

ANNUAL REPORT
FY2023



INSTITUTE FOR BRAIN
PROTECTION SCIENCES

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Johns Hopkins All Children's Hospital is committed to the safety and health of our patients, families and staff. Photography taken during the COVID pandemic shows proper use of personal protective equipment (PPE) and safety protocols as outlined by Johns Hopkins Medicine and the Centers for Disease Control.



Mission & Vision

OUR MISSION:

The mission of the Johns Hopkins All Children's Institute for Brain Protection Sciences is to:

- provide the best possible health care in the areas of childhood developmental disorders, mental health, brain injury, rehabilitative care and pediatric neurological/ neurosurgical diseases.
- improve all children's health and quality of life by delivering an expeditious and comprehensive array of educational and therapeutic options in a patient family centered fashion

OUR VISION:

Our vision for the Institute for Brain Protection Sciences will raise the bar of knowledge and advance the field of pediatric neuroscience through research and innovations in clinical techniques, preventative services, technology and collaboration with others.

Message from the Director

It is with great pleasure and pride that I extend a warm welcome to each of you to the Annual Report of the Johns Hopkins All Children's Institute for Brain Protection Sciences.

As we come together to reflect on the accomplishments of the past year, it is clear that our unwavering commitment to advancing pediatric neuroscience and neuroprotection has yielded remarkable strides. This report serves as a testament to the dedication and hard work of our esteemed team of researchers, clinicians and support staff, who have tirelessly pushed the boundaries of knowledge and care.

Through our comprehensive, multidisciplinary approach, we have achieved breakthroughs in the treatment of a wide range of conditions, ensuring that every child receives personalized, state-of-the-art care tailored to their unique needs. This approach, characterized by family-centered care plans and a full range of inpatient and outpatient services, embodies our vision to safeguard the delicate brains of our children.

None of this progress would have been possible without the invaluable support of our generous donors, the dedication of our exceptional staff, and the trust placed in us by the families we serve. Your contributions, whether through philanthropy, time or expertise, have been instrumental in our success.

In the face of unprecedented circumstances, our institution stands strong, providing a pillar of strength, service, and hope for the children and families of our community and beyond. We recognize the critical role that medicine plays in our global existence, and we remain steadfast in our mission to offer the best pediatric medicine available.

As we look to the future, we are excited about the opportunities and challenges that lie ahead. With your continued support, we are confident that we will continue to make significant strides in our mission to protect and enhance the lives of children.

Thank you for being an integral part of the Johns Hopkins All Children's Institute for Brain Protection Sciences community. Together, we are making a profound impact on the lives of children and their families.

Warm regards,



George Jallo, M.D.

