

Division Details

Division Data Summary

Research and Training Details

Number of Faculty	7
Number of Research Students	5
Number of Support Personnel	10
Direct Annual Grant Support	\$1,647,792
Peer Reviewed Publications	19

Clinical Activities and Training

Number of Clinical Staff	1
Number of Clinical Fellows	2
Inpatient Encounters	2,765
Outpatient Encounters	4,291

Division Photo



Row 1: D Pruitt
Row 2: L Michaud, J Vargus-Adams, M McMahon
Row 3: S Wade, B Kurowski, D Kinnett

Significant Accomplishments

Shari Wade, PhD, and Brad Kurowski, MD, MS, with Lynne Babcock-Cimpello, MD, Division of Emergency Medicine, obtained Place Outcomes and Ohio Emergency Medical Services grants to develop and test a web-based intervention to facilitate recovery after mild traumatic brain injury (TBI).

Self-Monitoring, Activity restriction and Relaxation Training (SMART) will be the first trial of an interactive psycho-educational program for youth with concussions. Kurowski, in collaboration with Michael Gittelman, MD, Division of Emergency Medicine, obtained an Ohio Emergency Medical Services grant to evaluate the impact of educating athletes on concussion prevention. Additionally, Kurowski collaborated with Catherine Quatman-Yates, PT, DPT, PhD, Division of Sports Medicine, to obtain a University of Cincinnati Research Council grant to evaluate the utility of balance testing in the evaluation of concussion.

Wade collaborated with Lindsay Riegler, speech pathologist at the Cincinnati Veterans Administration (VA) Medical Center, to obtain a VA-sponsored cultural transformation grant to adapt Wade's web-based treatments for traumatic brain injury (TBI) for veterans. Wade has been writing grant proposals with psychologists in the United Kingdom and New Zealand to obtain funding to adapt and test her interventions for pediatric TBI with populations in those countries. These collaborations provide a rich foundation for future interdisciplinary grant proposals and publications.

Brad Kurowski is working with the Comprehensive Children's Injury Center (CCIC) to improve the care of

children after TBI. The CCIC nominated Kurowski to direct the development of an outpatient Head Injury Clinic. Together, they have mobilized clinical and research efforts among the divisions of Sports Medicine, Physical Medicine and Rehabilitation, Neurology, Emergency Medicine, Trauma Surgery, Neurosurgery and Behavioral Medicine to improve care of children with TBIs. We have tripled our outpatient visits over the last three years, with more than 1200 visits occurring this past year. This collaboration has led to innovative interdisciplinary research work. Through collaboration with Drs. Michael Gittelman, Wendy Pomerantz, Lynn Babcock and Rich Falcone, Kurowski has successfully obtained several Ohio Department of Public Safety grants.

Our community outreach work has also developed significantly. The rapidly increasing clinical capacity, continued development of innovative interdisciplinary research projects and expansion of community outreach services for TBI will put Cincinnati Children's in an ideal position to transform the care of children after TBIs.

