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A. Education

Residency in Neurology/Child Neurology
Washington University in St. Louis
Barnes Hospital/St. Louis Children's Hospital
July 1990 thru June 1993

Residency in Pediatrics
University of Arkansas for Medical Sciences/Arkansas Children's Hospital
July 1987 thru June 1990
Chief Resident for Education (1989-1990)

University of Arkansas for Medical Sciences, MD 1987.

Council for Academic Affairs, 1983-1987

Southern Methodist University, BA (Chemistry)/BA (Psychology) 1983, cum laude

Departmental Distinction in Psychology
Behavioral Research with Michael R. Best, PhD. (1980 to 1983)

B. Academic Appointments

Associate Professor of Neurology and Pediatrics

University of Louisville Health Sciences Center
Department of Neurology
July 1, 2008 thru present

Assistant Professor of Neurology and Pediatrics
University of Louisville Health Sciences Center
Department of Neurology
November 1, 2002 thru June 30, 2008

Clinical Assistant Professor of Neurology
Lecturer in Neurology
University of Louisville Health Sciences Center
Department of Neurology
June 1, 2001 thru October 31, 2002

Clinical Assistant Professor of Neurology
University of Louisville Health Sciences Center
Department of Neurology
July 1, 1993 thru February 1, 1997

Clinical Assistant Professor of Pediatrics
University of Louisville Health Sciences Center
Oct 1993 thru Nov 1996; Sept 2000 thru October 2002

C. Other Positions and Employment, including Military Service

Louisville Neurology Associates, PSC
Employee July 1, 1993 thru December 31, 1994; Shareholder January 1, 1995 thru
February 1, 1997

D. Board Certification and Licensure

American Board of Psychiatry and Neurology; August 1994; August 2004 No.300975
Kentucky Board of Medical Licensure #29570

E. Professional Memberships and Activities

American Academy of Neurology

American Headache Society

Child Neurology Society

Greater Louisville Medical Society

Kentucky Medical Association

National Headache Foundation

F. Honors and Awards

Outstanding Volunteer Clinical Professor, 1995-1996, Department of Pediatrics
University of Louisville School of Medicine

Who's who in Medical Science Education, Feb 2005

G. Committee Assignments and Administrative Services

Member, Courses, Clerkships, Electives Subgroup of the Curriculum Integration
Committee; March 2011 thru present

Member, Search Committee for Director of the University of Louisville Autism Center;
October 2010 thru present

Member, Student Promotions Committee, July 2003 thru June 2008; May 2009 thru
present

Member, Pediatric-Adolescent Subsection, American Headache Society June 2004 thru
present

Chair, Child Neurology Residency program committee Dec 2006 thru present

Member, Third and Fourth Year Clinical Curriculum Advisory Committee (Clerkship
Directors) Jan 2003 thru present

Member, Second year Curriculum Committee (Course Directors) July 2004 thru present

Director, Child Neurology Residency Program, Dec 2004 thru present

Director, Medical Student Education in Neurology, Jan 2003 thru present

Director, University of Louisville Comprehensive Headache Program, Nov 2002 thru
present

Member, Graduate Medical Education Committee, January 2006 thru present

Chair, Psychiatry Chair Five-year review committee, March 2010 thru August 2010

H. Journal Editorial Boards, Advisory Councils, Peer Reviewer of Manuscripts (include journal name)

Neurology podcast interviewer, Jan 2008 thru present (review journal articles in *Neurology* and an interview with the lead author is then taped for broadcast via “podcast”)

Peer Reviewer of Manuscripts for *Headache*, July 2008 thru present

I. Board Memberships

None

J. Teaching

Director, Medical Student Education in Neurology; January 2003 thru present. Includes the roles of Clerkship Director in Neurology, Course Co-Director in Clinical Neurosciences, and includes serving on various committees including the Third and Fourth Year Clinical Curriculum Advisory Committee, the Second Year Curriculum Advisory Committee and the Curriculum Integration Committee (Courses, Clerkships and Electives subgroup). In addition, I develop the schedule along with neurosurgery for the combined Neurosciences Grand Rounds annually. Beginning in the fall semester of 2011, each fourth year medical student will have instruction in lumbar puncture and skills assessment via a combined standardized patient/simulation center LP case assessment. I have also helped prepare the Neurology department for the upcoming LCME site visit in 2013.

