

INDIANA SPINAL CORD AND BRAIN INJURY RESEARCH FUND

2017 ANNUAL REPORT

Submitted April 4, 2019

This report is in compliance with IC 16-41-42.2-5. The report was compiled by the Indiana State Department of Health Division of Trauma and Injury Prevention and edited by Dr. Henry Feuer, Spinal Cord and Brain Injury Research Board chairman.

INDIANA SPINAL CORD AND BRAIN INJURY RESEARCH FUND (ISCBIRF)

Annual Report for 2017 (FY2018)

The Indiana Spinal Cord and Brain Injury Research Fund was created by the 2007 Indiana General Assembly under Indiana Code (IC) 16-41-42.2. Recommendations for grant funding are made by the Spinal Cord and Brain Injury Research Board (Board) to the Indiana State Department of Health (ISDH). Board members are appointed by the Governor, Indiana University, Purdue University, Brain Injury Association of Indiana, National Spinal Cord Injury Association and Rehabilitation Hospital of Indiana.

The fund is to be used for the following purposes:

1. Establish and maintain a state medical surveillance registry for traumatic spinal cord and brain injuries.
2. Fulfill duties of the Board.
3. Fund research related to the treatment and cure of spinal cord and brain injuries, including acute management, medical complications, rehabilitative techniques, and neuronal recovery. Research must be conducted in compliance with all state and federal laws.
4. Concerning spinal cord injuries, funding at least ten percent (10%) and not more than fifteen (15%) of money in the fund for:
 - a. Post-acute extended treatment and services for an individual with a spinal cord injury; or
 - b. Facilities that offer long term activity based therapy services at affordable rates to an individual with a spinal cord injury that requires extended post-acute care.
5. Concerning brain injuries, funding at least ten percent (10%) and not more than fifteen (15%) of money in the fund for:
 - a. Post-acute extended treatment and services for an individual with a brain injury; or
 - b. Facilities that offer long term activity based therapy services at affordable rates to an individual with a brain injury that requires extended post-acute care.
6. Develop a statewide trauma system. However, no more than fifty percent (50%) of money in the fund may be used for purposes of developing a statewide trauma system.

The Board is charged with the following duties:

1. Consider policy matters relating to spinal cord and brain injury research projects and programs.
2. Consider research applications and make grants for approved projects.
3. Consider applications and make grants to healthcare clinics that:

- a. Are exempt from federal income taxation under Section 501 of the Internal Revenue Code;
 - b. Employ physical therapists licensed under IC 25-27; and
 - c. Provide in Indiana long term activity-based therapy services at affordable rates to individuals with spinal cord injuries or brain injuries that require extended post-acute care.
4. Consider the application's efficacy in providing significant and sustained improvement to individuals with spinal cord injuries or brain injuries.
 5. Formulate policies and procedures concerning the operations of the board.
 6. Review and authorize spinal cord and brain injury research projects and programs to be financed under IC 16-41-42.2.
 7. Review and approve progress reports and final research reports on projects.
 8. Review and make recommendations concerning the expenditure of money from the fund.

Executive Summary:

The state appropriations for the ISCBIRF for state Fiscal Year 2018 was \$1.6 million. This amount, when combined with additional funds revenue, is utilized for on-going operating costs for the Board to carry out its statutory duties.

The table below summarizes actual fund expenditures for state Fiscal Year 2018:

Grant funding	\$ 2,143,671
Peer review contract (CTSI)	\$71,874
ISDH Staff Support	\$ 147,275
Operating Costs (Non-Personnel)	\$83,140
Total	\$ 2,445,960

Revenues collected during the year amounted to approximately \$1,781,530. The Fund ended the fiscal year with an available cash balance of \$2,537,569.

The board met on several occasions, including the 2017 - 2018 dates of Aug. 1, Aug. 22, Dec. 11, Feb. 26, and June 20, to conduct official business and plan for the disposition of the fund, review research project progress reports, address requests for project extensions, and elect new board leadership.

The Board issued the research-related request for proposals September 2017 with a deadline of Dec. 8, 2017. A total of 29 proposals were received and all were reviewed. After the peer review was conducted, proposals were ranked by score and 13 applications were recommended to the Board for funding, via a tiered approach which accommodated funding based on financial availability. This group of applications was reviewed by the Board, along with comments from

the peer reviewers, and all 13 were selected for funding. The total commitment for proposals was valued at \$2,133,204. A list of research-related FY18 awards is included in Appendix I.

The Board issued the activity-based therapy request for proposals July 7, 2017, with a deadline of Oct. 27, 2017. Two proposals were received. After the peer review was conducted, the proposals were ranked by score. One application was recommended to the Board for funding; it was recommended that the second proposal be revised according to the reviewers' comments and then reconsidered by the same reviewers to ensure consistency. This group of applications was reviewed by the Board, along with comments from the peer reviewers. As recommended, one request for funding was accepted, and the other applicant was asked to revise and resubmit. Following the resubmission, the reviewers did not feel that the weaknesses were addressed sufficiently and recommended that the applicant revise and resubmit in the next round. The Board agreed with this recommendation. The total value for the single proposal funded was \$149,776. The FY18 activity-based therapy award is included in Appendix II. Applications for this particular request for proposal are low due to the few facilities that offer these services in the state. The Trauma and Injury Prevention program continues to use a portion of the fund to clinically analyze the trauma registry data to determine risk factors for patients transferred from one facility to another. This research is in partnership with Indiana University - Methodist Hospital.

