2013 Research Annual Report

Patient Services Research



Division Details

Division Data Summary

RESEARCH AND TRAINING DETAILS

Number of Faculty	11
Number of Joint Appointment Faculty	1
Number of Research Fellows	4
Number of Research Students	11
Number of Support Personnel	15
Direct Annual Grant Support	\$1,024,141
Peer Reviewed Publications	48

Division Photo



Row 1: L Workman, J Schmit Row 2: J Long, A Kummer, R Pickler, A Vinks, K Harpster, H Tubbs Cooley Row 3: D Deliyski, A Dimitrijevic, S Holland

Significant Accomplishments

Research Staff to Expand

Rita Pickler, PhD, was named scientific director for nursing this year. She is focused on building research with the division by setting research priorities, hiring experienced and promising researchers, and partnering with other divisions and departments around shared research interests. Pickler has more than 25 years of experience studying care provided to preterm infants in the neonatal intensive care unit. Her work has been supported by three NIH-funded R01s and two NIH center grants as well as numerous foundation and organization funded projects. Her most recently completed randomized control trial confirmed the benefits of developmentally appropriate transitions to oral feeding by carefully assessing neurological readiness for this complex, life-sustaining activity, and by then offer experiences for infants to practice emerging feeding skills at every opportunity. Her intervention has been shown to shorten transitions from tube to oral feeding and to lead to earlier hospital discharge. Her current study involves providing a patterned feeding experience for preterm infants to improve short- and longer term neurodevelopment. Pickler also studies the effect of maternal wellbeing on pregnancy outcomes and the transition-to-home from the NICU.

Revolutionary Hearing Test Studied Here

People concerned about their hearing most frequently report difficulty hearing speech in challenging listening conditions, such as a noisy room. However, the standard test of hearing, the audiogram, does not predict well the ability to hear in those conditions. By developing new 'speech-in-noise' (SiN) tests of hearing, and by analyzing the results of an SiN hearing test in over 160,000 people, David Moore, PhD, and his colleagues have

contributed to the development of the next generation of diagnosis and intervention for hearing impairment. Moore's results highlight the close interaction between the ear and the brain in processing complex speech signals. They suggest further testing of simple skills, memory recall and reaction time, to help tailor hearing devices to individuals and to offer suitable advice on listening strategies. Audiograms, SiN tests, questions about hearing, and skills tests also can be delivered over the internet, which means people can complete the tests in the privacy and comfort of home. In the future, this also means that large numbers of people with mild but still significant hearing loss may be offered inexpensive hearing instruments through the internet without the need to be seen by a professional. The role of the audiologist may evolve to be a more specialized one, working with those who have more severe or unusual forms of hearing problems. This year, Moore and his team published seven peer-reviewed papers, two articles in professional society newsletters, two book chapters, and presented more than 10 international invited lectures. They also represented Cincinnati Children's as part of an Auditory Cognitive Neuroscience Consortium that was awarded €1,000,000 by the European Union Erasmus Mundus for their partnership and mobility scheme.

Evaluating Post-Concussion Rehabilitation

Catherine Quatman-Yates, PT, DPT, PhD, is an Assistant Professor in the Division of Sports Medicine and a key member of the Cincinnati Children's Division of Occupational and Physical Therapy and the Sports Medicine Biodynamics Center. In her first year as a faculty member, she completed two pilot grants that funded preliminary studies for her work in post-concussion diagnosis and rehabilitation for children and adolescents. The work from these grants culminated in several presentations at national scientific meetings, multiple manuscripts and a series of preliminary studies for her recently funded study entitled, "Clinical Detection of Post-Concussion Impairments in Children and Adolescents." This study will explore the utility of complexity analysis measures applied to center-of-pressure trajectories as a biomarker for concussions. In addition, Quatman-Yates will pursue a rigorous didactic/mentorship program for the next two years, with support from a prestigious Patient Services Research Career Development grant that will provide her with advanced training in nonlinear dynamical systems times series analysis methods, grantsmanship, research methods associated with mild traumatic brain injury and clinical research design. These experiences will provide ongoing support for Quatman-Yates' progress toward becoming an extramurally-funded clinical researcher.

