecture for Neurology Rounds at Seattle Children’s Hospital. October 2017.

“Hearing Preservation and Electrode Design in Pediatric Cochlear Implantation.” Lecture for

“Controversies in Pediatric Cochlear Implantation.” Didactic lecture for Pediatric Otolaryngology trainees and faculty, February 2017.

“Pediatric Cholesteatoma.” Grand Rounds to University of Washington Otolaryngology Residents, September 2015.

“New Measures of Device Efficacy in Cochlear Implanted Infants and Children.” Grand Rounds to University of Washington Otolaryngology Department, August 2015.

“Pediatric Vertigo and Balance Disorders.” Grand Rounds to University of Washington Otolaryngology Residents, March 2015.

“Congenital Nasal Pathology.” Grand Rounds to University of Washington Otolaryngology Residents, November, 2013.

“Pediatric Sensorineural Hearing Loss Workup.” Grand Rounds to University of Washington Otolaryngology Residents, April 10, 2013

“Congenital Neck Masses – Other than Vascular Anomaly.” Grand Rounds to University of Washington Otolaryngology Residents, November 2, 2011

“Congenital Nasal Masses/Lesions.” Grand Rounds to University of Washington Otolaryngology Residents, November 2, 2011

“Cochlear Implants in Children.” Grand Rounds to University of Washington Otolaryngology Residents, September, 7, 2011

“Management of Cholesteatoma.” Grand Rounds to University of Washington Otolaryngology Residents, June 7, 2011.

“Congenital Laryngomalacia”. Grand Rounds presentation for Department of Otolaryngology-Head and Neck Surgery, University of Pittsburgh, October 11, 2009.

“Pediatric Deep Neck Infections”. Talk given for IU Department of Otolaryngology Resident Lecture Series, Indianapolis, IN. September 4, 2007.

“Congenital and Acquired Airway Anomalies”. Talk given for IU Department of Otolaryngology Resident Lecture Series, Indianapolis, IN. May 16, 2007.

"A Novel Protocol for Testing Individual Infants' Ability to Discriminate Speech Sounds". Talk for Manion-Lingeman Resident Research Meeting, Indianapolis, IN. May 2006.

"Congenital Nasal Pathology". Talk given for IU Department of Otolaryngology Resident Lecture Series, Indianapolis, IN. March 21, 2006.

"Doctoring the Ears Noses and Throats". Talk given to 3-4th grade gifted students at Geist Elementary School, Fishers, IN. January 2005.

"Adaptive behavioral assessment of pre-lingually deaf children with cochlear implants". DeVault Otologic Research Laboratory Colloquia Series, Indianapolis, IN. June 30, 2004.

"Development of sustained visual attention in prelingually deaf children with cochlear implants". DeVault Otologic Research Laboratory Colloquia Series, Indianapolis, IN. January 28, 2004.

TEACHING/MENTORSHIP ACTIVITIES

Department of Otolaryngology T32 Training Grant Mentor

2017-19 – Anisha Noble, R2, “Speech cue perception and spectral resolution in prelingually-deaf school age children with cochlear implants”

2016-17 – Brian Walker, MS3, “Measurement of spectral and temporal resolution in infants using a single interval method of constant stimuli procedure.”

2015-16 – Dan Dudley, MS3, “Development of spectral resolution in school age children with cochlear implants.”

Aud Capstone Projects – Capstone projects are year-long research projects that are completed by AUD students during their 3rd year. This mentorship involves biweekly meetings over approximately 2 quarters as well as sporadic meetings to discuss/plan the projects. Students submit a written and podium presentation at the end of the year. Approval by the student’s Capstone is a required prerequisite to graduation. I have mentored 6 students:

2016-18 – Stephanie Klotz, “Hearing-impaired Infants’ spectral resolution with a hearing aid”

2016-17 – Alice Kuang, “Spectral modulation cutoff frequency in school-age children & adults”

2015-16 – Adrienne Grey, “Spectral resolution in normal hearing infants: a 2-afc method”

2014-15 – Cory Scott, “Benefit of CROS hearing aids in children with single sided deafness.”

2013-14 – Caitlin Hutton. “Temporal modulation cutoff frequency in normal hearing infants.”

2012-13 – Robyn Dembeck. “Amplitude modulation detection in normal hearing infants.”

