

STEVEN M. BARLOW, Ph.D.

Corwin Moore Professor
Dept SECD and Biological Systems Engineering
Associate Director: Center for Brain, Biology and Behavior
University of Nebraska

Curriculum Vita (abbreviated) JAN 2023

Educational History:

<u>Institution</u>	<u>Major/Minor</u>	<u>Degree</u>	<u>Date</u>
University of Wisconsin	Speech Pathology Biology	B.S.	1976 Graduated with Honors
University of Wisconsin	Speech-Hearing Sci Speech Pathology	M.S.	1980
University of Wisconsin	Speech Physiology Neurobiology	Ph.D.	1984

Professional Appointments

University of Nebraska

- Corwin Moore Distinguished Professorship, SECD (Jan 2014-present)
- SECD Chair/Director (2021-2022)
- Associate Director: Center for Brain, Biology, and Behavior. (Oct 2015-present)
 - Rebuild CB3 policy and administrative and scientific infrastructure, biomed faculty hires
- Professor (affiliate), Biological Systems Engineering (2014-present)
- Director: Communication Neuroscience Laboratories (2014-present)
- Director: fNIRS Laboratory (2018-present)

University of Kansas

- Professor, Dept of Speech-Language-Hearing: Sciences and Disorders (2004-2013)
- Professor and Chair, Dept of Speech-Language-Hearing: Sciences & Disorders (2000-04)
- Professor, Programs in Neuroscience, Human Biology, and Bioengineering (2000-2013)
- Director, Communication Neuroscience Laboratories
- Director, Digital Electronics & Engineering Core NIH P30, Center for Biobehavioral Neurosciences in Human Communication
- Core, Center for Neurological Disorders

Syracuse University

- Professor and Chair, Communication Sciences and Disorders, Affiliate Professor of Bioengineering and Neuroscience (1999-2000), Syracuse University

Indiana University

- Professor, Department of Speech and Hearing Sciences (July 1993-Aug 1999)
- Program Neural Science (1992-1999, Core faculty and member of executive committee)
- Associate Professor, Department of Speech and Hearing Sciences (1/1/90)

Boys Town National Institute

- Coordinator and Staff Scientist, Speech-Orofacial Physiology Lab, BTNI 1987-89.
- Associate Professor, Dept Otolaryngology, Creighton Univ School of Medicine 1987-89.
- Co-Coordinator and Research Assoc, Speech-Orofacial Physiology Lab, BTNI 1984-87.
- Assistant Professor, Dept of Otolaryngology, Creighton Univ School of Medicine 1984-86.

Honors, Awards, and Distinctions:

- Graduated with honors (University of Wisconsin, 1976).

- Recipient of the **James M. Keck Faculty Development Award** for outstanding scientific achievement. Creighton University - (1985).
 - Recipient of the **University of Kansas Excellence in Teaching Award** (2002)
 - Recipient of the **4th Willard R. Zemlin Memorial Science Award** for excellence in speech science research, *American Speech-Language-Hearing Association*, November 2003.
 - Invited technology innovator by the Kauffman Foundation and academic scientist presenter, **DEMO 2008** national convention, Palm Springs, California (Jan 28-30, 2008)
 - National Program Chair for **Speech Motor Control** conference - **2010**
 - **Best Scientific Article of 2008** for *Physiological Measurement*. Popescu EA, Popescu M, Wang J, Barlow SM, Gustafson K. (2008). Non-nutritive sucking recorded *in utero* via fetal magnetography. *Physiol Measurement*, 29, 127-139.
 - **ASHA Fellow Award 2009** for distinguished research and service.
 - **2009 Editor's and publisher (Elsevier) award**, *Journal Neonatal Nursing*, Estep, Barlow, Vantipalli, Lee, Finan. (2008) Non-nutritive suck burst parametrics in preterm infants with RDS and oral feeding complications. *J Neonatal Nursing*, 14(1), 28-34.
 - **2009 Editor's and publisher (Elsevier) award**, *Journal Neonatal Nursing*, Zimmerman, Barlow. (2008). Pacifier stiffness alters the dynamics of the suck central pattern generator. *J Neonatal Nursing*, 14(3), 79-86.
 - **2009 Editor's and publisher (Elsevier) award**, *Journal Neonatal Nursing*, Stumm, Barlow, Estep, Lee, Cannon, Gagnon, Carlson, Finan. (2008). The relation between respiratory distress syndrome and the fine structure of the non-nutritive suck in preterm infants. *J Neonatal Nursing*, 14(1), 9-16.
 - **Higuchi Bioscience Award – 2009 Dolph C. Simons, Sr. Award in the Biomedical Sciences**
 - Nominated finalist for **2010 Callier Prize for Outstanding Scientific Achievement. Callier Center, UT Dallas, Texas**
 - **Founder:** Neonatal Feeding Club, American Pediatric Society, *Pediatric Academic Society*. Sanctioned 2011.
 - **KU Leading Light Research Award 2012** in recognition of consecutive \$1M+ extramural grant awards per year over multiple grant cycles (10+ years)
 - **Louise Byrd Graduate Research Teaching Award 2012** in recognition for outstanding graduate research mentoring and education, presented by Chancellor Bernadette Gray-Little.
 - Invited to the editorial board of the **Frontiers in Pediatrics** (Lausanne, Switzerland) 2013
 - **ASHA Meritorious Poster Award 2015.**
 - **ASHA HONORS Award 2015** for distinguished scientific research career and service.
 - **Society for Pediatric Research 2016 – Neonatology Research Faculty Recognition**
 - **Invited: Brain Research through Advancing Innovative Neurotechnologies(r) (BRAIN) Initiative and US Congressional Neuroscience Caucus**, Briefing by Walter J. Koroshetz, M.D., Director of the National Institute of Neurological Disorders and Stroke, and Joshua A. Gordon, M.D., Ph.D., Director of the National Institute of Mental Health, **2018.**
 - Recipient **2019 Callier Prize for Outstanding Scientific Achievement.** International: Callier Center, UT Dallas, Texas, April 14-16.
 - Distinguished Guest Scientist: March of Dimes and Richard B Johnston, Jr., MD Prize in Developmental Biology Reception, April 29, 2019. Baltimore, MD.
 - ASHA Lifetime Member granted July 24, 2019
 - **Laurels 2019 Recognition for Research**, University of Nebraska, Sep 5, 2019.
 - **iidex 2020 Invention-Innovation-Design Exposition, Bronze Award** presented to:
 - Dr. Chu Shin Ying Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
 - Dr. Jaehoon Lee Texas Tech University, Lubbock, USA
 - Dr. Steven M. Barlow University of Nebraska, Lincoln, Nebraska USA
 - Dr. Boaz Ben-David Baruch Ivcher School Psychology, Herzliya, Israel
 - Dr. Kai Xing Lim Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
- Title: Oral-DDK: MALMAN (An Oromotor Function Assessment Protocol for Speech Therapist)

University of Nebraska

2021-2022 Chair, Dept Special Education and Communication Disorders

2014-present Corwin Moore Professor (endowed), Dept Special Education and Communication Disorders

2014-present	Professor (courtesy), Dept Biological Systems Engineering - Renewed through 2024
2015-present	Associate Director: Center for Brain, Biology, and Behavior (CB3)
2014-present	Director, Communication Neuroscience Laboratories
2015-present	Director, Functional Near Infrared Spectroscopy Laboratory at CB3

Faculty Search Committees at UNL

2015	Targeted recruitment, MEG-MRI Biomedical Engineer resulted in hiring Dr. Yingying Wang (SECD) Recruitment Speech Path-Voice-Swallowing, resulted in hiring Dr. Angela Dietsch (SECD)
2015	CB3 Assistant Research Professor of Physics Medical Imaging (Dept Psychology/CB3)
2015-18	Co-Chair of CB3 national open search for a new Director of CB3
2015	Chair, Recruit & interview Dr. Phil Lee as Consulting Faculty Physicist for CB3, signed contract.
2017	CB3 Res Asst Professor MRI Analyst – Member search committee (6/2017)
2018	CB3: Chair Search Committee – tenure track MRI Analytics tenure-track faculty position (2/2018)
2018	CB3: Round 2, Search Committee – tenure track MRI Analytics tenure-track faculty position (8/2018)

SECD Committees

- Chair Advisory Committee (2014-2016, 2021-present)
- Com Dis Governance Committee for Graduate Studies (2014-2017)
- Graduate Faculty (2014-present)
- Chair Search Committee for 2 tenure-track faculty positions in Speech-Language Pathology (2018-2019)
- Barkley-2 Building Expansion Committee (2018-present)
- Search Committee for SECD Chair-Director (2019-present), search cancelled Nov 2020
- Search Committee for SECD, Admin Associate (2021, Oct-Nov)
- Search Committee for SECD, Med Coding/Billing Staff (2021, Nov-Dec)
- Search Committee for SECD, Student Services Associate (2022, Aug).

CB3 Committees

- MRI User's Committee (2015-present)
- MRI Science Forum (2015-present)
- CB3 Space Committee (2015-present)
- MRI Physicist Committee (Chair, 2015-present)
- CB3 Director National Search Committee (Co-Chair w/Dave Hansen) (2015-2017)
- MEG Laboratory initiative. In 2015 & 2016, Dr. Barlow consulted with Dr. Vishal Shah at QuSpin, Inc. (Louisville, CO) to develop preliminary plans to implement the Atomic MEG at the University of Nebraska, known currently as the high-density, Optically-Pumped MAG Array for functional brain imaging studies in humans at the CB3.
- Barlow and Greenwood completed Gauss field study mapping of prospective MEG space (Sept-Dec 2016).
- CB3 Tour: organized and led tour for the Raikes School of Design (7/25/2016)
- CB3 Tour: organized and led tour for Biological Systems Engineering (9/27/2016)
- CB3 Tour: organized and led tour for Nebraska Biomedical Engineering Society (11/17/2016)
- CB3 tenure-track MRI faculty – CoChair search committee (6/2017)
- CB3 Res Asst Professor MRI Analyst – Member search committee (6/2017)
- CB3 Tour: organized and led tour for Nebraska Biomedical Engineering Society (7/12/2018)
- CB3 Chair Search Committee – tenure track MRI Analytics fac position (2/2018-6/2018)
- CB3 Search Committee member – tenure track MRI Analytics fac position (8/2018-6/2019)
- CB3 Search Committee member – operations administrator position (1/2019-7/2019)
- CB3 Tour: organized and led tour for Nutrition Science (7/9/2019)
- CB3 Tour: scientific demonstration of brain imaging fNIRS Biomedical Engineering Society (7/11/2019)
- CB3 Tour: DARPA – US Dept of Defense scientific demonstration of fNIRS (8/5/2019)
- CB3 External Site Visit & Program Review – Dec 13-14, 2021 (Savage, Barlow, Neta)

University Committees

- President's Excellence Awards committee member, appointed by Susan M. Fritz, PhD, Executive Vice President and Provost (3-year term, 2020-2023)

Inventions and Patents

Licensed to KC BioMedix (Shawnee, Kansas):

1. PACIFIER SYSTEM FOR STIMULATING AND ENTRAINING THE HUMAN OROFACIAL SYSTEM

KUCTC ID No. 04KU023L; aka N-Trainer

60/605,578 – Provisional application

11/209,177 – Utility application – link to on [USPTO PatFT](#) / [Google](#)

PCT/US2005/031,169 – International application; link to WIPO [WO/2006/033801](#)

Patent issued

United States Patent No.: US 8,979,896 B2 Date of Patent: March 17, 2015

2. PACIFIER SYSTEM FOR STUDYING AND STIMULATING THE HUMAN OROFACIAL SYSTEM

KUCTC ID No. 04KU022L; aka Actifier II

60/605,607 – Provisional application

11/209,029 – Utility application – link to on [USPTO PatFT](#) / [Google](#)

PCT/US2005/030,869 – International application; published under [WO/2006/026623](#) **June 22, 2006**

Patent issued

United States Patent No.: US 8,251,926 Date of Patent: August 28, 2012

3. SYNTHETIC OROFACIAL STIMULATION ENTRAINMENT SYSTEM FOR PRETERM INFANTS WITH FEEDING DIFFICULTIES

KUCTC ID No. 09KU071L; aka Non-Nutritive Suck Spatiotemporal Index (NNS STI)

61/030,484 – Provisional application

4. METHOD AND APPARATUS FOR MEASURING NON-NUTRITIVE SUCK PATTERN STABILITY

KUCTC ID No. 09KU072L; aka Non-Nutritive Suck (NNS)

United States Patent (Barlow et al). 5-27-14. Patent No. 8,734,367

61/036,304 – Provisional application (claims priority from provisional application 61/030,484 above)

12/390,142 – Utility application – link to on [USPTO PatFT](#) / [Google](#) – Notice of Allowance Mailed

Patents issued

United States Patent No.: US 8,226,579 Date of Patent: July 24, 2012

United States Patent No.: US 8,734,367 Date of Patent: May 27, 2014

5. ENHANCED THERAPEUTIC STIMULUS SYSTEM AND METHOD OF USE

13/457,059 – non-provisional application (claims priority to previous two provisional applications).

Not yet on USPTO PatFT or Google; there is a reference to this application on the [USPTO Public PAIR](#) under the Continuity Data tab of the related applications above.

Patents issued

United States Patent No.: US 9,220,654 Date of Patent: December 29, 2015

United States Patent No.: US 8,939,919 Date of Patent: January 27, 2015

6. METHODS OF USING AN ENHANCED THERAPEUTIC STIMULUS FOR NON-NUTRITIVE SUCK ENTRAINMENT SYSTEM

13/457,154 – Non-provisional application – claims priority to the previous two provisional patent applications, plus the utility application 12/390,142. Not yet on USPTO PatFT or Google; there is a reference to this application on the [USPTO Public PAIR](#) under the Continuity Data tab of the related applications.

7. ENHANCED THERAPEUTIC STIMULUS FOR NON-NUTRITIVE SUCK ENTRAINMENT SYSTEM AND METHOD

13/457,203 – Non-provisional application – claims priority to the previous two provisional patent applications, plus the utility application 12/390,142. Not yet on USPTO PatFT or Google; there is a reference to this application on the [USPTO Public PAIR](#) under the Continuity Data tab of the related applications.

Patent issued

United States Patent No.: US 9,037,266 Date of Patent: May 19, 2015

Licensed to Epic Medical Concepts & Innovations (EMCI):

8. DEVICE, SYSTEM, AND METHOD FOR DETERMINATION OF ORAL/LIP STIFFNESS

KUCTC ID No. 10KU002L; aka OROStiff

61/237,200 – Provisional application

13/392,064 – Utility application – not yet on USPTO PatFT or Google; can be found on [USPTO Public PAIR](#)

PCT/US2010/046,787 – International application; published under [WO/2011/028598](#)

Patent issued

United States Patent No.: US 9,351,667 Date of Patent: May 31, 2016

European Patent No.: 2470071 Date of Patent: November 08, 2016

9. DEVICE, SYSTEM, AND METHOD FOR MECHANOSENSORY NERVE ENDING STIMULATION

KUCTC ID No. 10KU003L; aka TAC-Cell (GALILEO Somatosensory System)

61/237,211 – Provisional Application

61/554,762 – Provisional Application (second rolling provisional using skin as membrane)

13/404,178 – Utility application – not yet on USPT PatFT, Google, or USPTO Public PAIR

PCT/US2010/046,792 – International application; published under [WO/2011/028602](#)

US20140046231 A1 Feb 13, 2014

Not Licensed:

10. MEDICAL DEVICE FOR THERAPEUTIC STIMULATION OF THE VESTIBULAR SYSTEM

KUCTC ID No. 11KU067L; aka VestibuGLIDE

61/476,943 – Provisional application

Utility not filed (PCT only filed), must file in U.S. prior to October 2013 deadline to preserve U.S. rights.