Clerkship Director in Neurology, January 2003 thru present. Lectures to medical students are given 10 times per year, (15 to 20 medical students per track or 149 medical students total per year) and include: The Neurologic History and Examination, An Overview of Child Neurology, Nervous System Manifestations of Alcoholism and Substance Use Disorders, in addition to administrative orientation to the clerkship. The position involves performing administrative duties relating to the conduct of the neurology clerkship (schedules, professionalism issues, curriculum design, attendance to meetings pertaining to the clerkship)

Course Co-Director, Clinical Neurosciences, June 2003 thru present. This is a mandatory, block V course to second-year medical students which integrates the basic and clinical sciences with an introduction to clinical neurology, taught by neurology and neurosurgery faculty. I have played an integral role in curriculum development, coordination of scheduling of lectures, other administrative duties and I have taught Headache I and II each year. There are approximately 150 medical students per class year.

“The Evaluation and Management of Headache in Children and Adolescents”, lecture to Division of General Pediatrics, KCPC room 211 conference room, March 22nd, 2011.

“An Approach to the Evaluation and Management of Headache”, Internal Medicine resident lecture series, ACB large auditorium, March 2nd, 2011.

“Cerebral Venous Sinus Thrombosis and Carotid and Vertebral Dissection”, Child Neurology Residency program conference series, pediatric neurology conference room, February 25th, 2011.

“Case Studies in Pediatric Headache: A Multidisciplinary Approach”, Pediatrics Grand Rounds, Norton Hospital Auditorium, December 3rd, 2010.

“Pediatric Headache Case Studies”, lecture to Pediatrics residents, 6th floor conference room, Kosair Children’s Hospital, November 19th, 2010.

“Nutritional Disorders Affecting the Nervous System”, Child Neurology Residency program conference series, pediatric neurology conference room, August 27th, 2010.

“Neuroembryology”, Child Neurology Residency program conference series, pediatric neurology conference room, August 6th, 2010.

“Neurologic Complications of Substance Use Disorders”, Child Neurology Residency program conference series, pediatric neurology conference room, June 11th, 2010.

Course Co-Director, “Advances in Neurology 2010”, second annual U of L Department of Neurology CME conference held on May 8th, 2010 at Churchill Downs. Instrumental in organizing the event, applying for CME/CHSE credit, obtaining pharmaceutical corporation sponsorship and gave lecture on “Alternative and Complementary Therapy for the Treatment of Adolescent Migraine”.

“Disorders of Cranial Volume and Shape”, Child Neurology Residency program conference series, pediatric neurology conference room, April 23rd, 2010.

“Examination of the Optic Disc”, Child Neurology Residency program conference series, pediatric neurology conference room, March 19th, 2010.

“Overview of Inborn Errors of Metabolism”, Child Neurology Residency program conference series, pediatric neurology conference room, March 5th, 2010.

“Clinical Neuro-endocrinology”, Child Neurology Residency program conference series, pediatric neurology conference room, February 19th, 2010.

“Pediatric Neurologic Manifestations of Systemic Disease”, Child Neurology Residency program conference series, pediatric neurology conference room, November 20th, 2009.

“Nonepileptic Paroxysmal Disorders”, Child Neurology Residency program conference series, pediatric neurology conference room, September 11th, 2009.

“Evaluation and Management of Trigeminal Neuralgia, including surgical and procedure approaches”, presented at combined Neurosciences Grand Rounds, September 11th, 2009.

“Pseudotumor Cerebrii in children”, Child Neurology Residency program conference series, pediatric neurology conference room, August 28th, 2009.

“Movement Disorders in Children”, presented at the seventh annual Pediatric Neurology Update, August 21st, 2009.

“An Overview of Child Neurology”, Pediatric Junior Medical Student lectures series, ongoing semimonthly, spring 2005 through 2009. Approximately 25 medical students every 8 weeks.

“Headache and facial pain”, lectures monthly beginning November 2009 and ongoing, part of Neurology Residency program lecture series.

“Evidence-Based Medicine in Neurology”, lectures monthly beginning November 19th, 2008 and ongoing, given by Program Directors, sponsored thru the American Academy of Neurology.