The Board met for a final meeting for FY18 on June 20, 2018. The Board approved progress reports, reviewed the results of the bi-annual conference held in the spring, approved the new RFAs including the addition of translational research criteria, approved the new award process via email rather than formal letters, and reviewed the proposed changes in the bylaws.

Throughout FY18, ISDH Chief Financial Officer Aaron Atwell provided financial overviews of the fund to the Board.

Board Membership:

The Board membership and leadership experienced some changes July 1, 2017 through June 30, 2018. Dr. Henry Feuer continues to serve as Board chairman. Dr. Timothy Pohlman vacated his position and the board is identifying a member of the Brain Injury Association of Indiana to fill it. A complete list of Board members is provided as Appendix III to this report.

Preparation and Plans for 2018-2019:

The 2018-2019 research grant application was posted in September; grant applications were due no later than Dec. 10, 2018. The 2018-2019 activity-based therapy grant application was posted July 2, 2018; grant applications were due no later than Oct. 29, 2018. It is anticipated the awards

will be granted in July 2019. It is projected that approximately \$1.4 million will be available for the FY2019 grants.

Appendix I

2018-2019 Indiana Spinal Cord & Brain Injury Grant Recipients

- Armin Blesch, Indiana University, \$160,000
 - “Sensitization of sensory neuron subpopulations by Toll-like receptor 4 after chronic spinal cord injury”
- Nickolay Brustovetsky, Indiana University, \$160,000
 - “Tat-CBD3 peptide and PTP inhibitors in protection of human neurons against glutamate toxicity”
- Randy Brutkiewicz, Indiana University, \$160,000
 - “Development of innovative in vivo models to analyze and track innate neuroimmune cells following spinal cord injury”
- Mayland Chang, University of Notre Dame, \$160,000
 - “Efficacy of (R)-ND-336 in a Mouse Model of Traumatic Brain Injury”
- Brian Dixon, Indiana University, \$160,000
 - “Research for the prevention, treatment, and cure of spinal cord and brain injuries, including acute management, medical complications, rehabilitative techniques, and neuronal recovery”
- Xiaoming Jin, Indiana University, \$160,000
 - “Plasticity of corticorubro-spinal pathway in motor recovery after spinal cord injury”
- Prateek Kumar, Indiana University, \$160,000
 - “A combination of capillary alginate hydrogels with neural stem cells for bridging the injured spinal cords”
- Jianming Li, Purdue University, \$156,814
 - “Repair and regeneration of the damaged spinal cord with alpha-Gal nanoparticles”
- Jason Meyer, Indiana University, \$160,000
 - “Stem cell-mediated repair of the optic nerve following traumatic brain injury”
- Kelly Naugle, Indiana University, \$200,000
 - “Immune modulation of Chronic Post-Traumatic Headache after Mild Traumatic Brain Injury”
- Devon Parrott, Rehabilitation Hospital of Indiana, \$176,390
 - “Brain Injury Coping Skills (BICS) support group for brain injury survivors and caregivers: a telemedicine model”
- Xiao-Ming Xu, Ph.D., Indiana University, \$160,000
 - “Targeting Vascular Disruption after Spinal Cord Injury”
- Daniel Suter, Purdue University, \$160,000
 - “Oxygen Species: Janus faced Molecules in Axonal Regeneration”

- Fletcher White, Indiana University, \$160,000
 - “Impact of the adipocyte secretome on anxiety behavior in a rodent model of closed head injury”
- Wenhui Xiong, Indiana University, \$160,000
 - “Glutamate receptor dysfunction following mild traumatic brain injury”

Appendix II

2018-2019 Activity-Based Therapy Grant Recipients

- Larissa Swan, Indiana University, \$149,776
 - “Activity-Based Therapy for Individuals with Spinal Cord Injury”

Appendix III

Indiana Spinal Cord and Brain Injury Fund Board Members

1. **Physician/Neurosurgeon***
Dr. Hank Feuer (Board chairman)
2. **Spinal Cord/Head Injury Person or Family Member***
Kira Hudson, MBA
Clinical Data Analyst, St. Vincent Indianapolis Hospital
3. **Physiatrist, Board Certified APMR***
Dr. Whitney Pratt, MD PhD
Assistant Clinical Professor, Department of Physical Medicine and Rehabilitation
Indiana University School of Medicine
4. **Technical Life Sciences Industry***
Wade Lange, MS
Vice President, Lange Advisors
5. **Owner or operator of a facility that provides long term activity based therapy services***
Vacant
6. **Physical Therapist***
Vacant
7. **Indiana University**
Bruce Lamb, PhD
Executive Director, Stark Neuroscience Research Institute
Indiana University School of Medicine
8. **Purdue University**
Howard Zelaznik, PhD
Associate Vice President for Research
9. **National Spinal Cord Injury Association**
Janeen Earwood
Director of Rehabilitation, American Senior Communities
10. **Rehabilitation Hospital of Indiana**
Florence Hammond, PhD
Professor and Chair, Department of Physical Medicine and Rehabilitation at Indiana
University School of Medicine, Rehabilitation Hospital of Indiana
11. **American Brain Injury Association/Brain Injury Assoc. of Indiana**
Vacant

* Designates Governor-appointed position