Division Publications

1. Baye TM, He H, Ding L, Kurowski BG, Zhang X, Martin LJ. **Population structure analysis using rare and common functional variants.** *BMC Proc.* 2011; 5 Suppl 9:S8.
2. Bendikas EA, Wade SL, Cassedy A, Taylor HG, Yeates KO. **Mothers report more child-rearing disagreements following early brain injury than do fathers.** *Rehabil Psychol.* 2011; 56:374-82.
3. Chiu CY, Tlustos SJ, Walz NC, Holland SK, Eliassen JC, Bernard L, Wade SL. **Neural correlates of risky decision making in adolescents with and without traumatic brain injury using the balloon analog risk task.** *Dev Neuropsychol.* 2012; 37:176-83.
4. Ding L, Baye TM, He H, Zhang X, Kurowski BG, Martin LJ. **Detection of associations with rare and common SNPs for quantitative traits: a nonparametric Bayes-based approach.** *BMC Proc.* 2011; 5 Suppl 9:S10.
5. Fulton JB, Yeates KO, Taylor HG, Walz NC, Wade SL. **Cognitive predictors of academic achievement in young children 1 year after traumatic brain injury.** *Neuropsychology.* 2012; 26:314-22.
6. Ganesalingam K, Yeates KO, Taylor HG, Walz NC, Stancin T, Wade S. **Executive functions and social competence in young children 6 months following traumatic brain injury.** *Neuropsychology.* 2011; 25:466-76.
7. Gerring JP, Wade S. **The essential role of psychosocial risk and protective factors in pediatric traumatic brain injury research.** *J Neurotrauma.* 2012; 29:621-8.
8. He H, Zhang X, Ding L, Baye TM, Kurowski BG, Martin LJ. **Effect of population stratification analysis on false-positive rates for common and rare variants.** *BMC Proc.* 2011; 5 Suppl 9:S116.
9. Kurowski BG, Taylor HG, Yeates KO, Walz NC, Stancin T, Wade SL. **Caregiver ratings of long-term executive dysfunction and attention problems after early childhood traumatic brain injury: family functioning is important.** *PM R.* 2011; 3:836-45.
10. McCauley SR, Wilde EA, Anderson VA, Bedell G, Beers SR, Campbell TF, Chapman SB, Ewing-Cobbs L, Gerring JP, Gioia GA, Levin HS, Michaud LJ, Prasad MR, Swaine BR, Turkstra LS, Wade SL, Yeates KO. **Recommendations for the use of common outcome measures in pediatric traumatic brain injury research.** *J Neurotrauma.* 2012; 29:678-705.
11. Potter JL, Wade SL, Walz NC, Cassedy A, Stevens MH, Yeates KO, Taylor HG. **Parenting style is related to executive dysfunction after brain injury in children.** *Rehabil Psychol.* 2011; 56:351-8.
12. Pruitt DW, Ayyangar R, Craig K, White A, Neufeld JA. **Pediatric brain tumor rehabilitation.** *J Pediatr Rehabil Med.* 2011; 4:59-70.
13. Rivara FP, Ennis SK, Mangione-Smith R, MacKenzie EJ, Jaffe KM. **Quality of care indicators for the**

- rehabilitation of children with traumatic brain injury.** *Arch Phys Med Rehabil.* 2012; 93:381-5 e9.
14. Schapiro A, Racadio J, Kinnett D, Maugans T. **Combined C-arm fluoroscopy and C-arm cone beam computed tomography for the evaluation of patients with possible intrathecal baclofen delivery system malfunctions.** *Neurosurgery.* 2011; 69:ons27-33; discussion ons33.
 15. Tlustos SJ, Chiu CY, Walz NC, Taylor HG, Yeates KO, Wade SL. **Emotion labeling and socio-emotional outcomes 18 months after early childhood traumatic brain injury.** *J Int Neuropsychol Soc.* 2011; 17:1132-42.
 16. Vargus-Adams J. **Parent stress and children with cerebral palsy.** *Dev Med Child Neurol.* 2011; 53:777.
 17. Wade SL, Walz NC, Carey J, McMullen KM, Cass J, Mark E, Yeates KO. **Effect on behavior problems of teen online problem-solving for adolescent traumatic brain injury.** *Pediatrics.* 2011; 128:e947-53.
 18. Zhang X, He H, Ding L, Baye TM, Kurowski BG, Martin LJ. **Family- and population-based designs identify different rare causal variants.** *BMC Proc.* 2011; 5 Suppl 9:S36.
 19. Zumsteg JM, Ennis SK, Jaffe KM, Mangione-Smith R, MacKenzie EJ, Rivara FP. **Quality of care indicators for the structure and organization of inpatient rehabilitation care of children with traumatic brain injury.** *Arch Phys Med Rehabil.* 2012; 93:386-93 e1.