Child Neurology case presentation series (part of Child Neurology Residency program conference series), meets every Monday morning at 8am; presenting cases every 6 to 8 weeks, beginning January, 2008 thru present.

“Pediatric Headache Emergencies”, Neurology Resident didactic lecture series, Neurology department conference room, July 17th, 2009.

“Pediatric Neuro-ophthalmology”, Child Neurology Residency program conference series, pediatric neurology conference room, June 5th, 2009.

Course Co-Director, “Advances in Neurology 2009”, first annual U of L Department of Neurology CME conference held on May 9th, 2009 at Churchill Downs. Instrumental in organizing the event, applying for CME/CHSE credit, obtaining pharmaceutical corporation sponsorship and gave lecture on “Evaluation and Management of Headache Disorders”.

“Women’s Issues in Headache Disorders”, Neurology Grand Rounds, Ambulatory Care Building Auditorium, April 15th 2009.

“Pediatric Sleep Disorders”, Child Neurology Residency program conference series, pediatric neurology conference room, December 5th, 2008.

“Women’s Issues in Headache Disorders”, Obstetrics and Gynecology Grand Rounds, ACB glass conference room, November 11th, 2008.

“Pediatric Nutritional Disorders Affecting the Nervous System”, Child Neurology Residency program conference series, pediatric neurology conference room, October 17th, 2008.

“Clinical Neurochemistry II”, Neurology Resident didactic lecture series, September 17th, 2008.

“Clinical Neurochemistry I”, Neurology Resident didactic lecture series, September 10th, 2008.

“Pediatric Headache Case Studies”, presented at the sixth annual Pediatric Neurology Update, Norton Hospital auditorium, August 22nd, 2008.

“Facial Pain”, from Patten, ch 21, Neurologic Differential Diagnosis, Neurology Resident didactic lecture series, August 19th, 2008.

“Headache”, from Patten, ch 20, Neurologic Differential Diagnosis, Neurology Resident didactic lecture series, August 12th, 2008.

“Examination of the Optic Fundus”, Neurology Resident didactic lecture series, August 4th, 2008.

“Headache Emergencies”, Neurology Resident emergency lecture series, July 2nd, 2008.

“Teaching Residents to Teach”, Neurology Resident didactic lecture series. June 26th, 2008.

Course Director, (fourth annual) “Headache Update 2008”, Rudd Heart and Lung Center Conference Center, sponsored by various pharmaceutical companies, May 9th, 2008. Lecture delivered on “Evaluation and Management of Chronic Daily Headache”. Organized through the office of Continuing Health Sciences Education for continuing medical education credit. Arranged seven different lecturers in various disciplines to discuss a variety of different approaches to headache. This included a nationally recognized keynote speaker on Pediatric and Adolescent Headache.

“Pediatric and Adolescent Headache: Case presentations”, Neurology Resident didactic lecture series, May 7th, 2008.

“Pediatric Sleep Disorders II”, Child Neurology Residency program conference series, pediatric neurology conference room, Mar 28th, 2008.

“Pediatric Sleep Disorders I”, Child Neurology Residency program conference series, pediatric neurology conference room, Feb 29th, 2008.

“An Approach to the Diagnosis and Management of Headache Disorders”, Internal Medicine Grand Rounds, K building 2nd floor, February 20th, 2008.

“Headache Emergencies”, Neurology Resident Didactic lecture series, July 13th, 2007, Neurology Department conference room.

“Febrile Seizures”, Neurology Resident Didactic lecture series, June 15th, 2007, Neurology Department conference room.

Course Director, "Headache Update 2007", Baxter Building 1 Auditorium sponsored by various pharmaceutical companies, Mar 23rd, 2007. Lecture delivered on "Approaching Migraine as a Chronic Disease". Organized through the office of Continuing Health Sciences Education for continuing medical education credit. Arranged six different lecturers in various disciplines to discuss a variety of different approaches to headache.

"Headache in Children and Adolescents: Case Presentations", Pediatric Neurology Update 2007, Norton Hospital Auditorium, February 2nd, 2007.

"Women's Issues in Headache Disorders", Neurology/Neurosurgery Grand Rounds, January 2nd, 2007.