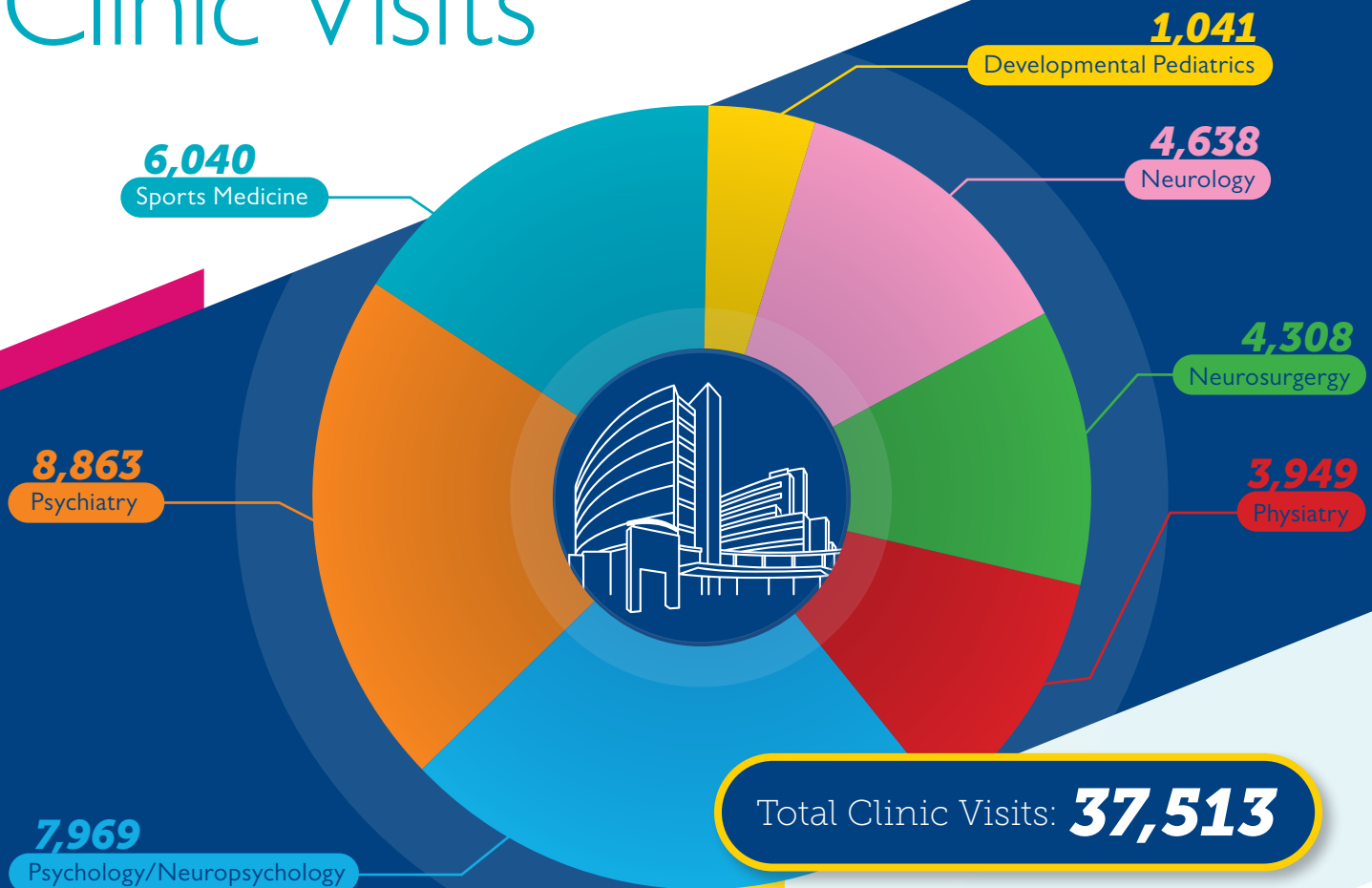
Medical Director, Institute for Brain Protection Sciences
David M. Goldenberg Family Chair
Vice Dean and Physician-in-Chief
Johns Hopkins All Children's Hospital



*Wherever the art of
medicine is loved,
there is also a love of
humanity.*

– Hippocrates

Unique Outpatient Clinic Visits



Institute Metrics

Shunt Infection:	2.08%
Number of 30-day readmissions:	0.2% <i>(1 out of 419)</i>
Number of Trainees:	16
International Encounters:	757
Out of State Encounters:	3,087

Patient Statistics

Telehealth Encounters:	3,712
Inpatient Days:	6,542
Observation Patients:	1,247
EEGs (inpatient, outpatient):	1,057
Outpatient EMGs:	61
Average Length of Stay:	2.8 days
Surgeries:	459



Community Benefits

Participated in:

- Epilepsy Walk
- Walk n' Roll

4th Annual Pediatric Brain Symposium

- Offered 21.25 continuing education units (CEUs)
- Offered 18.5 CEUS for physicians
- 156 participants

Brain Health Awareness

- 15 lectures
- 337 participants
- 15 nursing/Social work CEU'S offered



Research Collaboration:

The Johns Hopkins All Children's Hospital/IndyCar Series Research Collaboration published the results of its first investigation exploring the relationship between crash events and neurologic consequences in drivers from the IndyCar racing series. Their research paper, titled "Longitudinal Outcomes of Cumulative Impact Exposure on Oculomotor Functioning in Professional Motorsport Drivers," was published May 2, 2023, in the Journal of the American Medical Association's *JAMA Network Open*.