PCT/US2012/034,238 – International application; not yet published

United States Patent No.: US 9,844,483 Date of Patent: DEC 19, 2017

Foreign Filings:

Both KC BioMedix (Innara Health, Inc.) and Epic Medical Concepts & Innovations, Inc. have filed in numerous foreign countries. Additional information about these foreign patent applications is available on the WIPO website. In order to see this information, click on one of the above international publication numbers (they start with WO) and then click on the “National Phase” tab.

NUtech Transfer – Patents

11. **MUSCLE ASSESSMENT SYSTEM AND METHOD: ForceWIN10.**

S.M. Barlow (inventor) and Jake Greenwood (co-inventor). Biomedical project application to map muscle force dynamics in brain injured patients, sponsored by **NUtech Ventures**. Ongoing commercial prototype development by Dr. Barlow and the Raikes School of Design and Engineering (2015-2017). US Provisional Application No. 62/329145 filed 4-28-16 titled Muscle Assessment System and Method; and United States patent application submitted March 28, 2017. PCT/US2017/030221 titled Muscle Assessment System and Method.

US Patent No. 11,202,595 granted December 21, 2021.

12. **NeoNNS.**

S.M. Barlow (inventor) and Chunxiao Liao (co-inventor). Biomedical project application to map non-nutritive suck dynamics in preterm infants. IP submitted to NUtech. United States patent application in process 2018. Licensed by NUtech to INNARA Health, Inc., August 2021, Feb 2022-present.

13. **Tactile Stimulation Device - pTACS.**

S.M. Barlow (co-inventor) and Jacob Greenwood (co-inventor). A portable, rechargeable, lightweight multichannel pneumotactile stimulator for human use in the hospital emergency room, patient transport (ambulance), neuroimaging, or clinical setting for activation and/or therapeutics of somatosensory and/or sensorimotor control systems involved in skilled motor behavior in premature infants, children and adults. IP submitted to NUtech, US Provisional patent submitted Oct 2018, US 15/992004 (filed 5-29-18), US Patent Application - Nov 14, 2019 (Attorney Docket no. 01343.0010T). Publication Notice App Number 17/294,257. Filing or 371C date 05/14/2021. Publication No. US-2022-0015634-A1. Publication Date: 01/20/2022.

Memberships held in Professional Organizations:

- Society for Neuroscience, Acoustical Soc America, Assoc Res Otolaryngology, National Head Injury Foundation, Pediatric Academic Soc, Am Acad Clin Neurophysiology, American Speech and Hearing Association, Acad Neurologic Commun Disorders and Sciences, Am Acad Neurology, Pediatric Academic Society, Am Academy of Neurology, International Society for Advancement of Clinical MEG

Administrative Services in the areas of Speech-Language Pathology, Audiology, Speech-Language-Hearing Sciences, Neurosciences, Human Biology, and Bioengineering.

University of Nebraska

- Corwin Moore Endowed Professorship, SECD (Jan 2014-present)
- Associate Director: Center for Brain, Biology, and Behavior. (Oct 2015-present)
 - Rebuild CB3 policy and administrative and scientific infrastructure, biomed faculty hires
- Professor (affiliate), Biological Systems Engineering (2014-present)
- Director: Communication Neuroscience Laboratories (2014-present)

University of Kansas

- Professor, Dept of Speech-Language-Hearing: Sciences and Disorders (2004-2013)
- Professor and Chair, Dept of Speech-Language-Hearing: Sciences & Disorders (2000-04)
- Professor, Programs in Neuroscience, Human Biology, and Bioengineering (2000-2013)
- Director, Communication Neuroscience Laboratories
- Director, Digital Electronics & Engineering Core NIH P30, Center for Biobehavioral Neurosciences in Human Communication
- Core, Center for Neurological Disorders

Syracuse University

- Professor and Chair, Communication Sciences and Disorders, Affiliate Professor of Bioengineering and Neuroscience (1999-2000), Syracuse University

Indiana University

- Professor, Department of Speech and Hearing Sciences (July 1993-Aug 1999)
- Prog Neural Science (1992-1999, Core faculty and member of executive committee)
- Associate Professor, Department of Speech and Hearing Sciences (1/1/90)

Boys Town National Institute

- Coordinator and Staff Scientist, Speech-Orofacial Physiology Lab, BTNI 1987-89.
- Associate Professor, Dept Otolaryngology, Creighton Univ School of Medicine 1987-89.
- Co-Coordinator and Research Assoc, Speech-Orofacial Physiology Lab, BTNI 1984-87.
- Assistant Professor, Dept of Otolaryngology, Creighton Univ School of Medicine 1984-86.

University Service:

Creighton University Medical School

- Department of Otolaryngology - BTNI (Human Communication Laboratories).
- Committee on Capital Equipment. 1987 (chair), 1984-86
- Committee of Space Utilization and Needs. 1986 (chair)

- Committee on Computer Usage and Software Development. 1986-89
- BTNI Animal Care and Use Committee. 1988-89 (chair)
- Creighton Animal Care and Use Committee. 1988-89

Indiana University

- Indiana University Human Subjects Committee. 1990-93
- Department of Speech and Hearing Science - Computer Technology 1990-95, Space 1990-94, Comprehensive Exam 1990-99, Curriculum (Chair) Fall 1991-92, Doctoral Student Com-(Chair 1992-95), Graduate Admissions (Chair 1995-96), Executive Com-Program Neural Science 1992-99, Undergraduate Com 1996-97, Research Development 1997-98, Chair 1998-99.

University of Kansas

- Speech-Language-Hearing Science – **Department Chair**, 2000-04, Instrumentation & Computer Tech 2000-present, UG Curriculum–ongoing, Assist Prof Search Com–Phonology, Chair (2000), Assist Prof Search Com–Audiology, Chair (2001), Assist Prof Search Com–Neurosci, Chair (2002), Prof Search Committee–Cog Neurosci (2004), Prof Search Committee–Audiology (2005), Tenure Review Com 2005.
- Intercampus Prog Communication Disorders – **Co-Director**, 2000-04, Grad Curric Com-ongoing
- Human Biology Program–Executive Committee, 2000-2010
- CLAS: GRF – grant reviewer 2005-06
- Bioscience Initiative on *KU Neuroscience* : requested by Chancellor Hemenway. 2004
- Search Committees for Mechanical Engineering and Bioengineering Initiative KU–2003-05
- Collaborator with KU Technology Transfer Office, 2002-2013
- KU Interdisciplinary Bi-campus Team Builder, 2000-2013
- KU Conflict of Interest Committee – KU Research & Graduate Studies, 2010-2013
- KU Higuchi Bioscience Review Committee, 2010, 2011, 2012, 2013

University of Nebraska

- Faculty mentor for Dr. Angela Dietsch (2015-present), met 3-15-19 to plan NIH grant
- Faculty mentor for Dr. Yingying Wang (2016-present), met 4-15-19 to plan NIH grant. R21 funded 6/19
- Faculty mentor for Dr. Marc Brennan (2017-present). R21 funded
- Faculty mentor for Dr. Amanda Rodriguez (2018-2021)
- Faculty mentor for Dr. Kevin Pitt (2019-present), NIH sponsor, met Spring 2020, periodically through 2022

Boys Town National Research Hospital

- NIH Cobre P20 GM109023. Dr. Barlow recruited - research mentor for Dr. Angela AuBuchon, Aug-19 to present

Universiti Kebangsaan Malaysia August 2019-present

Faculty of Health Sciences

Adjunct Professor, research advisory committee

Candidate	:	Sai Tarishini a/p Sathiyasenana (P97153)
Programme	:	Master of Health Science (Hearing & Speech)
Chair of Committee	:	Dr. Chu Shin Ying

SERVICE to ASHA

- Editorial Consultant: JSRH, JSLHR, JSRD (28+ years)
- Associate Editor. Journal Speech and Hearing Research (1991-1994)
- Special Biomechanics Topics Associate Editor (JSLHR) for Editor Dr. Anne Smith. (2011)
- Special Neuroscience Topics Associate Editor (JSLHR) for Editor Dr. Verdolini (2007-2008)
- Special Physiology Topics Associate Editor (JSLHR) for Editor Dr. Anne Smith (2011-2012)
- ASHA, Chair and convention coordinator of Speech Science Program Committee (2000)
- ASHA Educational Publications Board (2001-2004)
- Member of an invited external advisory committee for academic program review of Speech-Language-Hearing-Science at the University of Arizona (April 12-15, 2006).

- ASHA-NIH Research Symposium planning committee (2007-2013), Scientific Coordinator for 2008 topic “*Neurobiological Determinants of Human Communication.*” Co-authored NIH grant renewal with Dr. Sharon Moss (PI) for the NIH-ASHA Research Symposium series (**funded**)
- Editorial Board. ASHA SID 5: Speech Science (2008-present)
- ASHA Research Roundtable: **Developing Multidisciplinary Scientific Collaborations, 2000-present**
- Program chair and organizer, 2008 ASHA-NIH Research Symposium “*Neurobiological Determinants of Human Communication.*” Nov 21st Chicago, Ill.
- ASHA Research Science Advisory Committee (**RSAC**), regular member, 2009-2012.
- ASHA Research Science Advisory Committee (**RSAC**), Lesson 4 Success ASHA-NIH workshop April 2011, Mentoring Faculty, mock NIH study section reviews, Teaching grant writing presentations
- ASHA Research Science Advisory Committee (**RSAC**), Lesson 4 Success ASHA-NIH workshop April 2012, Mentoring Faculty, mock NIH study section reviews, Teaching grant writing presentations
- ASHA-NIH Research Symposium planning committee (2013-2018), Scientific Coordinator and principal author for topic “*Neuroprotection and Impact on Human Communication Systems.*” Co-authored NIH grant renewal with Dr. Margaret Rogers (PI) for the NIH-ASHA Research Symposium series
- ASHA-NIH U24 National Clinical Scientist Mentoring Network (**CSMN**). Pathways conference. Feb 1-3, 2013. Rockville, MD. SM Barlow – Distinguished Faculty and Presenter “NIH Grant Application – Pitfalls in Writing the Application” and panelist for “Establishing MultiCenter Collaborations.”
- ASHA-NIH U24 grant. National Clinical Scientist Mentoring Network (**CSMN**). Invited as a **distinguished scholar member** of the executive scientific advisory team for this NIH project (2012-present).
- ASHA Pathways Program Scientific Reviewer. (2015-present)
- ASHA Pathways Scientific Mentor (2015-2017) for Dr. François-Xavier Brajot - Assistant Professor @Ohio University
- ASHA CPRI Scientific Mentor-Advisor for Dr. Cara Stepp – Assistant Professor @ Boston University in collaboration with Dr. Christopher Moore (DEAN of Sargent College at BU), and Dr. Margaret Rogers (Chief Science Officer @ ASHA) (2016). Recent recipient of a new NIH R01.
- ASHA CSMN Pathways Scientific Mentor (2016-2017) for Dr. Nicki Etter - Assistant Professor @ Penn State University
- ASHA CSMN Pathways Scientific Mentor (2017-2018) for Dr. Katlyn McGrattan – Postdoctoral Fellow, Northwestern University, Quantitative Aerodigestive Physiology.
- Invited panelist for the **2018 ASHA Focus Group on CSD Science Courses** (neuroscience, anatomy and physiology, speech science, language science, hearing science) to review evidence-based, high impact teaching practices. ASHA’s Academic Affairs Board (AAB), Thursday, Nov 15, 3:30-5:00 pm @ ASHA Convention, Boston, MA.
- ASHA CSMN Pathways Scientific Mentor (2019-2020) for Dr. Elaine Kearney – Postdoctoral Fellow, Boston University, Speech Neuroscience of Parkinson’s disease. ASHA National Office, June 16-18. Rockville MD.
- ASHA CSMN Pathways (2020) invited speaker. Programmatic Research Career. ZOOM talk. ASHA National Office, June 2020. Rockville MD.
- ASHA CSMN Pathways (2022) invited speaker. Programmatic Research Career. ZOOM talk. ASHA National Office, June 13-15, 2022. Primary scientific mentor (2022-2023) to Pathways protégés, **Dr. Camille Wynn** and **Dr. Caroline Spencer**, Rockville MD.

SERVICE to Society for Pediatric Research (SPR), Pediatric Academic Society (PAS)

- Founder: Neonatal Feeding Club, American Pediatric Society, *Pediatric Academic Society*. 2010
- Neonatal Feeding Club officially Sanctioned by PAS in 2011.
- Chair of Neonatal Feeding Club, Annual Scientific Sessions, *Pediatric Academic Society*, 2011- present

Membership in Professional Organizations

Soc Neuroscience, Acoust Soc America, Assoc Res Otolaryngology, National Head Injury Foundation
Am Acad Clin Neurophysiology, ASHA, ANCDs, American Academy of Neurology, Pediatric Academic Society (Society for Pediatric Research), Nebraska Academy of Science

Associate Editor. Journal Speech and Hearing Research (1991-1994)

Section Editor. Pediatric Medicine (2019-present). <http://pm.amegroups.com/user/view/65387>

- 2020-2021 Special section on preterm development and neonatology, coordinated and edited by Dr. SM Barlow

Guest Associate Editor. Frontiers in Pediatrics [IF=3.42] (2022-present). Overseeing the research topic - *SARS-CoV-2: Implications for Maternal-Fetal-Infant and Perinatal Mortality, Morbidity*

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Editorial Consultant

JSHR, JSHD, JSLHR, JASA, Int Journal Speech-Language Pathology, Exp Neurology, Arch Physical & Rehab Medicine, J Neurophysiology, Child Development, Brain Res, Exp Brain Res, NeuroImage, Pediatric Res, J Perinatology, J Nursing Res, Dysphagia, J Perinatology, J Clin Nursing, Acta Paediatrica, Pediatrics, Int J Pediatrics, Am J Perinatology, American Journal of Physiology, J Biomechanics, J Physiology, IEEE Transactions on Biomedical Engineering, Neurorehabilitation & Neural Repair, Physiology & Behavior, Birth Defects Research, Pediatric Medicine, Journal Integrative Neuroscience, Neuroscience Letters, PLOS_one, Frontiers Neuroscience Aging, Brain Connectivity, Transactions Biomedical Engineering

TEACHING

Lecturer. Evoked Potential Training Program. Somatosensory evoked potentials. Department of Neurology, University of Wisconsin, Madison, WI, (1980-1982).

