



Rick Hansen Institute  
Institut Rick Hansen

RICK HANSEN INSTITUTE  
ANNUAL REPORT 2017-2018

## OUR VISION

A world without paralysis after spinal cord injury (SCI).

## OUR MISSION

To lead collaboration across the global SCI community by providing resources, infrastructure and knowledge; and to identify, develop, validate and accelerate the translation of evidence and best practices to reduce the incidence and severity of paralysis after SCI, improve health care outcomes, reduce long-term costs, and improve the quality of life for those living with SCI.

## OUR VALUES

Teamwork

Global Collaboration and Partnerships

Innovation for Impact

Integrity and Trust

Exceptional Outcomes

## Messages from Leadership



2017-2018 was a remarkable year for the Rick Hansen Institute. We achieved significant milestones set out in our Cure and Care Roadmaps and launched a new mobile electronic medical record (EMR) application—called CliniQuick—designed to support real-time quality improvement in a clinical setting. We also continued to build relationships internationally; in 2017-2018, we established innovative partnerships with organizations in Israel and India that will help emerging companies develop market ready solutions that benefit people living with SCI.

We are proud to call the dedicated researchers, health care professionals, innovators and entrepreneurs, people with SCI and community advocates our partners. Without this network, RHI would not be what it is today.

We gratefully acknowledge our primary funder—the Government of Canada through Western Economic Diversification—for its visionary support. We are also grateful to the governments of British Columbia, Alberta, Manitoba and Ontario for their significant commitments to support SCI research that is in direct alignment with our own goals.

And finally, thank you to Rick and the Rick Hansen Foundation for their unwavering support.

We hope you enjoy reading this year's annual report.

A handwritten signature in black ink that reads "Bill Barrable".

Bill Barrable  
Chief Executive Officer

A handwritten signature in black ink that reads "Katharina Kovacs Burns".

Katharina Kovacs Burns  
Chair, Board of Directors



I deeply appreciate the work of the Rick Hansen Institute and its partners and supporters. RHI has made significant progress in advancing SCI research and care through global collaboration and innovation. Having reached the five-year mark in its roadmap towards the cure, RHI can be proud of all its efforts and accomplishments, as highlighted in this report. I look forward to celebrating many more milestones as RHI continues on its journey to ensure improved health outcomes for people with SCI.

A handwritten signature in black ink that reads "Rick Hansen".

Rick Hansen  
Founder, Rick Hansen Foundation



## The work that supports our vision and mission

To advance our vision and mission, our activities are based on four distinct but inter-related program areas: **Cure**, **Care**, **Commercialization** and **Consumer**. These programs are intersected by six supporting strategies: **translational research**, **best practices implementation**, **informatics**, **network development**, **consumer engagement** and **Best & Brightest**. All of RHI's projects and initiatives fall under one or more of these programs and strategies.

We are based in the Blusson Spinal Cord Centre (BSCC), a state-of-the-art, purpose-built facility – located in Vancouver, British Columbia, Canada. The BSCC brings together world-leading multidisciplinary research with expert clinical care providers, international knowledge translation expertise and the wider SCI community to discover and implement innovative treatments and approaches to improve the health, independence and quality of life for people living with SCI.



# ANNUAL COST OF TRAUMATIC SCI IN CANADA

The economic burden of SCI is significant. Here are the financial and human costs of traumatic SCI in Canada.



## THE FINANCIAL COSTS\*

**\$2.75B** \*\*

ECONOMIC BURDEN ASSOCIATED WITH NEW TRAUMATIC SCIs DISCHARGED INTO THE COMMUNITY EACH YEAR

**\$520M**

ASSOCIATED WITH COMMON SECONDARY COMPLICATIONS:

- \$360M PRESSURE ULCERS
- \$60M URINARY TRACT INFECTIONS
- \$50M NEUROPATHIC PAIN
- \$30M PNEUMONIA

APPROXIMATELY 44,000 ESTIMATED NUMBER OF RESIDENTS WITH TRAUMATIC SCI

AND OF THAT AMOUNT...