Center for Behavioral Health

The Center for Behavioral Health within the Johns Hopkins All Children's Institute for Brain Protection Sciences highlights that commitment to understanding and enhancing the well-being of young minds is at the heart of our mission. We are proud to share our latest research, innovative programs, and compassionate care initiatives that empower children and families to navigate the complexities of behavioral health.

Highlights

- Expanded psychiatry continuity clinic
- 4 recognized staff with awards from local and national organizations
- Onboarded 10 social workers, 3 psychologists, 1 psychiatry advanced practice practitioner (APP)
- Psychologist integration into primary care/general pediatrics clinics
- 12 law enforcement officers trained in recognition and de-escalation in neurodevelopmental disabilities
- 7th year successfully matching in Phase 1 for all three of our psychology internship training tracks. Received 174 applications and matched with three of our top applicants
- Continued to train 4 psychology and 2 neuropsychology fellows

The Numbers

26

Number of publications

17

National presentations

40

International presentations

40

Active research projects

9 and 1

Number of part-time (9) and full-time (1) faculty within the Johns Hopkins University School of Medicine

\$872,399

Donor funding

What do you feel is most unique about your division?

Our psychology and neuropsychology division is unique in that we have the highest number of American Board of Professional Psychology board certified psychologists and neuropsychologists in the state, exemplifying the highest level of training and skill.

– Jennifer Katzenstein, Ph.D.
co-director, Center for Behavioral Health



Neurology

The Neurology division in the Institute for Brain Protection Sciences is a dynamic and ever-evolving field. Our dedicated team of neurologists and clinicians continue to push the boundaries of knowledge and care, striving for excellence in pediatric neurology. We celebrate the milestones achieved in our journey toward better brain health.

Highlights

- U.S. News & World Report Ranking #26
- Accredited Child Neurology Residency Program. Recruiting for inaugural class.
- Awarded grant by Muscular Dystrophy Association for our multidisciplinary MDA clinic.
- National Association of Epilepsy Center (NAEC) accredited Level IV epilepsy center.
- 1st responsive neurostimulator (RNS) implant at Johns Hopkins All Children's Hospital.
- Onboarded one new neurologist: Epileptologist, Joshua Cousin, M.D.

The Numbers

1,057

Inpatient and outpatient EEGs

61

Outpatient EMGs

37

Epilepsy surgeries

25

Epilepsy surgery evaluations;
22 in phase 1 and 3 in phase 2

What do you feel is most unique about your division?

We have a team of specialized pediatric neurologists who have interests in headache, stroke, epilepsy (seizures), ketogenic diet for seizures, neonatal seizures, in addition to general pediatric neurology.

– George Jallo, M.D.
interim chair pediatric neurology division



Neurosurgery

In the realm of cutting-edge health care, the Neurosurgery division stands as a beacon of innovation and expertise. With an unwavering commitment to advancing the frontiers of medical science, our esteemed department continues to redefine the landscape of neurological care. The team of six faculty and eight advanced practice providers addresses the entire spectrum of complex neurosurgical disorders, from intricate brain tumors to life-altering spinal cord injuries.

Highlights

- U.S. News & World Report ranking #26
- Started two multidisciplinary clinics:
 - Spasticity
Neurosurgery and rehab medicine
 - Craniofacial
Neurosurgery, plastics, social work and psychology
- Matthew Smyth, M.D., promoted to Chair of AANS/ CNS Section on Pediatric Neurological Surgery
- 4th year successfully matching for pediatric neurosurgery fellowship with top applicant

The Numbers

459

Surgeries

2.08%

Shunt infection

0.2%

Number of 30-day readmissions
(1-out of-419)

506

Inpatient consultations

What significant technology is your division working with or what research is your division doing?

We have state of the art neuroimaging, intraoperative neuro-navigation and optics, robot-assisted surgery and laser surgical options. We continue to expand the range of pediatric neurosurgical disorders that can be treated with minimally invasive procedures.

– Matthew Smyth, M.D.
chair, pediatric neurosurgery division



Neuro-Oncology

The Pediatric Neuro-Oncology Center of Excellence treats all types of brain and spinal cord tumors based on precision medicine. The program is dedicated to providing our patients with high-quality, personalized care and offers a variety of services to our children, adolescents and young adults. We are dedicated to preserving motor abilities, vision, hearing and cognitive functioning, and offer experimental research clinical trials when appropriate.