Courses taught in the Dept Otolaryngology, Creighton Medical School, Omaha, Nebraska.

Directed Indep Study (Otolaryngol (OTL) # 495) - 1985. Rdgs Speech Physiol (5 sem. hrs)

Directed Indep Research (OTL # 497) - 1984. Research in Speech Physiology (5 sem. hrs)

Directed Indep Research (Graduate Level OTL - School of Dentistry) - 1985 and 1986. Electrophysiology of the Orofacial Mechanism. This directed study resulted in a data-based journal publication and student award (Mr. Erick Rath) from Creighton Dental School and an invited presentation to the Nebraska Dental Society (1986).

Directed Readings in Neuroanatomy and Neurophysiology (OTL # 493) - 1989 (3 sem. hrs)

Directed Independent Study (OTL 495) - Sum/Fall 1989 (4 cr.)

Directed Independent Study (OTL 795) - Summer 1989 (4 cr.)

Directed the monthly Speech Physiology Seminar held at Boys Town National Institute (Dept Otolaryngology). Topics included discussion of recent scholarly publications, presentation of research methods, and experiment proposals. (1987-1988)

Courses taught in the Department of Speech and Hearing Sciences at Indiana University

Physiologic Assessment of Neuromotor Speech Disorders (3 cr), Anat & Physiol Speech (3 cr)

Rdgs Neural Control Larynx (3 cr), Rdgs Somatosensory Physiol (3 cr), Research Design and Methods (3 cr),

Craniofacial Anomalies (3 cr), Voice Physiology (3 cr), Exp Design (3 cr)

Neurophysiol Sensory & Motor Systems Vocal Tract (2 cr), Laryngeal Physiology (3 cr.)

Instrumentation in Speech Physiology (2 cr), Neural Bases Speech (3 cr), Vocal Tract Physiology 0-3 years (2-3 cr),

Clinical Instrumentation in Speech Pathology (2-3 cr.)

Courses taught in the Program in Neural Science at Indiana University

Principles of Neural Science I - doct level (4 cr), Principles of Neural Science II - doct level (4 cr), Neuroscience Research Seminar - doctoral level (3 cr)

Courses taught at Syracuse University

Undergrad Res Speech Physiology & Neuroscience (3 cr), Neuroscience-grad (3 cr) N = 60

Courses taught at University of Kansas

Speech Science: Anatomy & Physiology (3 cr), Neural Bases of Speech and Voice (2 cr), Neuroscience of Com Dis (3 cr)
Advanced Topical Seminars in Neuroscience (Neuroprotection, ASD Brain, Mechanoreception, Thalamo-cortical Systems)

Neuroscience (3 cr), Infant Neurobiology & Development (2 cr), Sem Basal Ganglia Neurophysiology (2 cr), Sem Orofacial Myofunctional Disorders & Motor Control (2 cr), Seminar Infant Development (2 cr), Neurobiology of the Human Infant (2 cr), Seminar Speech Aerodynamics (2 cr), Seminar Orofacial Biomechanics (2 cr), AC/DC Circuits and Instrumentation Applications (2 cr), Clinical Speech Physiology (2 cr), Laboratory Practical on Instrumentation in Orofacial and Speech Physiology (2 cr), Research Ethics and Scientific Integrity (2 cr), Seminar Mirror Neuron Systems (2 cr), Res Methods in Human Communication (3 cr), Seminar Mechanoreceptors and the Somatosensory System (3 cr), Seminar Autism Spectrum Disorders and Multisensory Processing (3 cr), Seminar aEEG/rEEG Neonates (2 cr), Seminar Neuroprotection (2 cr), Intro Neuroscience of Human Communication (2 cr), Communicating Brain: The Ultimate Personal Computer (3 cr, Special University-wide offering beginning 2013).

Courses taught at the University of Nebraska (beginning Fall 2014-present)

SLPA 455 - Speech Physiology: Anatomy & Physiology (4 cr) – FALL 2014-2018

SLPA 853 – Neurological Bases of Communication Disorders (3 cr) – FALL 2014-2015

SLPA 453 – Neurological Bases of Communication Disorders (3 cr) – FALL 2016-2019

SLPA 453-700 – Neurological Bases of Communication Disorders (3 cr) – FALL 2020 (ONLINE version)

SLPA 981 – Neuroprotection, Neuroimaging, & Transcranial Doppler Human Brain (2 cr) – SPRING 2015

SLPA 981 – fNIRS (2 cr) – SPRING 2017

SLPA 896 – Neonate neurobiology and neuroprotection – FALL 2016/SP 2017 (4-8 students)

BSEN 896-002 – Neuroanatomy and Neurophysiology of Speech, Language, Hearing (3 cr) - FALL 2017-present

BSEN 896 – Anatomy and Physiology of Speech and Voice (3 cr) - FALL 2017-present

BSEN 896-009 – fNIRS, sensorimotor cortex mapping during functional tasks (3 cr) - Spring & Fall 2018

BSEN 896-008 – Somatosensory stimulus dynamics – Fall 2018

DOCTORAL/POSTDOCTORAL STUDENT TRAINING

Steven Barlow, PhD			
Trainee	Level of training	Training period or year degree granted, research topic	Current or most recently known position
Erick M. Rath	DDS	1987-1989 Somatosensory processing of mechanical inputs in cat cortex	Dentist-Oral Surgeon, South Dakota
Kevin Spangler	Postdoc	1983-1985 Somatosensory neurophysiology	Physician, North Carolina Neuroradiology
Michelle Gentil	Postdoc	1994 Motor control of the orofacial system in humans	Senior Scientist, INSERM, Grenoble, France
Fred Diedrich	Postdoc	1995-1998, infant limb motor control and servo perturbation studies	Aptima Inc., Cognitive Scientist, Woburn, MA
Don Finan	PhD	1994-1999, speech physiology & neuroscience	Asst Professor, University of N. Colorado
Richard Andreatta	PhD	1995-2000, speech physiology & neuroscience	Assoc Professor, Dept Rehab Science University of Kentucky
Amitava Biswas	PhD	1994-2002, speech physiology, engineering	Asst Professor, U of Texas-El Paso
Meredith Estep	PhD	2002-2009, fMRI & MEG, Neural control of speech/suck	Post-doc, Wash Univ Med School, Neonatology, fMRI/DTI preterm brain dev
Michael Hammer	PhD	2002-2009, Laryngeal sensory physiolog & vocalization in humans, NIH F31	Post-doc, Univ Wisconsin Scientist, Otolaryngology – Univ Wisconsin Assoc Professor, UW-Whitewater 2015-present

Susan Stumm	ABD	2003-2009, functional brain mapping, velocity encoding in sensorimotor cortex during speech	Speech-Language Pathologist, Bonner Springs, MO
Lana Seibel	MA, Pre-doc	2005-2007, Dev speech physiology	SLP Lawrence, KS Public Schools
Meredith Poore	PhD	2005-2011, Dev speech physiology	Olathe School System, Kansas
Monique Fees	MA, pre-doc	2004-2007, Dev speech physiology	SLP, neonatal feeding, Colorado
Mimi Urish	MA-MS	MA SLP 2004-05, MS Neuroscience 2007	Dev Speech Physiology, London, England
Emily Zimmerman	MA-PhD	MA SLP 2005-06, PhD Dev speech physiology 2006-2011	Post-doc Fellow, Harvard Medical School – MGH (2011-2013) Asst Professor - 2013, Northeastern University
Shinying Chu	MA-PhD	MA SLP 2005-06, PhD Developmental speech physiology 2006-2010	Post-doc, Osaka, Japan. Scientist, National Rehabilitation Center for Persons with Disabilities, Saitama, Japan. Asst Professor, Malaysia National University [1/2021] Dept Head-Speech Sciences Programme, Faculty of Health Sciences. Centre for Healthy Ageing and Wellness (HCARE) National University of Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur
Marie Helen-Boudrais	PhD	2002-2007, Neuroscience, Encoding forelimb movements in SMA in primate. Committee member	Post-doc, Oxford, England Asst Professor, McGill University
Lalit Venkatesan	PhD	2006-2012, Bioengineering, Neurosci, MEG neural adaptation	Abbott Laboratories Director of Research and Development at Abbott Neuromodulation, Dallas TX
Blythe LaGasse	PhD	2006-2009	Coordinator of Music Therapy Associate Professor of Music Therapy, Colorado State University
Gustav VanAcker	MD-PhD	2007-2011, neuroscience, Monkey forelimb ICMS spatial maps	Cleveland Functional Electrical Stimulation Center
Austin Oder Rosner	PhD	2010-2013 Infant neurobiology 2014-2016 fNIRS neuroimaging cortical adaptation	grad student at KU grad student at UNL Postdoc (June 2016) Tufts Univ Med Ctr – Neonatology (Boston)
Christine Kosirog	MA	2012-2013 neuro, autism	SLP Lawrence, KS
Rebecca Custead	MA, PhD	2010-2013 stroke/neuroplasticity, somatosensory physiology 2014-2016, stroke-plasticity, neuroimaging velocity encoding human face fMRI	grad student at KU grad student at UNL
	postdoc	August 2016-July 2018	Barkley postdoc UNL
Jari Billiot	MA	2012-2013 somatosensory-plasticity	Speech-Language Pathologist, Fredericksburg, VA

Hyuntaek Oh	PhD	2012-2013, Bioengineering, functional brain imaging, array processing 2014-2016, Biological Engineering with Dr. Greg Bashford as Co-Mentor, fMRI saltatory somatosensory velocity glabrous hand fMRI neuroimaging	grad student at KU grad student at UNL Postdoc @ Baylor College of Medicine (Dec 2016 - present)
Cathryn Cortesa	PhD	2015-2016. EEG infant language,	grad student at UNL (Molfese is advisor, Barlow on doctoral committee) Johns Hopkins University, Dept Cognitive Science
Jessie Patterson	PhD	2014-2016. Gait-Balance-Vestibular PhD quals & dissertation research	grad student at UNL (Honaker is advisor, Barlow on doctoral committee). Senior Audiology Research Associate, Boys Town National Research Hospital, Omaha NE. Audiologist.
Jake Greenwood	PhD-student Biomed Eng	UG in elect engineering at UNL 2016, PhD student 2017-present MCA ischemic stroke and somatosensory therapeutics	Barlow mentor-dissertation advisor, force dynamics, MEG neurophysiology, fNIRS, MRI, wireless sensor design
Chunxiao Liao	MS Computer Science & Eng	UG/MS engineering & computer science (China & UNL), MS student 2017-2018. M.S. Graduation & thesis July 19, 2018. PhD student in CS&E at Rice University – Fall 2019. Consultant on Barlow's NIH R01 through 2021.	summer 2017, Barlow mentor-research advisor, preterm neonate oromotor NNS dynamics and computational modeling. CS Engineer. PhD student @ RICE Univ
Ben Hage	MS PhD-student Biomed Eng	2016-present, Biomed Engineering. Transcranial Doppler MCA & Galileo Somatosensory velocity arrays Thesis defended 11-28-17. Jan 2018 enter Biomed PhD program	Grad student at UNL, Barlow mentor, thesis committee Nov 2017. Barlow mentor, doctoral committee
Mohsen Hozan	PhD student Biomed Eng	2017-present, Biomed Engineering & Com Dis, DSP Force Dynamics	Grad student at UNL, Barlow dissertation mentor, Bashford co-advisor, Biomechanics, fNIRS, MRI
Max Twedt	PhD student Biomed Eng	2017-present, Biomed Engineering. Doppler.	Grad student at UNL, Barlow, doctoral advisory committee member 2018-present.
Michaela Sullivan	MS student, SLP	Fall 2017-Summer 2019, SLP, MS Thesis orofacial force dynamics. completed	fNIRS, orofacial biomechanics Thesis Chair, SLP-CFY
Alejandra Marquez	MS student, SLP	Jan 2018-Summer 2019, SLP, MS Thesis on NeoNNS STI in EPI, completed	Neonate Oromotor Thesis Chair
McKenzie Ochoa	MS student, SLP	Jan 2018-Summer 2019, SLP, MS Thesis on NeoNNS suck dynamics in EPI, completed	Neonate Oromotor Thesis Chair
Meghana Kurupalli	MS student CS&E	Aug 2018-2020, Computer Science & Engineering	Aerodynamics MS Project Co-Chair
Faitma Sibaii	MS student, Biomed Eng	Aug 2019-present, Biomed Engineering	fNIRS & fTCD somatosensory modulation, Thesis committee

Elizabeth Hoffman	MS student, SLP	Fall 2018-May 2020, SLP, MS thesis	Biomechanics, VIBROS somatosensory Thesis Chair
Alyssa Molina	MS student, SLP	Fall 2019-2021, SLP, MS thesis	Pediatric Facial Nerve Plasticity, Thesis Chair
Ross Westemeyer	SLP doc student	Spring 2020-present	Swallowing plasticity, neuro. Doc advisory committee and dissertation committee member
Kulbir Singh	PhD student, biomed engineering	SPR'22 - present	Biosensor systems
Chris Engsborg	MS Biomechanics	Fall 2022 – present, outside rep, Mukherjee chair @ UNO Biomechanics	Neural control of gait and balance

UNL Students mentored in research at Communication Neuroscience Laboratories (YR 2015)

1. Ivy Diehl UCARE
2. Jennifer Nawrocki UCARE
3. Michaela Sullivan UG University Honors
4. Maddie Lorenzen UG Res Asst
5. AnnaJean Scarborough UG Res Asst
6. Kayla Kivett GRAD-SLP
7. Claire Miner GRAD-SLP
8. Brianna Jallo GRAD-SLP
9. Kaisha Hilgenkamp GRAD-SLP
10. Grace Wilder GRAD-SLP
14. Chelsey Krug GRAD-SLP CNL Research Assistant
15. Kelsey Sestak GRAD-SLP CNL Research Assistant
16. Austin Oder Rosner GRAD Doctoral – Barkley Fellow
17. Rebecca Custead GRAD Doctoral – Barkley Fellow
18. Hyuntaek Oh GRAD Doctoral – Barkley Fellow

UNL Students mentored in research at Communication Neuroscience Laboratories (YR 2016)

1. Ivy Diehl GRAD SLP
2. Michaela Sullivan UG University Honors Thesis (Barlow – mentor)
3. Maddie Lorenzen UG Res Asst
4. AnnaJean Scarborough GRAD Res Asst
5. Brianna Wardyn GRAD Res Asst
6. Kaytlin Tippin GRAD Res Asst
7. Austin Oder Rosner GRAD Doctoral – Barkley Fellow, now postdoc at Tufts Medical Ctr
8. Rebecca Custead Postdoctoral – Barkley Fellow
9. Hyuntaek Oh GRAD Doctoral – Barkley Fellow, now postdoc at Baylor Coll Medicine
10. Jake Greenwood UG Electrical Engineering
11. Chunxiao Liao GRAD Computer Science

UNL Students mentored in research at Communication Neuroscience Laboratories (YR 2017)