Faculty, Staff, and Trainees

Faculty Members

Linda Michaud, MD, MEd, Professor

Leadership Division Director; Aaron W. Perlman Professor; Co-Director, Cincinnati Children's Brachial Plexus Center

Research Interests Outcomes and effectiveness of interventions after pediatric neurotrauma - birth brachial plexus palsy, brain injury.

Douglas Kinnett, MD, Associate Professor

Leadership Director, Spasticity Management Program; Clinical Director, Cerebral Palsy Center

Research Interests Outcomes and effectiveness of interventions for spasticity in cerebral palsy, use of electrodiagnosis in management in birth brachial plexus palsy.

Brad Kurowski, MD, MS, Instructor

Research Interests Genetic influence on cognitive and behavioral recovery after mild pediatric traumatic brain injury.

Mary McMahan, MD, Associate Professor

Leadership Director, Residency Training Program, UC Dept. of PM&R; Director, Medical Student Education, UC Dept. of PM&R

Research Interests Outcomes and effectiveness of interventions in muscular dystrophy.

David Pruitt, MD, Assistant Professor

Leadership Director, A4Rehab; Director, Pediatric Rehabilitation Medicine Fellowship

Research Interests Functional outcomes in children with brain tumors.

Jilda Vargus-Adams, MD, MSc, Assistant Professor

Leadership Research Director, Cerebral Palsy Center

Research Interests Outcome measurement and effectiveness of interventions for cerebral palsy.

Shari Wade, PhD, Professor

Leadership Director of Research

Research Interests Outcomes and effectiveness of interventions after pediatric traumatic brain injury.

Clinical Staff Members

- **Lainie Holman, MD**

Trainees

- **Marisa Osorio, DO**, PGY-6, University of Cincinnati
- **Paola Mendoza, MD**, PGY-5, East Carolina University
- **Ashlee Brown, MD**, PGY-3, University of Missouri Columbia
- **Erin Swanson, MD**, PGY-2, Medical College of Wisconsin
- **Nathan Evanson, MD, PhD**, PGY-2, University of Cincinnati
- **Andrea Paulson, MD**, PGY-1, University of Minnesota Medical School. Minneapolis

Division Collaboration

Orthopaedics; Orthopaedics; Orthopaedics; Plastic Surgery; Plastic Surgery; Physical Medicine and Rehabilitation » Charles Mehlman, DO, Roger Cornwall, MD, Kevin Little, MD, Kevin Yakuboff, MD, Ann Schwentker, MD, and Linda Michaud, MD

Brachial Plexus Center: A multi-disciplinary program for the treatment of pediatric brachial plexus and Erb's Palsy. The Brachial Plexus Center is actively involved in clinical research to advance the quality and effectiveness of care of children with brachial plexus injuries. June 13, 2012, the Brachial Plexus Center offered its third conference: Evidence-Based Care in Birth Brachial Plexus Injury. 2012 Brachial Plexus Conference. Cincinnati Children's Hospital Medical Center.

Orthopaedics; Physical Medicine and Rehabilitation » Charles Mehlman, DO and Linda Michaud, MD

Limb Reconstruction Clinic: A multi-disciplinary clinic which deals with the treatment of complications after injury and the correction of limb deformity including limb lengthening.

Emergency Medicine; Emergency Medicine; Behavioral Medicine and Psychology; Sports Medicine; Neurology; Pediatric General and Thoracic Surgery; Physical Medicine and Rehabilitation » Michael Gittelman, MD, Wendy Pomerantz, MD, Abigail Johnson, PhD, Teri McCambridge, MD, Todd Arthur, MD, Richard Falcone, MD, and Brad Kurowski, MD

Comprehensive Children's Injury Center (CCIC) Head Injury Subcommittee: This multidisciplinary committee focused on improving the care of children with traumatic brain injuries with focus on developing a multi-disciplinary head injury clinic.