K. Abstracts and Presentations

a. Oral Presentations: National/International Meetings

"Should CGRP antagonists be researched for treatment of migraine in children?", presented at the Child Neurology Society annual meeting, October 19th, 2009, Louisville, KY.

"Obesity in the Pediatric Headache Population: a Multi-Center Study", Hershey AD, Kabbouche MA, Rho Y, Winner P, Linder S, Yonker M, Bicknese A, **Sowell MK**, McClintock W, Burdine D, Arnos C, Powers SW, and the AHS Pediatric Adolescent Section, abstract presented at the American Headache Society 49th annual meeting, June 7-10th, 2007.

b. Oral Presentations: Local/Regional Meetings

Course Co-Director, "Advances in Neurology 2010", second annual U of L Department of Neurology CME conference held on May 8th, 2010 at Churchill Downs. Instrumental in organizing the event, applying for CME/CHSE credit, obtaining pharmaceutical corporation sponsorship and gave lecture on "Alternative and Complementary Therapy for the Treatment of Adolescent Migraine".

Course Co-Director, "Advances in Neurology 2009", first annual U of L Department of Neurology CME conference held on May 9th, 2009 at Churchill Downs. Instrumental in organizing the event, applying for CME/CHSE credit, obtaining pharmaceutical corporation sponsorship and gave lecture on "Evaluation and Management of Headache Disorders".

c. Poster Presentations: National/International Meetings

ABS# H-05: "Biofeedback-Assisted Relaxation and Pediatric Migraine Headache: A Relationship to Blood Flow in the Middle Cerebral Artery", Sowell MK and Beaton AZ, abstract and poster presented at the 35th annual meeting of the Child Neurology Society, Oct 18th -21st, 2006 Pittsburgh, Pennsylvania.

d. Poster Presentations: Local/Regional Meetings

None

L. Patents

None

M. Research Funding

Principal Investigator, NINDS-CRC (through Emmes corporation), Chronic Migraine Treatment Trial, June 2009.

Sub-Investigator, Pfizer A0081075, A 12-Month Open-Label Extension Study Evaluating The Safety and Tolerability of Flexible Doses of Pregabalin in Pediatric Patients with Partial Onset Seizures, January 2009.

Sub-Investigator, Pfizer A0081074, A Placebo-Controlled, Escalating Dose, Multiple Dose Study To Evaluate The Safety, Tolerability and Pharmacokinetics of Pregabalin in Pediatric Patients with Partial Onset Seizures, January 2009.

Principal Investigator, Merck MK-0974-034-00, A Multicenter, Randomized, Double-Blind, Placebo- and Active-Controlled, Crossover Study to Evaluate the Safety and Efficacy of MK-0974 in the Treatment of Acute Migraine in Patients With Stable Vascular Disease, May 2008.

Sub-Investigator, King Pharmaceuticals K826-05-3001, A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multicenter Study, With Optional Open-Label Continuation of the Efficacy and Safety of Vanquix™ Auto-Injector (Diazepam Injection) for the Management of Selected, Refractory, Patients with Epilepsy who Require Intermittent Medical Intervention to Control Episodes of Acute Repetitive Seizures, May 2008.

Sub-Investigator, UCB-Pharma Protocol N01253, An international, double-blind, parallel-group, placebo-controlled, randomized study: evaluation of the efficacy and safety of brivaracetam in subjects (≥ 16 to 70 years old) with Partial Onset Seizures, May 2008.

Sub-Investigator, Eisai E2007-G000-304A Double-Blind, Placebo-Controlled, Dose-Escalation, Parallel-Group Study to Evaluate the Efficacy and Safety of E2007 (perampanel) Given as Adjunctive Therapy in Subjects with Refractory Partial Seizures, May 2008.

Sub-Investigator, Eisai E2007-G000-307A 14-Month Open-Label Extension Phase of the Double-Blind, Placebo-Controlled, Dose-Escalation, Parallel-Group Studies to

Evaluate the Efficacy and Safety of E2007 (perampanel) Given as Adjunctive Therapy in Subjects with Refractory Partial Seizures, May 2008.

Sub-Investigator, Schwarz Pharma Protocol SP 902, A Historical-controlled, Multicenter, Double-blind, Randomized Trial to Assess the Efficacy and Safety of Conversion to Lacosamide 400mg/day Monotherapy in Subjects with Partial-onset Seizures, March 2008.