1. Ivy Diehl GRAD SLP - SECD
2. Michaela Sullivan UG University Honors Thesis (Barlow – primary mentor 2016-2017)
 - i. SLPA Master's thesis student
3. Elizabeth Hoffman UG University Honors Thesis (Barlow – primary mentor 2017-2018)
4. Maddie Lorenzen UG Res Asst - SECD
5. AnnaJean Scarborough GRAD Res Asst - SECD
6. Brianna Wardyn GRAD Res Asst - SECD
7. Kaytlin Tippin GRAD Res Asst – SECD
8. Lauren Pouliecek GRAD SLP - SECD
9. Kara Guittar GRAD SLP - SECD
10. Rebecca Custead Postdoctoral – Barkley Fellow
11. Jake Greenwood UG Electrical Engineering/PhD Biomed & ComDis (primary mentor)

12. Chunxiao Liao	GRAD Computer Science/PhD Biomed (NIH GRA)
13. Mohsen Hozan	GRAD PhD Biomed (primary mentor)
14. Alaina Martens	GRAD SLPA – NIH R01 Salivary Gene Expression – St. E’s NICU
15. McKenzie Sesterhenn	GRAD SLPA – NIH R01 Salivary Gene Expression – St. E’s NICU i. SLPA Master’s thesis student
16. Alejandra Marquez	GRAD SLPA – NIH R01 Salivary Gene Expression – St. E’s NICU i. SLPA Master’s thesis student
17. Emily Thrailkill May	UG Biomed Eng – Honors Thesis (Barlow – mentor w/G Bashford)
18. Ben Hage	GRAD MS Biomed Eng – Thesis (Barlow – mentor w/G Bashford 11-28-17)
UNL Students mentored in research at Communication Neuroscience Laboratories (YR 2018-2022)	
1. Ivy Diehl	GRAD SLP - SECD
2. Michaela Sullivan	UG University Honors Thesis (Barlow – primary mentor 2016-2017) SLP Grad Research – (primary mentor, Fall 2017-present, fNIRS and orofacial biomech) SLPA Master’s thesis student 2019
3. Elizabeth Hoffman	UG University Honors Thesis (Barlow – primary mentor 2017-2018) SLP Grad Research – (primary mentor, Fall 2018-present, orofacial biomech), SLPA Master’s thesis student 2019-2020, completed.
4. Brianna Wardyn	GRAD Res Asst – SECD
5. Kaytlin Tippin	GRAD Res Asst – SECD
6. Rebecca Custead	Postdoctoral – Barkley Research Fellow, 2016 - July 2018.
7. Chunxiao Liao	GRAD Computer Science & Biomed (NIH GRA) 2017-2018
8. Alaina Martens	GRAD SLPA – NIH R01 Salivary Gene Expression
9. McKenzie Sesterhenn	GRAD SLPA – NIH R01 Salivary Gene Expression 2018-2019 i. SLPA Master’s thesis student
10. Alejandra Marquez	GRAD SLPA – NIH R01 Salivary Gene Expression 2018-2019 ii. SLPA Master’s thesis student, YR 2021.
13. Max Twedt	GRAD PhD Biomed Eng, doctoral comm, neural ultrasound ALZ 2017-present
14. Ben Hage	GRAD MS Biomed Eng – Thesis, PhD student (Barlow – mentor w/G Bashford), 2016-present
15. Meghana Kurupalli started 2018-2020	GRAD MS Computer Science, AeroWIN vocal tract dynamics. Thesis project
16. Amanda Evert	GRAD MS SLPA – facial nerve dissection and experience-dependent plasticity (Barlow, Harvey advisors).
17. Alyssa Molina	GRAD MS SLPA - facial nerve dissection and experience-dependent plasticity In a 3 year old (Barlow, Harvey advisors) 2019-2021.
18. Jake Greenwood	UG Electrical Engineering/PhD Biomed (primary mentor) 2017-present
19. Mohsen Hozan	GRAD PhD Biomed (primary mentor) 2017-present
20. Kulbir Singh	GRAD PhD Biomed, sensor systems

Research and Publications Contributing to the Knowledge Needed by the Professions.

Research Activities: Extramural/Intramural Funding.

Co-Investigator, NIH Program Project Grant, Communication Disorders in Children, Project Area IV - *Quantitative Methods for Assessing Speech Disorders*, April, 1984 to March, 1987 (\$181,521 total budget). Boys Town National Institute.

Principal Investigator, Behavioral Research Support Grant (BRSG), *Mechanically Driven Evoked Potentials in Cat*, 1984 (\$2,500). Boys Town National Institute.

Principal Investigator, Moody Research Grant (001). *Speech Biofeedback Project*, 04/01/85-12/31/90 (\$231,000). Boys Town National Institute.

Principal Investigator, Health Futures Foundation - Creighton Univ Medical School, *Mechanically Driven Trigeminal-Facial Reflexes in Human*, Nov 1, 1985 - October 31, 1986. (\$8,150).

- Co-Principal Investigator (Proj III and IV), NIH Program Project Grant, Competitive Renewal. Communication Disorders in Children, Project Area III - *Neurobiological Studies of Vocal Tract Control*, and Project Area IV - *Quantitative Methods for Assessing Speech Disorders*. April, 1987 to March, 1992 (\$3,225,887 total budget). Boys Town National Institute (W. Jesteadt - PI).
- Principal Investigator, NIH R01 Grant, *Reflex and Fine Force Dynamics of the Perioral System*, (\$194,461 total direct costs). 04/01/87-09/30/90.
- Co-Investigator, NIH R01 (Esther Thelen - PI, S.M. Barlow, Co-Inv) *Dynamic Factors in the Development of Motor Skills in Infants*. (\$1,305,560 total direct costs). 03/01/92-02/28/97. Funded.
- Co-Principal Investigator [Barlow & Thelen], *National Center for Infant Perceptual-Motor Learning*. Research Facilities Fund, Indiana Univ. (\$190,000 total direct costs). 10/01/91-09/30/93. Funded.
- Principal Investigator, NIH R01 *Reflex and Fine Force Dynamics of the Perioral System*, (\$280,275 total direct costs). 09/01/91-08/30/95. Funded.
- Co-Principal Investigator (Thelen & Barlow), NIH T32 *Training Program in Infant Perception-Action Systems*, (\$1,195,340 total direct costs). 04/01/95-11/30/99. Funded.
- Principal Investigator, IU Multidisciplinary Ventures Fund (Barlow & Garraghty), *Activity-Dependent Changes in the Orofacial Sensorimotor Cortex: Implications for Neuronal Plasticity*. \$3,250 for pilot research project. Funded 1/96-1/99.
- Primary Sponsor and Mentor [Barlow], NIH CAP grant, General Clinical Research Center at the Indiana Univ Med Center: *Electrophysiology of orofacial reflex systems in neonates*. Training support for A Dusick, MD. 12/01/96-11/30/99. (\$225,524 total direct costs) Funded.
- Principal Investigator, IU Riley Research Foundation [*intramural*], *Sensorimotor Control of the Neonate Orofacial System*, (\$70,064 total costs). 01/01/97-07/31/99. Funded.
- Co-Investigator, NIH R01 (Esther Thelen-PI) *Dynamic Factors in the Development of Motor Skills in Infants*. (\$1,738,113 total direct costs). 03/01/97-02/28/02. Funded.
- Co-Investigator, PMHP United Way. *Early Literacy Adult Program: Neuroscience, Language and Literacy*. (\$300,000 total direct costs). 11/01/99-06/30/03. Funded
- Principal Investigator, KU RDF (Barlow). *The Effects of Deep Brain Stimulator Implants on Limb and Orofacial Force Dynamics*. (\$60,600). Funded. 10/01/00-12/30/02
- Principal Investigator, NIH R01 DC003311 (Barlow). *Sensorimotor Control and Development of the Human Orofacial System*. (\$2,120,000 total costs). 01/15/02 – 12/31/08. Funded.
- Co-Investigator and Core PI (BioEngineering – Barlow), NIH P30 Research Center (Rice-PI). *Biobehavioral Neurosciences in Communication Disorders*. (\$1,720,000 total costs). 01/01/03-12/31/12. Core 3: Engineering. \$565,004. Funded.
- Principal Investigator, Sutherland Foundation: Annual endowment to the Communication Neuroscience Laboratories, \$40,000 annually. 2005-2013.
- Principal Investigator, KC BioMedix: Endowment support to the Communication Neuroscience Laboratories, \$25,000. 2008.
- Core-Investigator, NIH R13 DC003383-11 (Sharon Moss – PI, Steven Barlow – Core Investigator). *ASHA Annual Research Conferences in Communication Sciences & Disorders*. Renewal application. Barlow responsible for developing the 2008 Research Symposium Topic in Neurobiology of the Human Infant. 5-year renewal submitted Dec 1, 2006. (\$170,000). Funded
- Principal Investigator, GRF KU (Barlow). *Cortical and Subcortical Contributions to Ororhythmic Behaviors: an fMRI Investigation* (PreDoc, Meredith Estep). 7/1/08-6/30/09 (\$13,018). Funded.
- Co-Principal Investigator, NIH R01 (Trotman – PI, Barlow - PI) *Functional Outcomes of Cleft Lip Surgery*. (\$2,100,902 total costs). Funded. 05/01/01-12/31/11.
- Principal Investigator, NIH R01 DC003311 (Barlow). *Sensorimotor Control and Development of the Human Orofacial System*. (\$2,433,000 total costs). Competing renewal. 07/01/08 – 06/30/13. Funded.
- Principal Investigator, NIH R01 DC003311-06 ARRA EQ Supplement (Barlow). *Sensorimotor Control and Development of the Human Orofacial System*. (\$50,000). NIDCD. 7/2009 Funded.
- Principal Investigator, Higuchi Bioscience Award. 2009. KU Endowment Association. Acct #39733. \$10,000.
- Principal Investigator, NIH S10 RR 028745-01 (Barlow). *3 Tesla Magnetic Resonance Imaging of Human Perception Action and Biodynamics* (\$3,087,514). Council Review, 10/2009. High-End Instrumentation grant to establish the Kansas University BioImaging Center at KU-L.
- Co-Principal Investigator, NIH R43 SBIR (Stalling & Barlow). *Vibratory Textured Pacifier for Non-nutritive Suck Entrainment in Preterm Infants*, 07/01/11-06/30/13. \$449,806. NIDCD. Submitted 9/17/10

- Principal Investigator, NIH R21 (Barlow). aEEG Correlates of Orosensory Entrainment in Preterm Infants, 07/01/11-06/30/13. \$275,000. NICHD/NIDCD. Submitted 10/18/10
- Co-Principal Investigator, NIH R01 (Barlow & Popescu). Dynamics of Modular and Integrative Processes in the Human Somatosensory Cortex Over the Lifespan, 12/01/11-11/30/16. \$3,113,940. NIDCD. Submit 2/7/11
- Principal Investigator, K-CART (Autism) (Barlow, Anderson, Popescu). Neural and Pupillary Adaptation to Patterned Somatosensory Inputs in Adults with ASD. 10/01/11-12/31/13. \$40,000. Funded.
- Principal Investigator, NIH R01 DC003311 (Barlow). *Sensorimotor Control and Development of the Human Orofacial System*. (grant transfer to Univ Nebraska). January 01, 2014- June 30, 2014. Funded.
- Principal Investigator, Barkley Trust. *Neurodevelopmental Outcomes Among Toddlers Born Preterm for the NTrainer RCT*. (\$100,000). 01/01/14-6/30/15. Funded.
- Principal Investigator, Research Grant Contract 70155, Epic Medical Concepts & Innovations. *Somatosensory and Motor Function in Individuals with Cerebral Stroke Following TAC-Cell Array Stimulation*. (\$80,450). 01/01/15-6/31/17. Funded.
- Principal Investigator, Nebraska Research Initiative (NRI). *ForceWin10: Real-time Muscle Force Dynamics for Diagnostic and Therapeutic Application in Neurologic Disorders Affecting Orofacial and Hand Motor Control Across the Lifespan*. 02/03/16-02/15/17. (\$75,000). Funded.
- Principal Investigator, NIH R01 HD086088-01 - PI Steven M. Barlow - Project Title "*Somatosensory Modulation of Salivary Gene Expression and Oral Feeding in Preterm Infants*." Multicenter randomized controlled trial ([J Maron, MD MPH] Tufts Medical Center NICU-Boston, [BJ Wilson, MD] St. Elizabeth's NICU-Lincoln, [D Song, MD PhD] Santa Clara Valley Medical Center NICU-San Jose), J Lee (Texas Tech Univ). 5-year project (\$2.8M), 9th percentile NICHD. April 01, 2016 – March 31, 2023. Funded.
- Co-PI, NSF Major Research Instrumentation. Project Title "*MRI: Development of a Modular Cyberphysical Instrument for Thru-body Communication*." Instrument Development (Track 2). Pierobon-PI, Barlow, Ramamurthy, Co-PIs. The goal of this project is to develop an integrated cyber instrument for analyzing the flow of artificial information within the nervous system from a communication systems engineering perspective. The project will have a particular focus on communications through the somatosensory system, which is ubiquitously present in the body and easily accessible from outside in a non-invasive fashion. 5-yrs proposed, \$1,974,676. Not funded
- Scientific Mentor for Lee Baugh, PhD. Assistant Professor, Sanford School of Medicine, University of South Dakota. Great Plains IDEa-CTR Scholars Program, NIH/NIGMS, Clinical Translational Research. 01-13-17
- Co-PI (Bashford G, Barlow SM, Truemper. American Heart Association. \$750K. (3-year, \$250K/yr), 7-1-2018 to 6-30-2021. LOI Proposal. Project Title "*Optimizing Neurorehabilitation through a Novel Pneumotactile Stimulation and Transcranial Doppler Ultrasound Monitoring Protocol*." 18CSA34060085 Nov 1, 2017.
- Principal Investigator, 1 R01 NS117741-01 (SM Barlow), MPD's (GR Bashford (UNL BioEng), S Singh (Creighton Univ Medical School). Project Title: *Neuroprotection in Acute MCA Stroke by Somatosensory-Induced Collateral Blood Flow*. NINDS 5-year, [10/5/2019 new submission] \$3,703,412.
- Co-PI (M Mukherjee & SM Barlow), Project Title: *Improving gait outcomes in stroke survivors through tactile stimulation*. American Heart Association. \$750K. (3-year, \$250K/yr), 7-1-2020 to 6-30-2023. LOI Proposal. 2020 Collaborative Sciences Award application, application number 20CSA35310327
- Sponsor (Barlow SM), Co-Sponsors (Bashford G, Wang Y). NIH F31 (Greenwood – PI). *Cerebral Hemodynamics and Blood Flow cChanges Due to Pulsed Pneumotactile Somatosensory Stimulation of the Face using fNIRS and fTCD*. 8-8-20, 2021-2024, \$142,783.
- Chu S (PI), Barlow SM (Co-Inv). PD Speech. Univ of Malaysia. 2021. Oral diadochokinesis among Malay speakers: A comparative study of young adults, healthy elderly and individuals with Parkinson's disease.
- Chu S, Chai SC, Barlow SM, Tan JS, Ibrahim NM, Wei WS. Challenges, Barriers, and Needs of Access to Care among Malaysian Elderly in Parkinson's disease. Michael J Fox Foundation for Parkinson's Research. LOI 4-20-21.
- Co-PI (M Mukherjee & SM Barlow), Project Title: *Improving gait outcomes in stroke survivors through tactile stimulation*. American Heart Association. \$750K. (3-year, \$250K/yr), 7-1-2021 to 6-30-2024. LOI Proposal. 2021 Collaborative Sciences Award application.
- Co-Inv (SM Barlow), Project Title: M Mukherjee – PI, Y Wang – Co-Inv. NIH R21, Project Title: *Improving gait outcomes in stroke survivors through tactile stimulation: Understanding the brain mechanisms* 04/01/2022-03/31/2024, NINDS, FOA: PA-21-219, submitted.
- Co-Inv (SM Barlow), M Mukherjee – PI, Y Wang – Co-Inv. NASA Epscor, Project Title: *Improving gait outcomes in astronauts following long duration space missions through tactile stimulation: understanding the brain mechanisms* \$263,052. 07/01/2022-06/30/2025, submitted.