Sports Medicine; Sports Medicine; Physical Medicine and Rehabilitation » Catherine Quatman-Yates, PhD, Jason Hugentobler, MD, and Brad Kurowski, MD

Sponsor: University of Cincinnati, University Research Council (URC) Postdoctoral Fellow Research Program Grant

Title: The utility of the Balance Error Scoring System (BESS) for post-concussion evaluation in children and adolescents

Objective: To determine the utility of BESS for the evaluation of concussions in the pediatric population.

Human Genetics; Physical Medicine and Rehabilitation; Physical Medicine and Rehabilitation » Lisa Martin, PhD, Shari Wade, PhD, and Brad Kurowski, MD

Sponsor: NIH/NICHD/NCMRR/AAP

Title: Genetic Influence on Cognitive and Behavioral Recovery after Pediatric Traumatic Brain Injury

Objective: The goal of this project is to evaluate the association of catecholamine related polymorphisms with cognitive and behavioral recovery after pediatric traumatic brain injury. This is part of the Rehabilitation Medicine Scientist Training Program (RMSTP) K-12 grant.

Human Genetics; Physical Medicine and Rehabilitation; Physical Medicine and Rehabilitation » Lisa Martin, PhD, Shari Wade, PhD, and Brad Kurowski, MD

Sponsor: Ohio Department of Public Safety Grant

Title: Long-term Executive, Behavioral, and Psychosocial Functioning After Adolescent Traumatic Brain Injury: Importance of Environment, Genetics, and a Behavioral Intervention

Objective: Evaluate the role of and interaction among genetic and various environmental factors in long-term recovery after adolescent traumatic brain injury.

Pediatric General and Thoracic Surgery; Physical Medicine and Rehabilitation » Richard Falcone, MD and Brad Kurowski, MD

Sponsor: Ohio Department of Public Safety Grant

Title: Traumatic Brain Injury Symptom Screening and Resolution Prediction

Objective: Characterize the duration of symptoms after mild traumatic brain injury and factors that predict the trajectory of recovery.

Hematology/Oncology; Hematology/Oncology; Physical Medicine and Rehabilitation » John Perentesis, MD, Maryam Fouladi, MD, and David Pruitt, MD

Neuro-Oncology Clinic: A multi-disciplinary program providing comprehensive treatment for children with neurological tumors.

Oncology; Physical Medicine and Rehabilitation » Rajaram Nagarajan, MD and David Pruitt, MD

Oncology Clinic: A multidisciplinary program providing comprehensive treatment for children with sarcomas, leukemia and lymphoma.

Neurology; Physical Medicine and Rehabilitation » Marielle Kabbouche, MD and Jilda Vargus-Adams, MD

Stroke Clinic: A multi-disciplinary program that provides comprehensive treatment for children with stroke.

Neurology; Neurology; Physical Medicine and Rehabilitation » Donald Gilbert, MD, Steve Wu, MD, and Jilda Vargus-Adams, MD

Research into combined occupational therapy and transcranial magnetic stimulation for hemiparetic cerebral palsy.

Rheumatology; Rheumatology; Physical Medicine and Rehabilitation » Esi Morgan-Dewitt, MD, Susmita Kashikar-Zuk, MD, and Jilda Vargus-Adams, MD

A U01 grant evaluating a patient reported outcome measure for use in pediatric pain, rheumatology, and rehabilitation research.

Orthopaedics; Physical Medicine and Rehabilitation » James McCarthy, MD and Jilda Vargus-Adams, MD

Orthopaedic Surgery/PM&R CP Clinic: A multi-disciplinary clinic that provides evaluation and treatment planning for children with cerebral palsy.

Neurology; Physical Medicine and Rehabilitation » Brenda Wong, MD and Mary McMahon, MD

Comprehensive Neuromuscular Center: A multi-disciplinary clinic providing comprehensive treatment for children with neuromuscular disorders.