Division Publications

- 1. Alberts JR, Pickler RH. Evolution and development of dual ingestion systems in mammals: notes on a new thesis and its clinical implications. *Int J Pediatr.* 2012; 2012:730673.
- Bailes AF, Succop P. Factors Associated With Physical Therapy Services Received for Individuals
 With Cerebral Palsy in an Outpatient Pediatric Medical Setting. Physical Therapy. 2012; 92:1411-8.
- 3. Baker B, McGrath J, Pickler RH, Jallo N, Cohen S. Competence and Responsiveness in Mothers of Late Preterm Infants Versus Term Infants. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*. 2013; 42:301-10.
- 4. Bonilha HS, White L, Kuckhahn K, Gerlach TT, Deliyski DD. **Vocal fold mucus aggregation in persons** with voice disorders. *J Commun Disord*. 2012; 45:304-11.
- 5. Brehm SB, Weinrich BD, Sprouse DC, May SK, Hughes MR. An Examination of Elicitation Method on Fundamental Frequency and Repeatability of Average Airflow Measures in Children Age 4:0-5:11 Years. *J Voice*. 2012; 26:721-725.
- 6. Brehm, S, Schwietering L, Eppley H, Franklin A, Weinrich B, de Alarcon A. (2013) Syllable stress

- characteristics in patients with upper airway and laryngeal disorders. Cincinnati OH, AQL Press. 10:97-98.
- 7. Breznitz Z, Shaul S, Horowitz-Kraus T, Sela I, Nevat M, Karni A. Enhanced reading by training with imposed time constraint in typical and dyslexic adults. *Nat Commun.* 2013; 4:1486.
- 8. Brown LF, Pickler R. A guided feeding intervention for mothers of preterm infants: two case studies. *J Spec Pediatr Nurs*. 2013; 18:98-108.
- 9. Buringrud JL, Redle EE, Cowen SE. Pediatric feeding and swallowing disorders after bone marrow transplant. *J Pediatr Hematol Oncol.* 2012; 34:436-41.
- 10. Cone S, Pickler RH, Grap MJ, McGrath J, Wiley PM. **Endotracheal suctioning in preterm infants using four-handed versus routine care**. *J Obstet Gynecol Neonatal Nurs*. 2013; 42:92-104.
- 11. Cook RS, Gillespie GL, Kronk R, Daugherty MC, Moody SM, Allen LJ, Shebesta KB, Falcone RA, Jr.. Effect of an educational intervention on nursing staff knowledge, confidence, and practice in the care of children with mild traumatic brain injury. *J Neurosci Nurs*. 2013; 45:108-18.
- 12. Dimitrijevic A, Pratt H, Starr A. Auditory cortical activity in normal hearing subjects to consonant vowels presented in quiet and in noise. *Clin Neurophysiol*. 2012; 124.
- 13. Franz DN, Agricola KD, Tudor CA, Krueger DA. Everolimus for tumor recurrence after surgical resection for subependymal giant cell astrocytoma associated with tuberous sclerosis complex. *J Child Neurol.* 2013; 28:602-7.
- 14. Guo X, Xiang J, Mun-Bryce S, Bryce M, Huang S, Huo X, Wang Y, Rose D, Degrauw T, Gartner K, Song T, Schmit J, Vargus-Adams J. **Aberrant high-gamma oscillations in the somatosensory cortex of children with cerebral palsy: a meg study**. *Brain Dev.* 2012; 34:576-83.
- 15. Horowitz-Kraus T. **The error detection mechanism among dyslexic and skilled readers: Characterization and plasticity**. In: Breznitz Z, Rubinsten O, Molfese VJ, Molfese DL, eds. New York: Springer; 2012:113-30.
- 16. Hunter LL, Shanaz N. *Acoustic immittance measures : basic and advanced practice*. San Diego CA; Plural Publishing, Inc.
- 17. Ishikawa K, Kelchner L, Rao M, Zacharias S, Brehm S, Weinrich B, de Alarcon A. (2013) **The impact of dysphonia as predicted by self-report, perceptual and acoustic measures: Is intelligibility at risk**. Cincinnati OH, AQL Press. 10:103-104.
- 18. Johnson NL, Lashley J, Stonek AV, Bonjour A. Children with developmental disabilities at a pediatric hospital: staff education to prevent and manage challenging behaviors. *J Pediatr Nurs*. 2012; 27:742-9.
- 19. Jung TT, Alper CM, Hellstrom SO, Hunter LL, Casselbrant ML, Groth A, Kemaloglu YK, Kim SG, Lim D, Nittrouer S, Park K H, Sabo D, Spratley J. **Panel 8: Complications and sequelae**. *Otolaryngol Head Neck Surg*. 2013; 148, 4 Suppl:E122-43.
- 20. Justice LM, Redle EE. *Communication sciences and disorders : a clinical evidence-based approach*. Boston; Allyn & Bacon.
- 21. Klatt M, Harpster K, Browne E, Case-Smith J. Feasibility and preliminary outcomes for Move-Into-Learning: An arts based mindfulness classroom intervention. The Journal of Positive Psychology. 2013; 8:233-241.
- 22. Krueger DA, Care MM, Agricola K, Tudor C, Mays M, Franz DN. Everolimus long-term safety and efficacy in subependymal giant cell astrocytoma. *Neurology*. 2013; 80:574-80.
- 23. Kuras Z, Yun YH, Chimote AA, Neumeier L, Conforti L. **KCa3.1 and TRPM7 channels at the uropod regulate migration of activated human T cells**. *PLoS One*. 2012; 7:e43859.
- 24. Lednik L, Baker M, Sullivan K, Poynter M, O'Quinn L, Smith C. Is self-administration of subcutaneous