**\$210M**

ASSOCIATED WITH HOSPITAL READMISSIONS

MORE THAN 11,000 HOSPITAL READMISSIONS EXPECTED EACH YEAR

\* All estimates are in 2015 dollars

\*\* Includes direct healthcare (59%) as well as indirect morbidity and mortality related (41%) costs..

## THE HUMAN COSTS



UNEMPLOYMENT



MENTAL HEALTH



SOCIAL ISOLATION



LIMITED RESOURCES FOR SELF-MANAGEMENT



FORCED RELOCATION TO URBAN CENTRES



SHARED BURDEN OF FAMILIES + COMMUNITIES



ACCESSIBILITY IN THE BUILT ENVIRONMENT

# RHI AT A GLANCE

A selection of our accomplishments over the years.



MORE THAN

**3,900**

CANADIANS WITH SCI



BENEFITTED FROM IMPLEMENTATION OF BEST PRACTICES

BEST PRACTICE TRAINING PROVIDED TO **700+ CLINICIANS**

**100+** PROJECTS FUNDED



ISNCSCI ALGORITHM DOWNLOADED MORE THAN **1000 TIMES** IN **161 COUNTRIES**



**210+ GRP USERS** WORLDWIDE



MORE THAN

**20,000**

INDIVIDUALS WITH SCI ENGAGED

**50% OF RHI'S RHSCIR NETWORK SUCCESSFULLY ACCREDITED** TO ACCREDITATION CANADA'S QMENTUM STANDARDS FOR SPINAL CORD INJURY ACUTE & REHABILITATION SERVICES