Principal Investigator (SM Barlow), Y Wang, G Bashford, P Lee, J Lee (Co-Investigators). Somatosensory Evoked Collateral Cerebral Blood Flow Mapped Using Vessel-Encoded Pseudocontinuous Arterial Spin Labelling MRI in Human. Brain Research Foundation. \$150,000 direct costs, 2022-2023, pending 10-5-21.

PI (Mukul Mukherjee), Co-PIs (Steven Barlow, Jose Baca). A biomechanics, machine learning and brain mapping collaboration to research tactile-augmented gait in stroke survivors. American Heart Association, Collaborative Sciences Award, LOIID: 959501, Jan 11, 2022.

PI (Mukul Mukherjee), Co-PIs (Steven Barlow, Yingying Wang). Improving gait outcomes in stroke survivors through tactile stimulation: understanding the brain mechanisms. AHA AIREA grant application. Submitted Jan 12, 2022. 4-1-22 to 3-31-24. **Funded.**

PI (Steven Barlow), Co-PI's (Kristy Weissling, Judy Harvey). Pneumotactile Somatosensory Stimulation Drives Experience-Dependent Plasticity for Restoring Hand and Orofacial Fine Motor Control in Chronic MCA Stroke Survivors. AHA - 2022 Nebraska Mission: Lifeline Advancing Stroke Care, *submitted* 3-23-22.

Co-Inv, site PI (SM Barlow), M Mukherjee – PI, Y Wang – Co-Inv. NASA Epscor, Project Title: Improving gait outcomes in astronauts following long duration space missions through tactile stimulation: understanding the brain mechanisms \$263,052. LOI submitted Jan 6, 2023.

External University Reviews (invited)

- Boston University – tenure/promotion review September 2016 at the request of Christopher Moore, PhD, Dean of the Sargent College.
- Stanford University – faculty promotion review [DSong] request of Dept Pediatrics, Div Neonatology - 2016
- Stanford University – faculty promotion review [BGovindaswami] Dept Pediatrics, Div Neonatology – 2017
- University of Florida – faculty promotion & tenure review, Dept of Speech-Language-Pathology – 2017
- Kansas University Medical School – faculty promotion [PLee] to full professor, Dept Molecular & Integrative Physiology – 2017
- Northwestern University – faculty review/appt [Dr. BM-Harris] full professor dysphagia position – 2017.
- University of Iowa - faculty review/appt requested by Dr. Jerry Moon for [I Huppert] associate professor dysphagia position – 2019
- University of Missouri – faculty review/appt [Dr. Kuruvilla-Dugdale] P&T Asst to Assoc professor – 2020, requested by Dr. Stacy Wagovich [Dept Chair, Dept Speech-Lang-Hearing Sciences].

National and International Scientific Review Appointments

New Zealand Neurological Foundation - Scientific reviewer for neuroscience (09/95).

Parkinsons Disease Society – England (2007), extramural grant reviewer

NIH- Special session RTC grant review study section. 5/16/90-5/18/90.

NIH- Res & Training Center grants, reverse site visit. 06/20-22, 1990. Bethesda, MD.

NIH- Study Section CMS, October, 1991. Bethesda, MD.

NIH- Study Section-Chair. CMS-Sensory Physiology, 04/92. Bethesda, MD.

NIH- Study Section-Chair. Neurosci/Hearing Physiology, 11/92. Wash, DC.

NIH- Center Research Grant-Study Section. Neurosci/Speech Physiology, 01/95. New Haven, CT.

NIH- Center Research Grant-Study Sec-Spec Emphasis Panel. Neurosci/Speech Phys, 09/95. Wash, DC.

NIH-Cntr Res Grant-Study Section-Special Emphasis Panel. Neurosci/Speech Physiol, 02/96.

NIH-PPG-Study Section-Special Emphasis Panel. Sensory Neurosciences, 12/96. Wash, DC.

NIH- Study Section- R03. Speech Science, Nov 3, 1999. Wash, DC.

NIH- Study Section- K23. NINDS, June 19, 2002. Wash, DC.

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- Barlow SM - Coordinator: **NIRx fNIRS Workshop** Nov 30 – Dec 1, 2017 *Center for Brain, Biology, Behavior* and *SECD* [Barkley Trust]. University of Nebraska.
- Barlow SM, Wang YY. 2017. Design & develop a new NIRx functional near-infrared spectroscopy (fNIRS) brainresearch laboratory at CB3, space remodel/reinstrument rm B74.

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139. Barlow SM, Urish MM, Zimmerman EA, Poore M, Venkatesan L. (2010). Frequency modulation of the sCPG in preterm infants with RDS. *Pediatric Academic Society*, #753086, Vancouver, BC.
140. Barlow SM. (2010). Patterned Orocutaneous Stimulation Using NTrainer Drives Suck Development and Feeding Skills in Preterm Infants. *Cedar Sinai Medical Center – Neonatology*. Los Angeles, CA.
141. Barlow SM. (2010). Patterned Orocutaneous Stimulation Using NTrainer Drives Suck Development and Feeding Skills in Preterm Infants. *Kansas City Area Hospital Administrators*, Kansas City, KS.
142. Venkatesan L, Popescu M, Popescu A, Barlow SM. (2010). Cutaneous tactile inputs to human hand and lip induces short-term adaptation of the primary somatosensory cortex. *Society for Neuroscience*, 178.11. San Diego, CA.
143. Barlow SM, Zimmerman EA, Jegatheesan P, Govindaswami B, Weiss S, Sakumura A, Song D. (2011). aEEG Correlates of Patterned Orosensory Stimulation in Preterm Infants. *Pediatric Academic Society*, #1419.202.
144. Zimmerman EA, Barlow SM, Kieweg D, Wang J. (2011). Vestibular Stimulation Alters Sensorimotor Integration of the Respiratory and Orofacial Central Pattern Generators in Preterm Infants. *Pediatric Academic Society*, #3123.8.

145. Barlow SM. (2011). The Role of Interneurons in Pattern-Generating Networks During Feeding. Neonatal Feeding Club. *Pediatric Academic Society*. May 1st.
146. Chu S, Barlow SM, Lee J, Pahwa R, Lyons K. (2011). Perioral biomechanics, kinematics, and electrophysiology in Parkinson's disease. *6th International Speech Motor Conference, Groningen-Nijmegen, June 9-11*.
147. Chu, S Y., Barlow, S, Lee, J. (2011). Perioral biomechanics, kinematics, and electrophysiology in Parkinson's disease. *Stem-Spraak-en Taalpathologie*, Vol. 17, Supplement, pp. i-ii, p30. Nijmegen University Press.
148. Zimmerman E, Barlow SM, Kieweg D, Wang J, Lee J. (2011). Vestibular Stimulation Alters the Respiratory Central Pattern Generators in Preterm Infants. *American Speech-Language-Hearing Association*, #11495.
149. Barlow SM, Robbins J, Ramig L, Fu QJ. (2011). Bench-to-Bedside: Technology transfer in speech, swallowing, and hearing. *American Speech-Language-Hearing Association*, #11412.
150. Poore M, Barlow SM. (2011). Environmental catalysts of emergent canonical syllables. *American Speech-Language-Hearing Association*, #11519.
151. Loeb D, Barlow SM. (2011). Preterm Language Outcomes and Maternal Responsiveness. *American Speech-Language-Hearing Association*, #12221.
152. Plante E, Barlow SM, Souza P. (2011). Developing Scientific Collaborations. *ASHA Lessons for Success*, April 27-29, Gaithersburg, MD.
153. Plante E, Barlow SM. (2011). Mechanics of Grant Writing – NIH. *ASHA Lessons for Success*, April 27-29, Gaithersburg, MD.
154. Barlow SM. (2011). NTrainer Drives Suck Development and Feeding Skills in Preterm Infants. Invited session. *GE HealthCare & KC BioMedix*. Overland Park, KS. July 27.
155. Popescu M, Barlow SM, Popescu EA, Venkatesan L, Wang J. (2011). Dynamics of the evoked activity in primary and association somatosensory areas during sustained tactile hand stimulation in humans. *Society for Neuroscience*, 2011-S-6286-SfN, session 385.16 Nov 14 (Monday).
156. Barlow SM, Jegatheesan P, Govindaswami B, Weiss S, Venkatesan L, Song D. (2011). EEG correlates of patterned pneumatic oral stimulation in preterm infants. *Society for Neuroscience*, 2011-S-8653-SfN, session 385.21 /TT10 Nov 14 (Monday).
157. Barlow SM. (2011). Innovative sensorimotor therapies for better neurodevelopmental outcome. Invited session. *6th Annual Perinatal/Neonatal Conference*, Sobrato Center, San Jose, California. Nov 2-4.
158. Song D, Jegatheesan P, Weiss S, Govindaswami B, Conlan L, Griep J, Wang J, Barlow SM. (2011). EEG Correlates of Patterned Pneumatic Oral Stimulation in Preterm Infants. *HOT TOPICS in Neonatology*. Washington, DC.
159. Barlow SM, Jegatheesan P, Govindaswami B, Weiss S, Jagadeesh M, Sidel C, Song D. (2012). EEG Correlates of Patterned Pneumatic Oral Stimulation in Preterm Infants. *2nd Annual NANT Conference "Launching Best Practice for Neonatal Therapy."* Ft. Worth, TX [May 4-5]. Invited presentation.
160. Barlow SM. (2012). The potential role of sensory stimulation for refinement of cortical connectivity and neuroprotection. *Pediatric Academic Society*, 4/29, Boston MA.
161. Barlow SM. (2012). Chair: Neonatal Feeding Club. *Pediatric Academic Society*, 4/29, Boston MA.
162. Barlow SM, Lee J, Wang J, Oder A, Hall S, Knox K, Weatherstone K, & Thompson D. (2012). NNS development in preterm infants is dependent on the spectral content of patterned somatosensory inputs. *Pediatric Academic Society*, 4/29-5/1, Boston MA.
163. Song D, Jegatheesan P, Weiss S, Govindaswami B, Wang J, Lee J, Barlow SM. (2012). EEG correlates of patterned pneumatic oral stimulation in preterm infants. *Pediatric Academic Society*, session 4506.68 Neonatal Neurology, Boston MA.
164. Song D, Jegatheesan P, Weiss S, Govindaswami B, Wang J, Lee J, Barlow SM. (2012). EEG correlates of patterned pneumatic oral stimulation in preterm infants. Special scientific session. *National Assoc Neonatal Therapists*, Ft. Worth, TX.
165. Oder A, Wang J, & Barlow SM. (2012). Effects of Chemotactile Experience on Ororhythmic Patterning in Neurotypical Infants. *American Speech-Language-Hearing Association*, #7919, 423.
166. Williamson L, Wang J, & Barlow SM. (2012). Mapping Oral Feed Skill Attainment in Preterm Infants. *American Speech-Language-Hearing Association*, #8017, 453.
167. Barlow SM, Green J, Martin N, & Burkard R. (2012). Introduction to grant writing. Invited 2-hr session sponsored by the ASHA RSAC. *American Speech-Language-Hearing Association*, #SC18.

168. Imgrund CM, Loeb D, & Barlow SM. (2012). Directive Language Input and Caregiver Responsiveness to Preterm Toddlers. *American Speech-Language-Hearing Association*, #7827, 380.
169. Loeb D, Imgrund CM, & Barlow SM. (2012). Neurodevelopmental Outcomes of Preterm Infants at 30 months. *American Speech-Language-Hearing Association*, #7789, 382.
170. Loeb D, & Barlow SM. (2012). Maternal Responsiveness During Shared Book Interaction with Toddlers Born Preterm. *American Speech-Language-Hearing Association*, #7835, 389.
171. Venkatesan L, Barlow SM, Popescu M, Popescu A. (2012). Short-term adaptation in the human somatosensory cortical network due to repeated stimulation of the hand and face. 884.17. *Society for Neuroscience*. New Orleans, LA.
172. Song D, Jegatheesan P, Weiss S, Govindaswami B, Wang J, Lee J, Barlow SM. (2012). EEG correlates of patterned pneumatic oral stimulation in preterm infants. *7th International Conference on Brain Monitoring & Neuroprotection in the Newborn*, Tampa, FL [Sept 13-15].
173. Barlow SM, Lee J, Wang J, Oder A. (2012). Suck development in preterm infants is dependent on the spectral content of patterned somatosensory inputs. Invited Nanosymposium on *Oral Movements* at the 44th Annual meeting of the *Society for Neuroscience*, 14.05. New Orleans, LA
174. Barlow SM. (2012). Oral sensorimotor entrainment and neuroprotection in preterm infants. Invited presentation. *Boys Town National Research Hospital*, Omaha, Nebraska.
175. Barlow SM. (2013). The pitfalls to avoid when writing an NIH R-series grant. Pathways Conference – American Speech-Language-Hearing Association, funded by NIH. Rockville, MD. Feb 1-3.
176. Barlow SM. (2013). Chair: Neonatal Feeding Club. *Pediatric Academic Society*, 5/6/2013, Wash DC.
177. Barlow SM, Lee J, Wang J, Oder A, Hall S, Knox K, Weatherstone K, Thompson D. (2013). NNS Development in Preterm Infants is Dependent on the Spectral Content of Patterned Somatosensory Inputs, *Pediatric Academic Society*, #755861, publication #2922.281, Washington, DC.
178. Imgrund CM, Loeb D, & Barlow SM. (2013). Directive Language Input to Children Born Preterm and Full Term. *American Speech-Language-Hearing Association*. 10888
179. Loeb D, Imgrund CM, & Barlow SM. (2013). Responsiveness and Assertiveness of Toddlers Born Preterm with a History of Chronic Lung Disease. *American Speech-Language-Hearing Association*.
180. Barlow SM. (2013). Orocutaneous entrainment promotes oromotor development and electrocortical activity in preterm infants. Invited, *University of Nebraska*. April 19.
181. Custead R, Oh T, Oder A, Barlow SM. (2013). Adaptation of the cortical somatosensory evoked potential following pneumatic stimulation of the face in adults. *Society for Neuroscience*, 644.12723.
182. Barlow SM, Kosirog C, Hundley KB, and Kieweg D. (2014). Automatic adaptive single-interval up-down threshold tracking of vibrotactile stimuli in the face and hand of neurotypical adults. *2014 Conference on Motor Speech*, Sarasota, FL.
183. Custead R, Oh H, Lee J, Oder A, and Barlow SM. (2014). Adaptation of the cortical somatosensory evoked potential following pneumatic stimulation of the face in adults. *2014 Conference on Motor Speech*, Sarasota, FL.
184. Barlow SM. (2014). Chair: Neonatal Feeding Club. *Pediatric Academic Society*, May 2014, Vancouver.
185. Oder A, Custead R, Oh H, and Barlow SM. (2014). Hemodynamic changes in cortical sensorimotor systems following hand and orofacial motor tasks and pulse cutaneous stimulation. *Society for Functional Near Infrared Spectroscopy*, Oct 8-12, Montreal, Quebec Canada.
186. Loeb DF, Imgrund C, Barlow SM. (2014). Language abilities of infants born preterm to mothers with diabetes. *American Speech-Language-Hearing Association*.
187. Imgrund CM, Loeb DF, Barlow SM. (2014). When comprehension is weaker than production: Evidence from toddlers born preterm with chronic lung disease. *American Speech-Language-Hearing Association*.
188. Barlow SM. (2015). Chair: Neonatal Feeding Club. Neural network for swallowing in preterm infants. *Pediatric Academic Society*, April 27, 2015, San Diego.
189. Oder Rosner A, Barlow SM. (2015). Hemodynamic Changes in Sensorimotor Cortex following Hand and Orofacial Motor Tasks and Pulsed Cutaneous Stimulation. *American Speech-Language-Hearing Association*. 5570, *Technical platform*, Nov 13, 10:30am. Denver, CO.
190. Loeb DF, Imgrund CM, Freeman D, Gettino EM, & Barlow SM. (2015). Evaluation of language delay identification, intervention services, and Part-C criteria for children born preterm. *American Speech-Language-Hearing Association*. 8543, *poster 349*. Nov 13, 08:30am. Denver, CO.