- immunoglobulin therapy safe in a home care setting?. Home Healthc Nurse. 2013; 31:134-41.
- 25. Lin JD, Özcoban H, Greene JP, Jang AT, Djomehri SI, Fahey KP, Hunter LL, Schneider GA, Ho SP. Biomechanics of a bone-periodontal ligament-tooth fibrous joint. *J Biomech*. 2012; 46:443-9.
- 26. McGrail A, Kelchner LN. Adequate oral fluid intake in hospitalized stroke patients: does viscosity matter. Rehabil Nurs. 2012; 37:252-7.
- 27. Mc Laughlin, M., Lu, T., Dimitrijevic, A., Zeng, FG. Towards a closed-loop cochlear implant system: application of embedded monitoring of peripheral and central neural activity. *IEEE Trans Neural Syst Rehabil Eng.* 2012; 20:443-54.
- 28. Moore DR, Fullgrabe C. **Cognitive contributions to hearing in older people**. *Journal of Hearing Science*. 2012; 2:58-60.
- 29. Myer C 4th, Zacharias S, Meinzen-Derr J, Kelchner L, Deliyski D, de Alarcon A. (2013) **Vibratory features of supraglottal phonation present in high-speed videoendoscopy versus videostroboscopy**. Cincinnati OH, AQL Press. 33-34.
- 30. Orlikoff RF, Golla ME, Deliyski DD. **Analysis of longitudinal phase differences in vocal-fold vibration using synchronous high-speed videoendoscopy and electroglottography**. *J Voice*. 2012; 26:816 e13-20.
- 31. Osterkamp EM, Costanzo AJ, Ehrhardt BS, Gormley DK. **Transition of care for adolescent patients** with chronic illness: education for nurses. *J Contin Educ Nurs*. 2013; 44:38-42.
- 32. Park AH, Hoyt D, Britt D, Chase S, Tansavatdi K, Hunter L, McGill L, Sheng X, Skardal A, Prestwich GD. Cross-linked hydrogel and polyester resorbable ventilation tubes in a chinchilla model. *Laryngoscope*. 2013; 123:1043-8.
- 33. Pickler RH, McGrath JM, Reyna BA, Tubbs Cooley H, Best A, Lewis, M., Cone S, Wetzel PA. **Effects of the NICU environment on preterm infant oral feeding**. *Research and Reports in Neonatology*. 2013; :15-20.
- 34. Pickler RH, Reyna BA, Griffin JB, Lewis M, Thompson AM. Changes in Oral Feeding in Preterm Infants Two Weeks After Hospital Discharge. *Newborn Infant Nurs Rev.* 2012; 12:202-206.
- 35. Quatman-Yates CC, Quatman CE, Meszaros AJ, Paterno MV, Hewett TE. A systematic review of sensorimotor function during adolescence: a developmental stage of increased motor awkwardness?. Br J Sports Med. 2012; 46:649-55.
- 36. Redle EE. Evidence-based interventions for toddlers with sensorimotor feeding disorders. Evidence-Based Practice Briefs. 7:1-14.
- 37. Redle EE, Atkins D. The applicability of quality improvement research for comparative effectiveness. *Implementation Science*. 2013; 8, Suppl 1:S6.
- 38. Reyna BA, Brown LF, Pickler RH, Myers BJ, Younger JB. Mother-infant synchrony during infant feeding. *Infant Behav Dev.* 2012; 35:669-677.
- 39. Ruiz RJ, Jallo N, Murphey C, Marti CN, Godbold E, Pickler RH. **Second trimester maternal plasma levels of cytokines IL-1Ra, II-6 and IL-10 and preterm birth**. *J Perinatol*. 2012; 32:483-90.
- 40. Ruiz RJ, Pickler RH, Marti CN, Jallo N. Family cohesion, acculturation, maternal cortisol, and preterm birth in Mexican-American women. *Int J Womens Health*. 2013; 6;5:243-52.
- 41. Shuster LI, Hunter LL. (2012) **21st annual NIDCD-sponsored research symposium: Neurobiological processes underlying auditory and speech perception**. J Commun Disord. 45:391-2.
- 42. Taxter A, Foss KB, Melson P, Ford KR, Shaffer M, Myer GD. **Juvenile idiopathic arthritis and athletic** participation: are we adequately preparing for sports integration. *Phys Sportsmed*. 2012; 40:49-54.
- 43. Tofani BF, Rineair SA, Gosdin CH, Pilcher PM, McGee S, Varadarajan KR, Schoettker PJ. Quality improvement project to reduce infiltration and extravasation events in a pediatric hospital. *J*