Highlights

- We participate in multiple consortiums to offer available clinical trials.
- We have three neuro-oncology fellowship trained faculty and a neuro-oncology fellowship program.
- We have ongoing cutting-edge research to find a cure for pediatric brain tumors.
- The Neurocutaneous Disorders Clinic is a multidisciplinary clinic where patients are seen by specialists in neuro-oncology, neurology, genetics and neuropsychology.
- We follow consensus guides for screening and treating patients, and we are members of Children’s Tumor Foundation and Tuberous Sclerosis Alliance.

What significant technology is your division working with or what research is your division doing?

All of our treatments are individualized using precision medicine. We are conducting research to improve diagnostic techniques such as liquid biopsy, faster turnaround time for tumor typing, and use of new therapies to treat brain tumors.

– Stacie Stapleton, M.D.
director of pediatric neuro-oncology

The Numbers

58

New brain and spinal cord tumor patients

45

New neurocutaneous disorders patients

26

Available clinical trials for patients with brain and spinal tumors

#31

U.S. News & World Report ranking for cancer



Pediatric Rehabilitation Medicine

The Physical Medicine and Rehabilitation (PM&R) service is composed of a dedicated team of professionals who play a vital role in the comprehensive care and rehabilitation of patients. Through a multidisciplinary approach, we focus on optimizing function, enhancing quality of life, and promoting independence for our patients.

Highlights

- Participates in multidisciplinary care clinics:
 - Spina Bifida
 - Skeletal Dysplasia
 - Stroke
 - Torticollis
 - Spasticity
 - Muscular Dystrophy

The Numbers

137

Total encounters, with 8 of those patients being newly diagnosed

137

Total number of patients seen by MDA since it opened on August 19, 2022

What does patient experience mean for you and your division?

Patient experience means everything. With our small clinic setting, our families get to know me, our PA, and our clinic nurse very well. We have complex patients and families with extensive care needs, and we recognize that their time with us is valuable. Our families appreciate the time we spend with them, addressing all of their questions and concerns no matter how long it takes.

– James Chinarian, M.D.
chair, pediatric rehabilitation medicine



Sports Medicine

The Sports Medicine division of the Institute for Brain Protection Sciences emphasizes its commitment to elevating athletic performance while ensuring the health and well-being of athletes. Our multidisciplinary team combines medical expertise, cutting-edge techniques, and personalized care to support athletes of all levels. We strive to push the boundaries of sports medicine, integrating innovation into every aspect of care.

Highlights

- Concussion multidisciplinary clinic on main campus: Sports Medicine and Neuropsychology
- Graduated first matched fellow in 2023
- Training site for multiple residencies and training programs
- Representation at Sixth International Consensus Conference on Concussion in Sports

Community Coverage

- Run for All Children
- Swim Across America
- Football coverage for five high school football teams
- Lakewood High School—Athletic Lifestyle Management Academy program
- Eddie Herr Tennis tournament

The Numbers

4,504

Total visits to IMG Academy

3,836

Out of state visits

668

International visits

70

Number of countries represented at IMG Academy

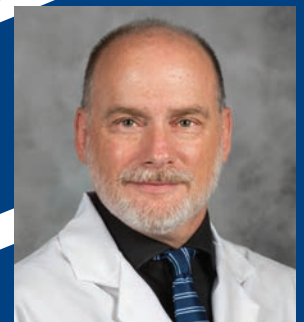
What do you feel is most unique about your division?

We are the only sports medicine practice in the Tampa Bay area that is solely dedicated to the care of youth athletes.