191. Loeb DF, Budijardo C, Imgrund CM, & Barlow SM. (2015). Motor Skills and Speech Sound Abilities in Children Born Preterm. *American Speech-Language-Hearing Association*. 8142, poster 432. Nov 12, 1:30pm. Denver, CO. 2015 ASHA Award - Meritorious Scientific Poster Presentation.
192. Barlow SM. (2015). Invited, Satellite Symposium: Orofacial Neurophysiology, Feeding, Swallowing, *Society for Neuroscience*. Chicago, IL.
193. Oder Roser A, Barlow SM. (2015). Sensorimotor cortical hemodynamics following hand and orofacial motor tasks and pulsed cutaneous stimulation. *Society for Neuroscience*, Nanosymposium, Session 016, N226, Abstract 3638, Sat, Oct 17, 1:00pm. Chicago IL.
194. Oh H, Barlow SM. (2015). Saltatory pulsed TAC-Cell velocity array encoding in S1 and S2 to glabrous hand stimulation: fMRI study. *Society for Neuroscience*, Session 240, Abstract 8156. Sun, Oct 18, 1:00pm. Poster. Chicago IL.
195. Custead R, Oh H, Barlow SM. (2015). Saltatory pulsed TAC-Cell velocity array encoding in S1 and S2 to perioral stimulation: fMRI study. *Society for Neuroscience*, Nanosymposium, Session 016, N226, Abstract 8192, Sat, Oct 17, 1:00 pm. Chicago IL.
196. Barlow SM. (2015). Invited. Developing a Successful Research Career. *ASHA-NIH 2015 Pathways Conference*, Rockville, MD June 17-20.
197. Barlow SM. (2015). Invited. CPRI-ASHA. Boston University, Boston, MA. Aug 5-7.
198. Barlow SM. (2015). Invited Session Chair. *Educational Neuroscience Conference*, University of Nebraska.
199. Barlow SM, Adams-Chapman I, Song D. (2016). Critical Periods for Development of Oral Feeding in Preterm Infants and Neurodevelopmental Outcomes. *Pediatric Academic Society*, Baltimore.
200. Barlow SM. (2016). Chair: Neonatal Feeding Club. Neurodevelopmental outcomes among infants born preterm. *Pediatric Academic Society*, Baltimore.
201. Barlow SM. (2016). Invited. Neural Control of Sucking-Feeding in Preterm Infants. *California Association of Neonatologists and AAP Section on Neonatal-Perinatal Medicine*. *Cool Topics in Neonatology*. 22nd Annual Conference. March 4-6, Coronado, California.
202. Barlow SM, Oh H, Rosner A, Custead R, Krug C, Scarborough AJ. (2016). BrainStorm: Sunday with a Scientist. Morrill Hall, University of Nebraska, 3-13-16, 1:30-4:30pm.
203. Barlow SM. (2016). Optimizing Somatosensory Patterns and Motor Activity for Neurotherapeutic Change Across the Lifespan. Invited lecture. 2016 Nebraska Speech-Language-Hearing Association Fall Convention. September 15-16, 2016, Cornhusker Marriott in Lincoln, Nebraska
204. Barlow SM, Kent R. (2016). Invited. Developing a Successful Programmatic Research Career. *ASHA-NIH 2016 Pathways Conference*, Rockville, MD June 13-14.
205. Imgrund CM, Barlow SM. (2016). Language outcomes of children born preterm: Results from standardized assessment and language sample analysis *American Speech-Language-Hearing Association*. Nov 19, Philadelphia, PA. 9:30AM: Session 9146, Poster 440.
206. Loeb D, Barlow SM. (2016). Parental Speech, Language, and Attention Concerns of Children Born Preterm. *American Speech-Language-Hearing Association*. Nov 18, Philadelphia, PA. 9:00AM: Session 8552 Poster Board 338
207. Oh H, Wang Y, Custead R., Barlow SM. (2016). Brain encoding of saltatory velocity-scaled somatosensory array in glabrous hand among neurotypical adults. *Society for Neuroscience*, Session 151, abstract 4996, Nov 13_2016, 8:00a-12:00pm, San Diego, CA.
208. Custead R, Oh H, Wang Y, Barlow SM. (2016). Brain encoding of stimulus velocity within a saltatory pneumotactile array in the human perioral somatosensory system using fMRI. *Society for Neuroscience*, Session 618, abstract 5040, Nov 15_2016, 1:00-5:00pm, San Diego, CA.
209. Thrailkill E, Hage B, Alwataban M, Scarborough AJ, Greenwood J, Barlow SM, Bashford G. (2016). Cerebral hemodynamic responses to saltatory pneumotactile somatosensory stimulation. *Institutional Development Award Program (IDeA) Networks of Biomedical Research Excellence (INBRE)*, University of Nebraska, Lincoln NE.
210. Barlow SM. (2016). GALILEO somatosensory arrays and functional imaging of human brain. Center for Brain, Biology, and Behavior. *Nebraska Young Alumni Academy*. Invited presentation.
211. Barlow SM. (2016). ForceWIN10: Emerging Application in Cerebrovascular Stroke. *NUtech Board of Directors*. Nov-18-16. Invited presentation.
212. Barlow SM. (2017). Chair: NEONATAL FEEDING CLUB: (1) Oral Feeding Monitoring Approaches in Support of Preterm Infants' *Individualized* Management Plan (Chantal Lau), and (2) The _(RNA) Sequence of Events:

- Using Advanced Genetic Platforms to Uncover Disruptive Developmental Pathways Affecting Oral Feeding Success in the Newborn (Jill Maron). *Pediatric Academic Society*, 5/8/17 1:00p-2:30p. San Francisco, CA.
213. Barlow SM. (2017). Critical sensory periods for sCPG formation in extremely preterm infants. *Pediatric Academic Society*, 5/8/17 San Francisco, CA.
 214. Hage B, Thrailkill E, Alwataban M, Scarborough A, Greenwood J, Barlow SM, Bashford G. (2017). Cerebral Hemodynamic Responses to Saltatory Pneumotactile Somatosensory Stimulation Measured using Transcranial Doppler Ultrasound, *American Institute of Ultrasound in Medicine (AIUM)*. Tampa, FL.
 215. Hage B, Thrailkill E, Alwataban M, Barlow SM, Bashford G. (2017). Functional transcranial Doppler ultrasound to measure lateralization of cerebral hemodynamics in response to saltatory pneumotactile somatosensory stimulation, *American Institute of Ultrasound in Medicine (AIUM)*. Tampa, FL.
 216. Liao C, Rosner A, Maron J & Barlow SM. (2017). Automatic Non-nutritive Suck Waveform Discriminator and Dynamic Feature Extraction in Preterm Infants. Neonatal Neurology: Preterm Newborns, *Pediatric Academic Society*, San Francisco, CA. Session Date/Time: May 8, 2017 (4:15 -7:30 PM), 3853.12 – Board 555.
 217. Barlow SM. (2017). Invited: The Role of Pulsed Somatosensory Stimulation in Motor Rehabilitation Across the Lifespan: Human Preterm and Adult Models. Department of Biomedical Sciences, *Creighton University*, 5-2-17.
 218. Thrailkill E, Hage B, Alwataban M, Scarborough AJ, Greenwood, Barlow SM, Bashford G. (2017). Cerebral Hemodynamic Responses to Saltatory Pneumotactile Somatosensory Stimulation Measured using Transcranial Doppler Ultrasound. 127th NAS Annual Spring Meeting – Session B, Olin 112, April 21, 2017 *Wesleyan University, Nebraska Academy of Science*, 2017.
 219. Barlow SM. (2017). Optimizing Somatosensory Patterns and Motor Activity for Neurotherapeutic Change Across the Lifespan. Center for Brain, Biology, and Behavior: University of Nebraska. *Nebraska Young Alumni Academy*. Invited keynote science presentation.
 220. Barlow SM, Kent R. (2017). Invited. Developing a Successful Programmatic Research Career. *ASHA-NIH 2017 Pathways Conference*, Rockville, MD June 12-13.
 221. Chu SY, Lee J, Wang J, Barlow SM. (2017). Dissolution of perioral muscle reciprocity in Parkinson’s disease. Proposal ID:10863. Topic Area:Motor Speech Disorders. *American Speech-Language-Hearing Association*, Session Number: 9073 Poster Board 365, 11-11-17, Los Angeles, CA.
 222. Imgrund C, Loeb D, Barlow SM. (2017). Language outcomes of children born preterm: Considering both standardized assessment and language sample analysis. *American Speech-Language-Hearing Association*, Session Number: 8353 Poster Board 668, 11-9-17, Los Angeles, CA.
 223. Loeb D, Barlow SM. (2017). Parental Concern and Risk Factors Associated with the Communication Skills of Children Born Preterm. *American Speech-Language-Hearing Association*, Session Number: 8250 Poster Board 565, 11-9-17, Los Angeles, CA.
 224. Evert A, Loeb D, Imgrund C, Barlow SM. (2017). Parental Concern and the Risk Factors Associated with the Communication Skills of Children Born Preterm. *Nebraska Speech-Language-Hearing Association*, 9-14-17, Lincoln NE.
 225. Loeb D, Bigley J, Imgrund CM, Barlow SM. (2017). Early Developmental Milestones of Children Born Preterm. *American Speech-Language-Hearing Association*, Session Number: 8052 Poster Board 367, 11-9-17, Los Angeles, CA.
 226. Jung K, Oh H, Lee J, & Barlow SM. (2017). An Efficient Modeling Approach for Brain Connectivity Analysis of Saltatory Pneumotactile Velocity Stimulus. *Society for Neuroscience*, Session 346, abstract 13045, Washington, DC.
 227. Thrailkill E, Hage B, Alwataban M, Scarborough AJ, Greenwood J, Barlow SM, Bashford G. (2017). Cerebral hemodynamic responses to pneumotactile stimulation of the hand measured using Transcranial Doppler Ultrasound. UNL NIH-INBRE Summer Meeting.
 228. Barlow SM. (2018). Invited Speaker. State of research initiatives in neurogenic speech disorders. NIH NIDCD workshop Motor Disorders. May 30.
 229. Barlow SM & Bashford GR. (2018). Invited Keynote Speaker. Current Concepts in Stroke Prevention, Acute Care and Rehabilitation. *Dynamically-pulsed Pneumotactile Velocity Arrays to Modulate Brain Hemodynamics and MCA Blood Flow Velocity in Humans*. April 20, 2018. Clarkson, the Storz Pavilion. Sponsored by the The Medical Student Chapter of the American Association for Neurological Surgeons, University of Nebraska Medical Center.