Medical Student Research Training Program (MSRTP) Faculty Mentor -The MSRTP program is a competitive opportunity for funding for University of Washington medical students to participate in a full-time, 10-week summer research project between the MS1 and MS2 years. Funding provides a living stipend to the student. Students are required to submit a final paper and present their work in poster format. I have mentored one medical student on a successfully-funded MSRTP application:

Summer 2015 – Calvin Knapp, “Bony cochlear nerve canal width and speech perception in pediatric cochlear implant users.”

Seattle Children’s Hospital Undergraduate Student Clinical Observation Program – I have hosted 2 undergraduate students in this program who have completed 20 hours of observation in the clinic and/or OR.

Summer Medical and Dental Education Program (SMDEP) – I host 3-5 undergraduate students from Washington State Universities in observational 1-day clerkships in the operating room. Since Summer 2011.

Coordinator – Pediatric Otolaryngology Rotation at Seattle Children’s Hospital. My role involves curriculum development, performance evaluation, and feedback for the MS3 and MS4 2 and 4 week rotations with our service. Since Spring 2011.

Faculty mentor for junior resident Fred Baik – quarterly meetings, review of rotation performance, career planning and life/work balance advice. Since August 2011

PROFESSIONAL SERVICE ACTIVITIES

Hospital, Departmental and University-wide Activities and Affiliations

Active:

Cochlear Implant Program Co-Director – appointed 2016

I have assumed this role after Kathy Sie stepped down in November 2016. I will co-direct the CI program with Susan Norton.

Seattle Children’s Hospital Fellowship Milestones Committee – since 2016.

We meet bimonthly with the fellows to review their milestones reviews and give them feedback from 360 degree and faculty evaluations.

CUMG Clinical Practice Committee – Appointed August 2017.

Committee meets monthly to review CUMG policy and procedures to facilitate communication between Hospital Administration, CUMG, and Faculty.

Bloedel Affiliate Liason Committee – Appointed member in Winter 2014.

The ALC committee evaluates affiliate applications, and reviews research and traveling scholars grants to the Virginia Merrill Bloedel Hearing Research Center at the University of Washington.

Doctoral Supervisory Committee for PhD candidate Kelly Jahn – Appointed July 2017. Kelly is currently working on her PhD in Speech and Hearing Sciences investigating development of spectral resolution and frequency tuning in prelingually deaf children with cochlear implants.

Medical Student Research Training Program (MSRTP) selection committee – Appointed January 2015.

This committee reviews applications for competitive MSRTP grant applications from first year medical students. The committee reviews 50-70 applications per year and meets in person to rank order the applications and make funding decisions.

Research Affiliate, Center for Human Development and Disability (CHDD), University of Washington School of Medicine – appointed 2015.

CHDD is an interdisciplinary research and training center focusing on improving the lives of people with developmental disabilities. CHDD research affiliate status requires UW faculty status and an active research interest that aligns with the Center. As an affiliate I will have access to scientific core facilities including behavioral evaluation, clinical translational, and brain imaging cores, grant mechanisms and collaborative opportunities.

Research Affiliate, Virginia Merrill Bloedel Hearing Research Center – appointed 2015.

Bloedel affiliate status requires UW faculty status, an active research interest in the field of hearing research and history of extramural funding. Members have access to center grants and awards related to hearing research.

University of Washington Graduate Faculty – Appointed June 2014. As a Graduate Faculty member you are eligible to serve on the Graduate School Council, vote in the Council elections, and serve on academic program reviews.

Inactive:

Participant at Large, Childhood Communication Center Executive Committee –2015-2017

This committee met bimonthly to discuss strategic planning and implementation of programs managed under the Childhood Communication Center. Term expired August 2017.

Clinical Information Services Advisory Committee (ISAC), Seattle Children's Hospital – Appointed Winter 2015.

This committee meets bimonthly to review and formulate policies and procedures related to information services at the hospital. Committee disbanded April 2017.

Residency Application Review Committee – Invited since 2012. I review applications for the UWSOM Otolaryngology residency program. This involves reading hundreds of electronic applications and scoring them with regards to merit. Committee disbanded in 2016.

Doctoral Supervisory Committee for PhD candidate Bonnie Lau – Appointed July 2012

Bonnie is currently working on her PhD in Speech and Hearing Sciences investigating development of complex pitch and spectral processing in young infants. Bonnie finished PhD in 2015.

National/International Activities

Active:

Young Physicians Committee, American Society for Pediatric Otolaryngology (ASPO) – Appointed by invitation of Kenny Chan in Summer 2015. Serving 2 year term.

Facebook Page Administrator, American Society for Pediatric Otolaryngology (ASPO)
I manage content and outreach for the ASPO facebook page.