**230+** PEER-REVIEWED PUBLICATIONS SUPPORTED



**60+ HEALTH CARE SITES** AROUND THE WORLD ENGAGED



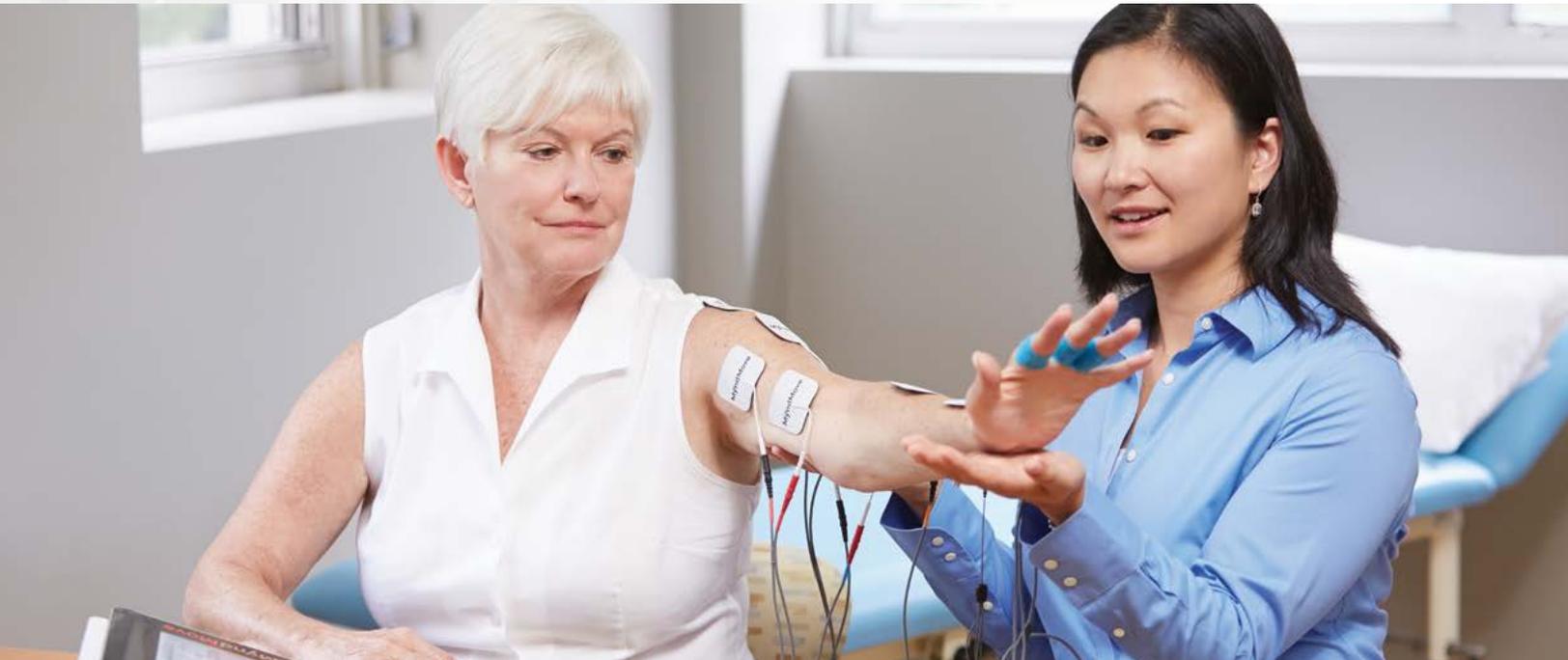
**ONE CANADA RESEARCH CHAIR,** 2 FACULTY AND 8 POST-DOCTORAL FELLOWS FUNDED



**6900+ PARTICIPANTS** ENROLLED IN RHSCIR

# ACCOMPLISHMENTS FROM FISCAL YEAR 2017-2018

Key milestones planned for 2017-2018 were achieved



## RHI participated in two major international neuro-restorative clinical trials

### **Recovery of Upper Limb Function in Persons With Spinal Cord Injury: Lead-In Study (MyndMove™)**

Myndmove™ is a non-invasive medical device that uses short, low energy electrical pulses with surface electrodes to cause muscle contractions. The idea behind this study is that through repeated use of Myndmove™, participating individuals can regain voluntary hand and arm function. The study was active across Canada and the United States.

*(ClinicalTrials.gov Identifier: NCT02799966)*

### **Minocycline in Acute Spinal Cord Injury (MASC)**

Minocycline is an antibiotic that has been used as an acne treatment for over 30 years. The purpose of this clinical trial is to determine if it can also be used in individuals with an acute SCI to both minimize damage to the spinal cord and improve recovery of motor functions. This study was active across Canada and Australia.

*(ClinicalTrials.gov Identifier: NCT01828203)*



LEARN MORE ABOUT MYNDMOVE



## 50% of healthcare sites in Canada participating in our Rick Hansen Spinal Cord Injury Registry (RHSCIR) were accredited by Accreditation Canada

In 2012, RHI partnered with Accreditation Canada to develop the Spinal Cord Injury Acute and Rehabilitation Accreditation Standards. These standards are the first evidence-based standards to be developed for SCI care in Canada.

Since then, RHI has been working with local leaders across Canada to provide practical tools, resources, and membership within a community of practice to successfully accredit to these standards.

50% of RHSCIR sites have been accredited to these Standards.



 [LEARN MORE ABOUT RHSCIR](#)

<p>Nov 2013 Queen Elizabeth II Health Sciences Centre Halifax Infirmary <b>ACUTE</b> Nova Scotia Rehab Centre <b>REHAB</b></p>	<p>Apr 2014 Hôpital du Sacré-Coeur de Montréal <b>ACUTE</b></p>	<p>Nov 2014 London Health Sciences Centre, Victoria Hospital <b>ACUTE</b> Toronto Rehab, Lyndhurst Centre <b>REHAB</b></p>	<p>Jun 2015 Hamilton General Hospital <b>ACUTE</b> Hamilton Regional Rehabilitation Centre <b>REHAB</b></p>	<p>Apr 2016 Winnipeg Health Sciences Centre <b>ACUTE</b> <b>REHAB</b></p>	<p>May 2016 Foothills Medical Centre <b>ACUTE</b> <b>REHAB</b> Glenrose Rehabilitation Centre <b>REHAB</b></p>	<p>Sep 2016 Vancouver General Hospital <b>ACUTE</b> GF Strong Rehabilitation Centre <b>REHAB</b></p>	<p>May 2017 Ottawa Hospital Rehabilitation Centre <b>REHAB</b></p>
<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2016</b>	<b>2016</b>	<b>2017</b>	<b>2017</b>



LEARN MORE ABOUT ISRAEL BIODESIGN

## RHI partnered with innovators around the world to create solutions for people with SCI

Two ground-breaking partnerships to advance the SCI innovation ecosystem were established this year.