– Patrick Mularoni, M.D.
medical director, sports medicine division

IBPS Spotlight

- Johns Hopkins All Children's Foundation Institutional Research Award pilot grant awarded to S. Hassan Akbari, M.D., MSCI, and Sakina Butt, Psy.D.
- Joel Shulkin, M.D.: Tampa Bay Top Docs; Silver Medal, BookFest Thriller Award for his published medical thriller *Adverse Effects*; Finalist, Killer Nashville Claymore Award for the unpublished medical thriller *Spontaneous Remission*
- Mark Cavitt, M.D.: awarded distinguished fellow of the American Academy of Child and Adolescent Psychiatry and Tampa Bay Top Doctor and Castle Connolly Top Doctor
- Clarimar Borrero-Mejias, M.D.: awarded above and beyond award of American headache society
- Luis Rodriguez, M.D.: awarded Armstrong Award for Excellence in Quality and Safety at Johns Hopkins All Children's
- Christine Muller, ARPN: APP of the quarter
- Amy Sullivan, R.N., B.S.N., CNRN; Kentlee Battick, M.S.N., R.N., CCRN, C.N.L., CNRN; Pam Gehrich, M.S.N., R.N., NPD-BC, C.P.N.; awarded 25,000 to implement neuro-specialty RN team
- John Michoian, R.N. – Daisy Award
- Karen Carazas, MSW – BEE Award
- Allegra Kartha, LCSW – Pride Achievers Award
- Donna Sadural, LCSW – Asian Pacific Islander Award





Academics

52 Peer Review Publications

9 Book Chapters

1 Textbook

17 National Presentations

40 International Presentations

3 International Observers

6 National Observers

Academic Program with University of South Florida full-time rotations:

16 Neurology residents

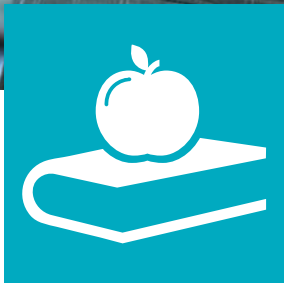
4 Neurosurgery residents

9 Psychiatry fellows

92 RNs attended the Brain Series, each received 20 hours continuing education units (CEU). Extended to three days for more SMI time. Expanded attendees to include NICU and EC nurses.

1 White Paper

Kentlee Battick, M.S.N., R.N., CCRN, C.N.L., CNRN, white paper on Neurological Assessment of the Hospitalized Child





Jasmin's Story

It was a family trip to Mexico when tragedy struck in June 2022.

Jasmin was traveling with her parents and grandparents, who all lived in Wimauma, Florida, when a bus hit the family pickup truck head-on, killing everyone except 12-year-old Jasmin. She was left clinging to life.

Her brother Cruz and other family members arranged for Jasmin to get specialized care at Johns Hopkins All Children's Hospital. An air ambulance with LifeLine critical care transport team members brought Jasmin home 20 days after the accident.

"She arrived here with a traumatic brain injury, a liver laceration, lumber spine injury, multiple abdominal injuries, bone fractures and chest injuries, which required several surgeries," says Luis Rodriguez, M.D., a neurosurgeon and one of several physicians who cared for Jasmin.

Jasmin made enough progress to be released from the hospital in November, just over four months after the accident. But her recovery continues with physical, occupational and speech-language therapy.



"Jasmin is the perfect example of the complex patient we treat at Johns Hopkins All Children's," Rodriguez says. "We have the full spectrum of physicians and services needed to maximize her ability to recover." Cruz has gone from crane operator to her guardian, principal caregiver and #1 cheerleader.

"Our family is grateful for the medical team at Johns Hopkins All Children's and everyone in the community who has reached out and kept Jasmin in their thoughts," Cruz says. "All that positive energy has contributed to her recovery. People we don't even know have been rooting for her recovery. That shows that there is still some good in the world."



Donor Thank You

With profound appreciation, we extend our heartfelt gratitude to our donors for their unwavering philanthropic support to the Institute for Brain Protection Sciences. Their generosity has been a beacon of hope, enabling us to advance our critical mission of understanding, preserving, and enhancing brain health.

Total of Pledge Payments
& Outright Gifts:

\$1,838,168

\$872,399

for Center for
Behavioral Health

\$965,769

for IBPS

\$10k+ donors:

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CONTACT US

Email: ibps@jhmi.edu

Please do not share patient information through email.

Phone: 727-767-8740

Address: 600 Fifth Street S., St. Petersburg, FL 33701

HopkinsAllChildrens.org/Brain

all we do. all for kids.™