Journal article reviewer – Pediatric Infectious Disease Journal, Ear and Hearing, Audiology & Neurotology, International Journal of Pediatric Otorhinolaryngology, Laryngoscope, European Journal of Paediatric Neurology, Child Neuropsychology, International Journal of Language & Communication Disorders, JAMA-Otolaryngology Head and Neck Surgery. Journal of the Acoustical Society of America, Journal of Speech, Language and Hearing Research, Hearing Research, Plos-One.

Inactive:

Research Awards Committee, American Society for Pediatric Otolaryngology (ASPO) – Appointed by invitation of Marci Lesperance in Fall 2014-2016.

This Ad-hoc committee was established this year to develop criteria and provide judgement for a new Fellow research award given to the pediatric otolaryngology fellow with the strongest research paper. We also were tasked with judging the basic science and clinical poster award. This committee met twice in person during the year as well as through frequent email contact. We have agreed to offer to serve again at the pleasure of the new ASPO president.

AAO-HNS Board of Governors Legislative Affairs Committee Representative – September 2015-2017

I served as the Young Physicians Section representative to the Board of Governors and attended the both the fall and spring BOG meetings. My role is to communicate legislative issues regarding Otolaryngology to the YPC and to advocate for YPC interests to the BOG.

Young Physicians Committee member, AAO-HNS – Appointed September 2013-2015

I was appointed to serve a 2-year term on this committee. During the first year, we were successful in establishing the Young Physicians Section which effectively dissolved the committee. I continued to remain involve in the section as described above.

SELECTED RECENT MEETINGS/COURSES/CME

American Association of Otolaryngology, Head and Neck Surgery National Meeting. September 2017, Chicago, IL. 5 CME hours.

Endoscopic ear surgery 2 day course. October 2016. Boston, MA. 8 CME hours

American Association of Otolaryngology, Head and Neck Surgery National Meeting. September 2016, San Diego, CA. 10 CME hours.

Northwest Academy of Otolaryngology Winter Meeting. January 2016, Seattle, WA. 10 CME hrs.

Combined Otolaryngologic Spring Meeting (ASPO). Boston, MA April 2015.

Three Rivers Otolaryngology Update, University of Pittsburgh Medical Center. Pittsburgh, PA. March 20-21, 2015. 15 CME hrs.

American Academy of Otolaryngology Board of Governor's Spring Meeting. Washington, DC. March 10-12, 2015. 8 CME hrs.

14th Symposium on Cochlear Implants in Children. Vanderbilt University. Nashville, TN – December 2014.

Objective Measures in Cochlear Implants. University of Toronto. Toronto, CA – October 2014.

American Academy of Otolaryngology/Head and Neck Surgery. Orlando, FL. Sept 2014. 8 hours CME

Hybrid CI Training Course and Temporal Bone Dissection. University of Washington ISIS Center, Seattle, WA – June 2014. 4 hours.

Combined Otolaryngologic Spring Meeting (ASPO). Las Vegas, NV April 2014.

Association for Research in Otolaryngology (ARO). San Diego, CA. February 2014

NW Academy of Otolaryngology Winter Conference. Bell Harbor International Conference Center, Seattle, WA – January 2014. 10 hours

American Society for Pediatric Otolaryngology (ASPO). Washington, DC April 25-27, 2013. 8 hours CME.

Association for Research in Otolaryngology (ARO). Baltimore, MD. February 2013

NW Academy of Otolaryngology Winter Conference. Bell Harbor International Conference Center, Seattle, WA – January 12, 2013. 10 hours CME.

Combined Otolaryngologic Spring Meeting (ASPO). San Diego, CA April 18-22, 2012. 8 hours

NW Academy of Otolaryngology Winter Conference. Bell Harbor International Conference Center, Seattle, WA – January 6-7, 2012. 10 hours

American Academy of Otolaryngology/Head and Neck Surgery. San Francisco, CA Sept 11-14 2011. 10 hours

Combined Otolaryngologic Spring Meeting (Triologic, ASPO, AOA). Sheraton Chicago Hotel & Towers, Chicago, IL - April 27 – May 1, 2011. 14 hours

Northwest Academy of Otolaryngology 2011 Winter Conference. Bell Harbor International

Conference Center, Seattle, WA – January 7-8, 2011. 10 hours

University of Colorado Advanced Cochlear Implant Surgical Training Course. Denver, CO.
November 1 – 2, 2010. 14 hours