- Pediatr Nurs. 2012; 27:682-9.
- 44. Tubbs-Cooley H. From research to policy: enhancing uptake of quality improvement methods in government contracts. *Implementation Science*. 2013; 8, Suppl 1:S8.
- 45. Tubbs-Cooley HL, Munro CL, Pickler RH. Issues in research integrity: deciding what is mine, yours, and ours. *J Pediatr Health Care*. 2012; 26:370-3.
- 46. Weinrich B, Brehm SB, Knudsen C, McBride S, Hughes M. Pediatric normative data for the KayPENTAX phonatory aerodynamic system model 6600. *J Voice*. 2013; 27:46-56.
- 47. Wynne DP, Zeng FG, Bhatt S, Michalewski HJ, Dimitrijevic A, Starr A. Loudness adaptation accompanying ribbon synapse and auditory nerve disorders. *Brain*. 2013; 136:1626-38.
- 48. Zacharias S, Gerlach T, Deliyski D. (2013) Clinical Evidence of the Efficacy of High-Speed Videoendoscopy in the Evaluation of Vocal Fold Vibration. Cincinnati OH, AQL Press. 10:29-30.

Faculty, Staff, and Trainees

Faculty Members

Nancy Daraiseh, PhD, Assistant Professor

Research Interests Occupational health and safety; human factors; patient safety; health outcomes

Dimitar Deliyski, PhD, Associate Professor

Leadership Associate Director

Research Interests Voice and vocal cord research related to otolaryngology surgery

Andrew Dimitrijevic, PhD, Assistant Professor

Research Interests Electroencephologram related to cochlear implant patients

Scott Holland, PhD, Professor

Leadership Director - Research in Patient Services

Research Interests Advanced neuroimaging applications of MRI in pediatrics

Lisa Hunter, PhD, FAAA, Associate Professor

Leadership Scientific Director Pediatric Audiology

Research Interests Middle ear physiology; newborn hearing screening; childhood hearing loss diagnosis

Jill Kilanowski, PhD, APRN, CPNP, Assistant Professor

Research Interests Community-based nursing research; health promotion

Denise Lagory, PharmD, Associate Professor

Leadership Lead Pharmacist

Research Interests Investigational pharmacy

David Moore, PhD, Professor

Leadership Director - Communication Sciences Research Center

Research Interests Psychoacoustic research and how it affects hearing

Rita Pickler, PhD, RN, PNP-BC, FAAN, Professor

Leadership Scientific Director in Nursing

Research Interests Preterm infant care; prematurity prevention; transition to home; biobehavioral research

Erin Redle, PhD, CCC-SLP, Assistant Professor

Leadership Coordinator Research Pediatrics Speech Pathology

Research Interests Research in Pediatric Speech Pathology

Heather Tubbs-Cooley, PhD, RN, Assistant Professor

Research Interests Outcomes research; health services research; improvement / implementation science; nursing workforce research

Joint Appointment Faculty Members

Scott Holland, PhD, Professor (PNRC/Radiology)