230. Barlow SM. (2018). Invited Keynote Speaker. Forward Thinking in the Speech & Language Sciences: A Panel Presentation & Discussion. *American Speech-Language-Hearing Association*, Session Number 1037 Nov 15. 10:15a-12:15p, Boston.
231. Imgrund CM, Loeb D, Barlow SM. (2018). Longitudinal language outcomes of children born preterm at 30 months and four years of age. *American Speech-Language-Hearing Association*, Session Number 7713 Poster Board 539, Nov 16, 1:00p-2:30p, Boston, MA.
232. Ochoa M, Liao C, Marquez A, Rosner AO, Barlow SM. (2018). Automatic Feature Discrimination of Non-nutritive Suck Dynamics Among Extremely Preterm Infants. *American Speech-Language-Hearing Association*, Session Number 7802 Poster Board 628, Nov 16, 2:30p-4:00p, Boston, MA.
233. Marquez A, Liao C, Ochoa M, Rosner AO, Barlow SM. (2018). Non-nutritive Suck Pattern Stability in Extremely Premature Infants as a Function of Pulmonary Status. *American Speech-Language-Hearing Association*, Session Number 8135 Poster Board 549, Nov 17, 11:30a-1:00p. Boston, MA.
234. Loeb DF, Imgrund CM, Lee J, Barlow SM. (2018). Language, Cognitive, and Motor Outcomes in Children Born Preterm. *American Speech-Language-Hearing Association*, Session Number 8029 Poster Board 443, 10:00a-11:30a, Nov 17, Boston, MA.
235. Barlow SM. (2018). Invited keynote. Beating cerebrovascular stroke: The right time for touch. Nebraska NIH Jumpstart, UNL Memorial Union – Ballroom. 5-1-18.
236. Greenwood J, Hozan M, Sullivan M, Barlow SM. (2018). Cortical fNIRS hemodynamics during saltatory pneumotactile glabrous hand stimulation in neurotypical adults. *Society for Neuroscience*, Session 392, abstract 13050, 2018-S-13050-SfN, Nov 5 @ 1pm, San Diego, CA.
237. Hozan M, Greenwood J, Sullivan M, Barlow SM. (2018). An fNIRS study of sensorimotor cortical hemodynamics in hand motor tasks coupled with pneumotactile stimulation at different traverse velocities. *Society for Neuroscience*, Session 671, abstract 9846, 2018-S-9846-SfN, Nov 7 @ 8am, San Diego, CA.
238. Barlow SM. (2018). Chair: NEONATAL FEEDING CLUB: Relational Dynamics of Oral Feeding with Respiratory Support (Abrosimova M, Hasan S), Neonatal Salivary Transcriptomics (Rosner A, et al.), and Vocalization Development (Zimmerman E), Session 2535, 5-6-18, 1:15pm-2:45pm. *Pediatric Academic Society*. Toronto, CANADA.
239. Barlow SM. (2018). Hierarchical cluster analysis and feature detection of ororhythmic central patterning in extremely preterm infants. *Pediatric Academic Society*. Toronto, CANADA.
240. Rosner AOI, Maron JL, Song D, Jegatheesan P, Govindaswami B, Wilson BJ, Barlow SM. (2018). Using salivary profiles to better understand preterm infants' response to orocutaneous NTrainer therapy. *Pediatric Academic Society*. Session 2535, 5-6-18, 1:45pm-2:05pm. Toronto, CANADA.
241. Barlow SM, Wang YY, Fatima Sibaii, Avantika Mathur, Cristal Franco-Granados. (2018). Biobehavioral and Neuroimaging Survey of Human Brain Dynamics and Digital Signal Processing. Raikes School of Design & Engineering. Nebraska High School Computer Science & Engineering Honors Summer Camp. Center for Brain, Biology, and Behavior: University of Nebraska. July 12, 2018 4:00-5:00pm.
242. Barlow SM, Wang YY, Jake Greenwood. (2018). Biobehavioral and fMRI and fNIRS Neuroimaging Survey of Human Brain Dynamics and Digital Signal Processing. Midwest Engineering Entrepreneur Network. NUtech Innovation. Center for Brain, Biology, and Behavior: University of Nebraska. Aug 9, 2018 2:15-3:00pm.
243. Wang YY, Barlow SM, Jake Greenwood. (2018). Biobehavioral and fMRI and fNIRS Neuroimaging Survey of Human Brain Dynamics and Digital Signal Processing. Biological Systems Engineering BSEN 101 presentation and tour. Center for Brain, Biology, and Behavior: University of Nebraska. Sept 25, 2018 2:00-3:15pm.
244. James D, Hage B, Greenwood J, Barlow SM, Bashford G. (2018). Cerebrovascular Impulse Response to Tactile Somatosensory and Motor Stimulation measured with fTCD. *Biomedical Engineering Society (BMES) 2018 Annual Meeting*. Submission ID: #4120, Oct 17-20, 2018 in Atlanta, Georgia.
245. Barlow SM, Nelson J, Lorenz T, Calvi J, Neta M, Dodd M, Rodriguez A. (2018). Univ of Nebraska CB3 Tour for State of Nebraska Legislature Tour. fNIRS Laboratory demonstration: Jake Greenwood, Mohsen Hozan, Elizabeth, Steven Barlow. Nov 30, 2018. 1:00-2:45pm.
246. Barlow SM. (2019), (Chair). Emily Zimmerman (Co-Chair): NEONATAL FEEDING CLUB: Suck-Swallow-Breath Development During Nonnutritive Suck in Newborn Infants 4-28-19, 1:15pm-2:45pm. Abstract Session #312452. *Pediatric Academic Society*. Baltimore, MD. : “Neonatal Feeding Club: I. Infant Feeding Skills as a Biomarker of Communication Abilities. II. Suck-Swallow-Breath Development During Nonnutritive

Suck in Newborn Infants.” Session Proposal Id: 312452. Session Date: Sunday 4/28/2019

Session Time: 1:15 PM - 2:45 PM

247. Chu SY, Barlow SM, Lee J, Wang J. (2019). Rate and Utterance Length on Lip Pattern Variability in Parkinson’s disease. 31st International Association of Logopedics and Phoniatrics Congress, <http://www.ialptaipei2019.org/abstracts.asp>, Taipei, Taiwan.
248. Chu, SY, Barlow, SM, Lee, J, Ben-David, B., Lim, KX., Foong JH. (2019). Oral-Diadochokinetic Rates for Healthy Malaysian-Mandarin Speakers. The 31st International Association of Logopedics and Phoniatrics Congress, <http://www.ialptaipei2019.org/abstracts.asp>. Aug 18-22, Taipei. [Oral presentation].
249. Barlow SM. (2019). Invited presentation and recipient of the 2019 Callier Prize in Research. *Translating Speech Physiology to Neurotherapeutics Across the Lifespan*. 4-17-19, University of Texas, Callier Center, Dallas TX.
250. Wang Y, Sibaii F, Oh H, Barlow SM. (2019). Functional connectivity evoked by saltatory pneumotactile stimuli on the glabrous hand. *Human Brain Mapping*.
251. Chu SY, Barlow SM, Lee J, Wang J. (2019). The effect of speech rate on lip kinematics in Parkinson’s disease. 5th World Parkinson Congress (June 4-7, 2019), <https://wpc2019.org/page/Abstract>, ID:1230.
252. Loeb D, Johnson L, Imgrund CM, Lee J, Barlow SM. (2019). Feeding and Swallowing Difficulties of Children Born Preterm. *American Speech-Language-Hearing Association*, Session Number: Poster Board, Orlando, FL.
253. Barlow SM. (2019). Invited. Developing a Successful Programmatic Research Career. *ASHA-NIH 2019 Pathways Conference*, Rockville, MD June 17-18.
254. Barlow SM. (2019). Invited. Somatosensory Modulation of Rhythmic Oromotor Patterns in Preterm Infants. 7th Shanghai Neonatal Forum, Shanghai, China, June 12-15.
255. Hozan M, Greenwood J, Barlow SM. (2019). Cerebral fNIRS Hemodynamic Response Encodes the Velocity of Patterned Tactile Stimuli. *Society for Neuroscience*. 2019-S-10323-SfN.
256. Wang Y, Sibaii F, Custead R, Oh H, Barlow SM. (2019). Functional brain connectivity during orofacial pneumotactile stimulation: an fMRI study. Invited paper to *Society for Neuroscience*.
257. Evert A, Greenwood J, Barlow SM, Harvey J. (2019). Pediatric congenital unilateral facial nerve palsy: Treatment considerations. Nebraska Speech-Language-Hearing Association convention, Omaha, NE, October.
258. Barlow SM. (2019). Somatosensory-modulated Hemodynamics: Towards Neuroprotection in Humans. Invited, *Boys Town National Research Hospital*, Omaha, NE. Dec 19, 2019.
259. Hoffman E, Lee J., Greenwood J, **Barlow SM**. (2020). Perioral and Digit Vibrotactile Threshold Estimation in Neurotypical Children. *Motor Speech Conference*, Santa Barbara, CA. February 2020.
260. Greenwood J, **Barlow SM**. (2020). pTACS: A New Platform for Neurotherapeutics and Neuroprotection in Large Vessel Ischemic Stroke. *Motor Speech Conference*, Santa Barbara, CA. February 2020.
261. Wang Y, Sibaii F, Custead R, Oh H, **Barlow SM**. (2020). Functional brain connectivity during orofacial pneumotactile stimulation: an fMRI study. *Motor Speech Conference*, Santa Barbara, CA. February 2020.
262. Hoffman E, Hozan M, Lee J, Greenwood J, **Barlow SM**. (2020). Orofacial and Digit Force Dynamics in Neurotypical Children. *Motor Speech Conference*, Santa Barbara, CA. February 2020.
263. **Barlow SM**, Lee J, Custead R, Hozan M, Greenwood J. (2020). Orofacial and Digit Force Dynamics in Chronic MCA Ischemic Stroke. *Motor Speech Conference*, Santa Barbara, CA. February 2020.
264. **Barlow SM**. (2020), (Chair). Emily Zimmerman (Co-Chair): (ID#: 346094) NEONATAL FEEDING CLUB: (1) Elucidating Feeding Correlates Among Healthy Non-Dysphagic Infants to Guide Diagnostic Thresholds and Aspiration Risks, and (2) Factors Related to Problematic Feeding in the First 7 Months of Life. *Pediatric Academic Society (International)*. Philadelphia, PA. May 3, 7:30-9:00am, Pennsylvania Convention Center, CC 109, Session ID: 346094. CME Compliance, Baylor College of Medicine.
265. B. Hage, J. Greenwood, S. M. **Barlow** & G. R. Bashford. (2020). Using transcranial Doppler ultrasound to measure effectiveness of a novel treatment on a population of stroke victims, UNL College of Engineering Graduate Student Symposium, Feb. 2020.
266. B. Hage, J. Greenwood, S. M. **Barlow** & G. R. Bashford. (2020). Using transcranial Doppler ultrasound to measure effectiveness of a novel treatment on a population of stroke victims, UNL Spring Research Fair.
267. Hoffman E, Lee J., Greenwood J, **Barlow SM**. (2020). Perioral and Digit Vibrotactile Threshold Estimation in Neurotypical Children. *2020 CYFS Summit on Research in Early Childhood*, April 29 2020
268. Hoffman E, Hozan M, Lee J, Greenwood J, **Barlow SM**. (2020). Orofacial and Digit Force Dynamics in Neurotypical Children. *2020 CYFS Summit on Research in Early Childhood*, April 29 2020.

269. Chu SY, Gan KB, Lee J, **Barlow SM**, Rogayah AR. (2020). Sentence complexity factors in speech performance during dual-task. 13th Allied Health Scientific Conference 2020. Embracing New Frontiers in Healthcare Reform. Putrajaya, Malaysia, June 24-25.
270. **Barlow SM**. (2020). 20/20 Vision for Research & Creativity: CEHS and *beyond*. *College of Education and Human Sciences*. University of Nebraska. 2-28-20.
271. **Barlow SM**. (2020). The Somatosensory Brain and Neurotherapeutic Applications using Pulsed Pneumotactile Stimulation. Research Seminar. *American Speech-Language-Hearing Association*, Session Number: 12364. San Diego, CA. Proposal accepted at the Annual Convention of the American Speech-Language-Hearing Association, San Diego, CA (Convention canceled).
272. Barlow SM. (2020). Invited. Crafting a Programmatic Line of Research. *ASHA-NIH 2020 Virtual Pathways Conference*, Rockville, MD. June 17-18.
273. Max L, & **Barlow SM**. (2020). Co-Chairs. Novel Approaches to Sensory Testing and Stimulation in the Field of Communication Sciences and Disorders Research Seminar. Submission/Proposal Number: 12364. *American Speech-Language-Hearing Association*, San Diego, CA. Annual Convention of the American Speech-Language-Hearing Association, San Diego, CA (peer-reviewed proposal accepted, Convention canceled due to COVID).
274. Foong, JH, Chu, SY, Lee, J, Ben-David, B, Hsu, C, & **Barlow, SM**. (2020). Oral-DDK Rates in Malaysian-Malay speakers. *Global Health Sciences Conference*, December 12, Malaysia, online oral video presentation.
275. Chu, SY, Lee, J, **Barlow, SM**, Ben-David, B., Lim, KX., Foong, JH. Oral-DDK:MALMAN: Assessment Protocol for Speech Therapist. *Invention, Innovation, & Design Exposition (iindex 2020)*. Online. link: HTTPS://DRIVE.GOOGLE.COM/FILE/D/1RWC5GCAXGNICEOCZGU8XX3SHSU_VB2ET/VIEW?USP=SHARING
276. **Barlow SM**. (2021). Invited Keynote Presentation. Mechanosensation: Assessment, Functional Neural Networks, and Therapeutic Applications in Shaping Motor Behavior. *2021 Boston Motor Control Symposium*, June 18, 2021.
277. **Barlow SM & Vojtek J**. (2021). Advanced instrumentation in Speech Physiology Research. Workshop #3. *2021 Boston Motor Control Symposium*, June 18, 2021.
278. **Barlow SM**. (2021), (Chair). Emily Zimmerman (Co-Chair): (ID#: XXX) NEONATAL FEEDING CLUB: (1) Elucidating Feeding Correlates Among Healthy Non-Dysphagic Infants to Guide Diagnostic Thresholds and Aspiration Risks [Dr. Katlyn McGrattan – U Minnesota], and (2) Factors Related to Problematic Feeding in the First 7 Months of Life [Dr. Britt Pados – Boston College]. *Pediatric Academic Society*. May 2021 Virtual Meeting: Phase II. CME Compliance, Baylor College of Medicine. Course Number: 510-6-CL-L, May 10, 2021 from 1:00PM to 3:00PM.
279. **Barlow SM**, Liao C, Maron JL, Song D, Jegatheesan P, Govindaswami B, Wilson BJ, Bhakta K, Cleary JP, Lee J. (2021). Progressive Two-stage Pulsed Pneumotactile Oral Stimulation During Tube Feeding Drives Non-nutritive Suck Development in Extremely Preterm Infants. *Pediatric Academic Society*. May 2021 Virtual Meeting: Phase I. CME Compliance, Baylor College of Medicine. Platform presentation, May 4, 2021, 5:40 PM to 5:50 PM.
280. Maron JL, **Barlow SM**. (2021). Somatosensory Modulation of Salivary Gene Expression and Oral Feeding in Preterm Infants: Randomized Controlled Trial [R01HD086088]. *Interim analyses*. Invited presentation to the National Institute Child Human Development (NICHD), February 8, 2021.
281. 2021 EAC Annual Meeting. NIH IDeA Center for Biomedical Research Excellence (5 P20 GM109023-08), Project 11 (AuBuchon, McCreery, Conway, **Barlow**), 10:40-11:20am, May 25, 2021.
282. **Barlow SM**. (2021). Invited Presentation. Boston University Speech, Language, Hearing Sciences Lecture Series. FALL 2021.
283. Bashford GR, Hage B, **Barlow SM**. (2021) [*Invited*] Real-time monitoring of the cerebrovascular system by transcranial Doppler ultrasound. Oregon Health & Science University Biomedical Engineering Seminar Series, Portland, OR, 10/1/2021.
284. **Barlow SM**. (2022). (Chair, speaker). Emily Zimmerman (Co-Chair, speaker): Jill Maron (invited speaker) (ID# 1143677) NEONATAL FEEDING CLUB: *Pediatric Academic Society*. CME Compliance, Baylor College of Medicine. Session ID: 1143677. Session Title: Neonatal Feeding Club: Developmental Maturation of Oral Feeding in the Extremely Low GA Newborn: From A (Appetite) to Z (Zygomatic Arch). Session Date: Sunday April 24, 2022. Session Time: 6:30 AM - 8:00 AM