Developmental and Behavioral Pediatrics; Physical Medicine and Rehabilitation » Sonya Oppenheimer, MD and Mary McMahon, MD

Myelomeningocele Clinic: A multi-disciplinary clinic which deals with the treatment of children with myelomeningocele.

Orthopaedics; Physical Medicine and Rehabilitation » Alvin Crawford, MD and Douglas Kinnett, MD

Spine Center: A multi-disciplinary program that provides comprehensive treatment for children with congenital and acquired abnormalities of the spine.

Behavioral Medicine and Psychology; Physical Medicine and Rehabilitation » Nicolay Chertkoff Walz, PhD and Shari Wade, PhD

Dr. Walz has received mentoring from Dr. Wade and is currently co-investigator on Dr. Wade's competing continuation project examining long-term functional outcomes of early childhood TBI and her Rehabilitation Research and Training Grant for Pediatric TBI Interventions.

Neuroimaging Research Consortium; Neuroimaging Research Consortium; Physical Medicine and Rehabilitation » Weihong Yuan, PhD, Scott Holland, PhD, and Shari Wade, PhD

Completing analyses and write up of grants from the Ohio Emergency Medical Services and the UC Interdisciplinary Research Grants.

Emergency Medicine; Emergency Medicine; Emergency Medicine; Physical Medicine and Rehabilitation » Lynn Babcock, MD, Michael Gittleman, MD, Wendy Pomerantz, MD, and Shari Wade, PhD

Dr. Wade is primary mentor for Dr. Babcock's KL2 award investigating predictors of recovery from mild TBI.

Emergency Medicine; Emergency Medicine; Pediatric General and Thoracic Surgery; Physical Medicine and Rehabilitation » Michael Gittleman, MD, Wendy Pomerantz, MD, Richard Falcone, MD, and Shari Wade, PhD

Dr. Wade is part of the steering committee for the Cincinnati Children's Comprehensive Injury Center.

Bioinformatics; Physical Medicine and Rehabilitation » Keith Marsolo, PhD and Shari Wade, PhD

Dr. Marsolo is a collaborating investigator on the 5-year RRTC grant for pediatric TBI interventions.

International Adoption Center/Division of Infectious Diseases; Physical Medicine and Rehabilitation » Mary Allen Staat, MD and Shari Wade, PhD

Drs. Staat and Wade are completing the write-up of several previously completed projects including one funded by an Interdisciplinary Research grant from UC.

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct

KUROWSKI, B

Genetic Influence on Cognitive and Behavioral Recovery After Mild Pediatric Traumatic Brain Injury

National Institutes of Health(University of Pittsburgh)

K12 HD 001097

07/01/10-02/28/13

\$106,000

Long-term Executive, Behavioral, and Psychosocial Functioning After Adolescent Traumatic Brain Injury: Importance of Environment, Genetics, and a Behavioral Intervention

Ohio Department of Public Safety

07/01/11-06/30/12

\$66,668

VARGUS-ADAMS, J

Combined FES and Robotic Gait Training in Childhood CP

Cerebral Palsy International Research Foundation

09/01/10-08/31/12

\$43,478

Responsiveness of Pediatric PROMIS Item Banks in Children with Cerebral Palsy Post-Musculoskeletal Surgeries

National Institutes of Health(Boston University Medical Campus)

U01 AR 057929

08/01/11-07/31/12

\$33,125

WADE, S**Effects of Cognitive Training on Attention and Neural Processing Following Pediatric TBI**

Ohio Department of Public Safety

07/01/11-06/30/12

\$76,788

Long Term Functional Outcomes of Early TBI

National Institutes of Health

R01 HD 042729

09/01/09-08/31/14

\$446,182

Patient-Centered Care and Cultural Transformation

Cincinnati Veterans Administration

07/01/11-06/30/12

\$180,000

Rehabilitation Research and Training Center for Traumatic Brain Injury

US Department of Education

H133B090010

10/01/09-09/30/14

\$695,551

Current Year Direct**\$1,647,792****Total****\$1,647,792**