Research Interests Advanced neuroimaging applications of MRI in pediatrics

Trainees

Alaaeldin Elsayed, MD, AuD, Missouri State University, Springfield, MO

Cassie Wardlow, RN, MPA, MSW, MSN, University of Cincinnati, Cincinnati, OH

Caroline Morrison, RNII, MSN, CNL, Xavier University, Cincinnati, OH

Brittany Hand, , Ohio State University, Columbus, OH

Ashlee Schmitt, , Ohio State University, Columbus, OH

Dobrinka Georgieva, PhD, University of Bolgaria, Bolgaria

Stephanie Zacharias, AuD, PhD, University of Cincinnati, Cincinnati, OH

J'ai Watson, MS, University of Cincinnati, Cincinnati, OH

Yang-soo Yoon, PhD, House (Ear) Research Institute, Los Angeles, CA

Yingying Wang, , University of Cincinnati, Cincinnati, OH

Rola Farah, PhD, CCC-A, University of Cincinnati, Cincinnati, OH

Maria Golla, MSP, CCC-SLP, University of Cincinnati, Cincinnati, OH

Aniruddha Deshpande, AuD, University of Cincinnati, Cincinnati, OH

Shruti Balvati, AuD, University of Cincinnati, Cincinnati, OH

Tzipi Horowitz-Kraus, PhD, University of Haifa, Isreal

Division Collaboration

Biostatistics & Epidemiology » Jareen Meinzen-Derr PhD

Provide biostatistical data analysis with Dr. Lisa Hunter. Set up data management systems and provide biostatistical data analysis with Dr. Rita Pickler.

Center for Pediatric Voice Disorders » Alessandro de Alarcon, MD

Serves as medical expert confirming findings, diagnosis and interpretation of any impact of surgical procedures on the larynx with Dr. Dimitar Deliyski.

DDBP » Susan Wiley, MD

Assisting in data collection for sensory loss of deafness associated with additional disabilities with Dr. Lisa Hunter.

Gastroenterology, Hepatology, & Nutrition » James Heubi, MD

Direct the lab that processes biological data obtained for study purposes with Dr. Denise Lagory.

Human Resources » Julia Abell

Oversee Human Resources investigation database and the return on investment business interest study with Dr. William Lecher.

Neonatology » James Greenberg, MD

Provide leadership to the team of neonatal specialists and support implementation of intervention with Dr. Rita Pickler.

Neonatology » Scott Wexelblatt, MD

Assisting in evaluation of babies for sensory loss of deafness associated with additional disabilities with Dr. Lisa Hunter.

Neonatology & Pulmonary Biology » Suhas Kallapur, MD

Assist with the collection, analysis and interpretation of biological data with Dr. Pita Pickler.

Otolaryngology » Daniel Choo, MD

Member of CSRC Collaborative Effort

Otolaryngology » Saima Riazuddin, PhD

Assisting in confirming findings, diagnosis and interpretation of any impact of surgical procedures on the larynx with Dr. Lisa Hunter.

Physical Medicince & Rehabilitation » Shari Wade, PhD

Serves as a consultant on project with Dr. Dimitar Deliyski.

Otolaryngology; Pediatric Neuroimaging Research Consortium; Speech-Language Pathology » Ellis

Arjmand, MD, Scott Holland, PhD, and Ann Kummer, PhD, CCC-SLP

Member of CSRC Steering & Executive Committee

Grants, Contracts, and Industry Agreements

Grant and Contract Awards Annual Direct

BAILES, A

Dosing Rehabilitation Services for Children with Cerebral Palsy

American Physical Therapy Association (University of Hartford)

01/01/13-06/30/14 \$3,600

Effects of Functional Electrical Stimulation Neuroprosthesis in Children with Hemiplegic Cerebral Palsy

Pedal-with-Pete, Inc.

01/01/13-12/31/13 \$30.000

DELIYSKI, D

10th International Conference AQL2013 Advances in Quantitative Laryngology

National Institutes of Health

R13 DC 013213 03/01/13-02/28/14 \$39,998

Access to Pediatric Voice Therapy: A Telehealth Solution

Agency for Healthcare Research and Quality(University of Cincinnati)

R21 HS 021781 09/30/12-09/29/14 \$43,681

HUNTER, L

Wideband Clinical Diagnosis and Monitoring of Middle-Ear and Cochlear Function

National Institutes of Health(Boys Town National Research Hospital)

R01 DC 010202	09/01/09-08/31/14	\$425,762
JAEGER, S		
Hospital Based Regional Child Find - He	Ip Me Grow	
Ohio Department of Health		
	10/01/12-09/30/17	\$42,700
PICKLER, R		
Patterned Experience in Preterm Infan	ts	
National Institutes of Health		
R01 NR 012307	01/01/12-02/29/16	\$277,657
RUTKOWSKI,S		
ORSC Proposal for Project SEARCH Re	plication, Capacity Building, Sustainability and Ir	mprovement
US Department of Education(Ohio Reha	bilitation Services Commission)	
	01/28/13-09/30/13	\$105,911
Project SEARCH Training Institute Curr	iculum Development	
Mitsubishi Electric American Foundation		
	01/02/13-12/31/13	\$32,610
Transition Options in Postsecondary S	ettings for Students with Intellectual Disabilities	;
US Department of Education(Ohio State	University)	
	04/01/12-09/30/15	\$22,222
	Current Y	'ear Direct \$1,024,141

Total

\$1,024,141