285. **Barlow SM.** (2022). Neonatal Feeding Club: Somatosensory-modulated ororythmic patterning and transition to oral feeds in EPIs: NIH RCT data. Session Date: Sunday April 24, 2022. Session Time: 6:30 AM – 6:40 AM
286. Hage B, James D, **Barlow SM**, Bashford G. (2022). Effect of Somatosensory and Active Motor Stimulation on CBFV Response. *The American Society of Neuroimaging*. ASN/NNP Joint Annual Meeting.
287. **Barlow SM**, Weissling K, Harvey J, Greenwood J, Bashford G. (2022). ForceWIN and Galileo: Translational applications in stroke rehabilitation. *American Heart Association*, May 4, 2022.
288. Wang Y, Custead R, Oh H, **Barlow SM.** (2022). Dynamic Causal Modeling of Neural Responses to an Orofacial Pneumotactile Velocity Array. *Human Brain Mapping*, 3189, *Virtual poster presentations: June 7 - June 8 (two time zone blocks), *In-person poster presentations: June 19 - June 23, Glasgow, Scotland.
289. **Barlow SM.** (2022). Invited presentation. Crafting a Successful Programmatic Research Career. *ASHA-NIH 2022 Pathways Conference*, Rockville, MD June 13-15.
290. **Barlow SM, Maron JL, Song D, et al.** (2022). Somatosensory-Modulated Non-nutritive Suck Dynamics, Transition to Oral Feeds, and Gene Expression in Extremely Preterm Infants. NSLHA 2022 Convention. October 15. Nebraska Innovation Campus.
291. **Barlow SM**, Custead R, Lee J, Hozan M, Greenwood J, Sandfort E. (2022). Wireless Sensing of Lower Lip and Digit ‘Ramp-and-Hold’ Isometric Force Dynamics in Neurotypical Children and Adults, and Unilateral MCA Ischemic Stroke. NSLHA 2022 state convention. October 14-15. Nebraska Innovation Campus.
292. **Barlow SM**, Maron JL, Song D, Jegatheesan P, Govindaswami B, Wilson BJ, Bhakta K, Cleary J, Lee J. (2023). Somatosensory-Modulated Ororythmic Patterning and Transition to Oral Feeds in EPIs: an NIH Randomized Controlled Trial. Invited platform presentation to *Global Summit on Nursing Trends 2023: Developments and Challenges in Nursing Science and Healthcare*. Rome, Italy, April 10-11.
293. **Barlow SM**, Maron JL, Song D, Jegatheesan P, Govindaswami B, Wilson BJ, Bhakta K, Cleary J, Lee J. (2023). Somatosensory-Modulated Suck Dynamics, Transition to Oral Feeds, and Gene Expression in Extremely Preterm Infants. Invited keynote: *California Association of Neonatologists (CAN)*, Coronado, San Diego, March 3-5, 2023. Session#6 (Neuroprotection and Neonatal Sensory Development, 3/5, 10:20-12:00 platform presentation, 12:00-12:40 Q&A).
294. **Barlow SM.** (2023). (Chair, speaker). **Emily Zimmerman** (Co-Chair, speaker): **Pamela Dodrill, PhD** (invited speaker) (ID# 1353517) Neonatal Feeding Club: The importance of tracking functional feeding outcomes in the newborn period and throughout childhood. *Pediatric Academic Society*. CME Compliance, Baylor College of Medicine. Friday, April 28 - Monday, May 1. Session Time: (Final time released in mid-January 2023). Washington, DC.
295. **Barlow SM.** (2023). Neonatal Feeding Club: The importance of tracking functional feeding outcomes in the newborn period and throughout childhood. *Pediatric Academic Society*. CME Compliance, Baylor College of Medicine. Dr. Barlow **Presentation**: An examination of biomechanical sucking data and oral feeding outcomes. Submission ID 1353517. Session Date: Friday, April 28 - Monday, May 1. Session Time: (Final time released in mid-January 2023). Washington, DC.
296. Christopher Engsborg, Alexia Rains, Takashi Sado, Yingying Wang, **Steven Barlow & Mukul Mukherjee.** (2023). The Effect of Gait-like Plantar Stimulation During Walking. *American Physiology Summit*.
- 297.

PUBLICATIONS

1. Hunker, C.J., Abbs, J.H., & Barlow, S.M. (1982). The relationship between parkinson rigidity and hypokinesia in the orofacial system: a quantitative analysis. *Neurology*, 32, 755-761. PMID: 7201112
2. Abbs, J.H., Hunker, C., & Barlow, S.M. (1983). Differential speech motor subsystem impairments in subjects with suprabulbar lesions: Neurological framework and supporting data. In W. Berry (Ed.), *Clinical Dysarthria*. College-Hill Press, 21-56.
3. Barlow, S.M., Cole, K.J., & Abbs, J.H. (1983). A new headmounted lip-jaw movement transduction system for the study of motor speech disorders. *J Speech Hearing Research*, 26 (2), 283-288. PMID: 6887815
4. Barlow, S.M., & Abbs, J.H. (1983). Force transducers for the evaluation of labial, lingual and mandibular function in dysarthria. *J Speech Hearing Research*, 26, 616-621. PMID: 6366372
5. Barlow, S.M., & Abbs, J.H. (1984). Orofacial fine motor control impairments in congenital spasticity: Evidence against hypertonus related performance deficits. *Neurology*, 34, 145-150. PMID: 6538001
6. Barlow, S.M., & Rath, E.M. (1985). Maximum voluntary contraction levels in the upper and lower lip of humans. *J Speech Hearing Research*, 28, 373-376. PMID: 4046578

7. Barlow, S.M., & Netsell, R. (1986). Differential fine force control of the upper and lower lips. *J Speech Hearing Research*, 29, 163-169. PMID: 3724110
8. Barlow, S.M., & Abbs, J.H. (1986). Fine force and position control of select orofacial structures in the Upper Motor Neuron Syndrome. *Exp Neurology*, 94, 699-713. PMID: 3780915
9. Barlow SM, Netsell R & Hunker C. (1986). Phonatory disorders associated with CNS lesion. In C. Cummings, J. Fredrickson, L. Harker, C. Krause, D. Schuller (Eds.), *Otolaryngolog -Head and Neck Surgery*. St. Louis: Mosby, 2087-2093.
10. Barlow SM. (1987). Mechanical frequency detection thresholds in the human face. *Exp Neurology*, 96, 253-261. PMID: 3569454
11. Barlow SM & Creutz T. (1988) High-speed data acquisition systems for physiological studies of the perioral system in humans. *Proc 34th NASA Int Instrumentation Symposium*. ISA, Research Triangle, North Carolina. 34: 397-406.
12. Barlow, S.M. (1988) Relation between probe configuration and the mechanically evoked perioral reflex. *Soc Neuroscience* 14: 1304.
13. Barlow, S.M. and Farley, G. (1989) Neurophysiology of Speech. In D. Kuehn, M. Lemme, and J. Baumgartner (Eds.), *Neural Bases of Speech, Language and Hearing*. Boston: Little, Brown and Company, 146-200.
14. Netsell, R., Lotz, W.K., & Barlow, S.M. (1989) A speech physiology examination for individuals with dysarthria. In *Recent Advances in Clinical Dysarthria*. Boston: College-Hill Press, 3-38.
15. Barlow, S.M., & Netsell, R. (1989) Clinical neurophysiology and the dysarthrias. In *Recent Advances in Clinical Dysarthria*. Boston: College Hill Press, 53-82.
16. Barlow, S.M. (1989) High-speed data acquisition control systems for speech physiology. In *Recent Advances in Clinical Dysarthria*. Boston: College Hill Press, 39-52.
17. Barlow, S.M., Suing, G., Grossman, A., Colbert, R., and Bodmer, P. (1989) A high-speed data acquisition and protocol control system for vocal tract physiology. *J Voice*, 3(4), 283-293.
18. Barlow SM & Burton M. (1990). Ramp-and-hold force control in the upper and lower lips: Developing new neuromotor assessment applications in traumatically brain injured adults. *J Speech Hearing Res* 33: 660-675. PMID: 2273882
19. Barlow, S.M., & Muller, E.M. (1991). The relation between interangle span and in vivo resultant force in the perioral musculature. *J Speech Hearing Research* 34: 252-259. PMID: 2046349
20. Barlow S. (1991). Modulation of mechanically evoked perioral reflexes during active force. *Brain Res* 565, 330-336. PMID: 1842699
21. Netsell, R., Lotz, W., DuChane, A., & Barlow, S.M. (1991). Vocal tract aerodynamics during syllable productions: normative data and theoretical implications. *J Voice* 5: 1-9.
22. Barlow, S.M., & Suing, G. (1991). AEROSPEECH: An automated aerodynamics program for clinical speech physiology. *J Computer Users Speech Hearing Research* 7(2) 211-227.
23. Barlow, S.M. & Suing, G. (1991). FORCE: An automated orofacial force analysis program for clinical speech physiology and neurology. *J Computer Users Speech Hearing Research* 7(2) 228-250.
24. Farley, G., Barlow, S.M., Netsell, R., & Chmelka, J. (1992). Vocalizations in the cat: Behavioral methodology and spectrographic analysis. *Exp Brain Research* 89:333-340. PMID: 1623977
25. Farley, G., Barlow, S.M., & Netsell, R. (1992). Factors influencing unit activity in parabrachial regions during cat vocalizations. *Exp Brain Research* 89:341-351. PMID: 1623978
26. Barlow, S.M. (1992). Prospects for neurophysiological approaches to the study of speech intelligibility. Intelligibility in Speech Disorders: Theory, Measurement and Management, (Ray Kent - Editor), John Benjamins Publishing Company. 329-361.
27. Barlow, S.M. & Bradford, P.T. (1992) Measurement and implications of orofacial muscle performance in speech disorders. *J Human Muscle Performance*, 1, 1-31.
28. Barlow, S.M. (1992) Recent advances in clinical speech physiology. Monograph Proceedings on the Assessment of Speech and Voice Production: Basic Research and Clinical Applications. National Institutes of Health - NIDCD. Bethesda. 1: 183-195.
29. Barlow, S.M., Finan, D., Bradford, P.T., & Andreatta, R. (1992). Mechanically evoked perioral reflexes in infants, children, and adults. *Soc Neuroscience*, 18.
30. Barlow, S.M., Finan, D.S. & Rowland, S.G. (1992). Mechanically evoked perioral reflexes in infants. *Brain Research*, 599, 158-160. PMID: 1493544
31. Barlow, S.M., Finan, D., Bradford, P.T., & Andreatta, R. (1993). Transitional properties of the mechanically evoked perioral reflex from infancy through adulthood. *Brain Research*, 623,181-188. PMID: 8221100

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33. Finan, D.S., Barlow, S.M., & Andreatta, R.D. (1993). Modulation of the mechanically evoked perioral reflex during suck force dynamics in neonates and infants. *Soc Neuroscience*. Washington, D.C., 144.
34. Andreatta, R.D., Barlow, S.M. & Finan, D.S. (1994). Modulation of the mechanically evoked perioral reflex during active force dynamics in young adults. *Brain Research* 646, 175-179. PMID: 8055337
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37. Barlow, S.M. & Bradford, P.T. (1996). Comparison of perioral reflex modulation in the upper and lower lip. *J Speech Hearing Research*, 39, 55-75. PMID: 8820699
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In Preparation

159. **Barlow SM**, Liao C, Maron JL, Song D, Jegatheesan P, Govindaswami B, Wilson BJ, Bhakta K, Cleary J, Lee J. (2022). Progressive Two-stage Pulsed Pneumotactile Oral Stimulation During Tube Feeding Drives NNS Development in Extremely Preterm Infants. *Frontiers in Pediatrics - Neonatology*, abstract submitted 8-25-21, full manuscript due 12-1-21, invited.
160. Barlow SM, Hozan M, Lee J, Hoffman E, Greenwood J. (2023). Fine force dynamics in orofacial and hand muscle systems across the lifespan. In prep.
161. Sullivan M, Hozan M, Lee J, Greenwood J, Barlow SM. (2023). Lateral oral angle compression force dynamics in young adults. In prep.
162. Liao C, Maron JL, Song D, Jegatheesan P, Govindaswami B, Bhakta KY, Cleary J, Barlow SM. (2023). Hierarchical cluster feature analysis of NNS dynamics predicts feeding readiness in extremely preterm infants.

MEMORIAL TRIBUTE

1. Barlow, S.M. & Netsell, R. (1994). Müllerian Speech Physics: Biomechanics, electrophysiology and aeromechanics. *Am Speech-Hearing-Language Association*.
2. Barlow SM, Kent R. (2020). Editorial. In Memoriam – Ronald W. Netsell (1938-2019). *Perspectives ASHA Special Interest Groups: SIG 19 Speech Science*, https://doi.org/10.1044/2019_PERSP-19-00150, pp 1-3.

8 articles were commissioned in 2022 by Dr. Steven M. Barlow, Editor – Neonatology Section, “*Neonatal Feeding and Developmental Issues*” published in *Pediatric Medicine*. All articles have undergone external peer review.

TEXTBOOK

Barlow, S.M. (1999). **Handbook of Clinical Speech Physiology**. 380 pages. CD-ROM. Singular Publishing Group, Inc. San Diego, California. ISBN 1-56593-267-6.

TELEVISION and PRESS

- <https://youtu.be/PINskvlV5Sk>
- <https://www.kxly.com/news/new-technology-at-multicare-deaconess-hospital-being-used-to-help-premature-babies-with-feeding/1069989092>
- <https://www.youtube.com/watch?v=W1vXSBTmhA&feature=youtu.be>
 - Dr. Steven Barlow receives the Callier Prize, University of Texas-Dallas, 2019
- **BTN (BIG10 Network)**. Drs. Barlow & Bashford, pTACS and functional transcranial Doppler imaging to evoke collateral blood flow in MCA stroke. <https://www.youtube.com/watch?v=qmfDgIgd-cQ> Jan 2020 – present.
- https://www.youtube.com/watch?v=u1oEIX_P4GA&list=PLqtLSZO9d2iicqHCjvzE1Ky2i8OLQoJ0D
 - INNARA HEALTH – NTrainer video
- https://drive.google.com/file/d/1iHbmqx8aAj463QMgkisRpjy_htBg76x8/view?usp=sharing
 - DDK SLP video tool
- [Greenwood SM.mp4](#) Jake Greenwood PhD program and tech transfer projects
- <https://www.3newsnow.com/lifestyle/health/omaha-radiologist-hopes-nfl-concussion-protocol-spotlights-neurological-issue-she-says-makes-her-look-drunk> Dr. Barlow interview on cerebellar ataxia December 5, 2022 @ 6pm broadcast. KMTV 3 News Now Omaha. Investigative reporter Mr. Aaron Hegarty

Extracurricular Activities

- Baseball (active through 1972-1983; American Legion, HT [Middleton, Cross Plains, Cottage Grove], National Baseball Congress finalists [midwest regional], [CG Hybrids] – Rock River, State line semi-pro league)
- Baseball coach – Bloomington, Indiana (1995-1998)
- Soccer coach – Bloomington, Indiana (1998-1999)
- Softball coach/player – Lawrence, Kansas (2000-2013)
- Soccer player- Lawrence, Kansas
- Capitol City Ford & Mustang Club member (2016-present)

- Annual fundraiser for Lincoln's Women's Care Center, Lincoln Nebraska
- Fundraiser for Lincoln Food Bank
- Toys for Tots
- Lincoln Center for People in Need