Sub-Investigator, Schwarz Pharma Protocol SP 904, A Multicenter, Open-label Extension Trial to Assess the Long-term Use of Lacosamide Monotherapy and Safety of Lacosamide Monotherapy and Adjunctive Therapy in Subjects with Partial-onset Seizures, March 2008.

Principal Investigator, Merck MK-0974-016-01, A Multicenter, Double-Blind, Placebo-Controlled, Parallel Group Study to Compare the Efficacy and Safety of Oral MK 0974 with Placebo for the Acute Treatment of Migraine With or Without Aura, March 2007.

Principal Investigator, Merck MK-0974-012, A Multicenter, Double-Blind, Active-Controlled, Parallel Group Study to Examine the Safety, Tolerability and Efficacy of Oral MK-0974 for the Long Term Treatment of Acute Migraine With or Without Aura, March 2007.

Principal Investigator, Obesity in pediatric headache: recognition and response of weight loss, American Headache Society, small grants section, July 2006.

Principal Investigator, A Multicenter, Double-Blind, Randomized Parallel-group Evaluation of LAMICTAL™ Extended-release Adjunctive Therapy in Subjects with Partial Seizures, funded by GlaxoSmithKline LAM100034, July 2007.

N. Clinical Service

The University of Louisville Comprehensive Headache program was established in 2002 to serve the needs of individuals with headache disorders, thus establishing the first academic headache program in the state of Kentucky. Dr. Sowell is the first United Council on Neurologic Subspecialties (UCNS) board-certified headache specialist in the region. There was no headache specialist or program at the University of Louisville prior to 2002. Dr. Sowell sees approximately 15 to 20 patients with headache disorders per week, or approximately 750 to 1000 headache patients per year. The program utilizes since 2004, an IV infusion program with standardized acute headache treatment protocols to treat established patients with acute exacerbations of headache disorders. Beginning three years ago, increasing needs mandated that a nurse practitioner be hired to see patients with headache disorders. The headache program receives referrals from primary care physicians, neurologists and other specialists from the greater Kentuckiana area, as far west as Paducah. The program involves patient care, teaching in the field of headache and research. Medical students, residents in Neurology and other specialties (e.g. psychiatry, internal medicine) and fellows in Pain Management and Geriatrics are trained within the headache program.

A second area of clinical service is general pediatric neurology. The division of pediatric neurology was established in 2003-4. Though I specify that patients with all forms of neurologic disease in childhood and adolescence may be scheduled, the majority of patients (perhaps 75%) whom I personally see in the pediatric neurology office have headache disorders as this is my sub-area of interest within pediatric neurology. I see approximately 15 to 20 children and adolescents with neurologic disease per week, or approximately 750 to 1000 pediatric neurology patients per year. I also serve as an attending pediatric neurologist once monthly in the Kosair Neurology clinic, which serves the needs of those children who are underinsured and uninsured. Additionally, the Kosair Neurology clinic provides a continuity clinic for residents in the child neurology residency program.

O. Publications, Book Chapter, Monographs and Textbooks

a. Peer-reviewed

Hershey A.D., Powers S.W., Nelson T.D., Kabbouche M.A., Winner P, Yonker M, Linder S.L., Bicknese A., **Sowell M.K.**, McClintock W. and the American Headache Society Pediatric Adolescent Section: "Obesity in the Pediatric Headache Population: A Multi-Center Study", *Headache* 2009;49:170-177

Sowell M.K., Plato B.M.: Oral Levetiracetam as a Transitional Medication in Medication Overuse Headache: A Retrospective Review, *Headache and Pain* 18(3): 42-57, 2007.

Lewis D.W., Yonker M., Winner P. and **Sowell, M.K.**: The Treatment of Pediatric Migraine. *Pediatric Annals*. 34 (6): 448-460, 2005.

b. Non peer-reviewed

"A Pain in the head", published in *Vital Signs, a publication of the Greater Louisville Medical Society*, Fall 2008.

Sowell M.K. and Bartleson J.D., "Podcast" Interview for *Neurology*. Evidence Based Review: Acute Treatment and Prevention of Menstrually Related Migraine Headache, Tamara Pringsheim, William Jephtha Davenport, and David Dodick *Neurology* 2008;70 1555-1563.