On August 17, RHI, together with [The Hebrew University of Jerusalem](#), [the Federal Minister of Justice](#) and the [BC Government](#) celebrated a new partnership to accelerate medical innovation in BC. The purpose of the partnership was to fund solutions-focused research evaluated for its implementation and impact potential. Researchers were identified through a selection process and invited to participate in a BioDesign fellowship based in Israel.

On February 22 in New Delhi, India, the [Honourable Kirsty Duncan](#), Minister of Science and Minister of Sport and Persons with Disabilities, announced a new partnership between RHI, [IC-IMPACTS](#) and the [Indian Spinal Injuries Centre \(ISIC\)](#) to establish a competition to attract researchers in Indian and Canadian universities

to develop and commercialize promising and innovative technologies in the treatment and care of people living with SCI.

“Collaboration is incredibly important to the scientific process. But we know research partnerships are that much richer when scientists work with expert partners like the Rick Hansen Institute and Indian Spinal Injuries Centre, who can inform their discovery process,” said Minister Duncan. “Today’s agreement and call for creative thinking to help people living with spinal cord injury is an example of the important work Canadian scientists are doing to help people with disabilities participate fully in society both in Canada and in India.”

LEARN MORE ABOUT IC-IMPACTS





LEARN MORE ABOUT  
OUR DATA TECHNOLOGY



## New real-time data capture and review technology improves patient care

RHI released a new mobile electronic medical record (EMR) application—**CliniQuick**—to support real-time quality improvement this year.

review a summary of the treatment history and outcomes. It was launched in GF Strong Rehabilitation Centre’s spasticity clinic this past year.

CliniQuick allows clinicians to enter patient information directly into either a tablet or a smart phone as well as

**John Brown**  
40 year old Male

Oct 13, 2017 2:00 PM

Lactose allergy: No

**REFERRAL**  
Referred on 2017-10-04 by Therapist Dr Smith  
Kemiu Physician (Dr James)  
Pain, Ulcer, Contractures  
Referred for symptoms

**DIAGNOSES**  
SD - Thoracic 4

**INJECTIONS (CURRENT VISIT)**

Muscle	Right Dose (units)	Left Dose (units)	Dilution	Sites
Thoracic ParaSp	—	55	2:1	1
Lumbar ParaSp	—	55	2:1	1
Glut Min	—	30	2:1	1
Glut Med	—	40	2:1	1
Rect Fem	45	—	2:1	1
Quads	35	—	2:1	1

Right total dose: 90 unit  
Left total dose: 120 unit  
Total dose: 210 unit

**TREATMENT PLANS**  
Bolt - Details of this treatment  
Decrease contracture  
Sweating long term  
Improve positioning at rest

**GOALS**  
Pain- Leg, Trunk  
Set Baseline: pain baseline  
Set Expected: expected pain level after treatment  
Spasms- Trunk  
Set Baseline: 30  
Set Expected: 5

**Add diagnosis**

Diagnosis: SD  
Description: Type here  
Date of onset: 07/01/2015  
Date of diagnosis: 07/02/2015  
Spinal segment: Cervical, **Thoracic**, Lumbar, Sacral  
Spinal level: 4  
Injury Completeness: A, B, **C**, D  
Cause: Motorized vehicle, **Cycling**, Fall, Assault-blunt, Assault-penetrating

**John Brown**  
General: Bone, Disrupt, Xemin, Phenol/Alcohol  
Injections: Right Hip / Upper leg  
Select muscle or nerve  
TRIL, Glut Min, Glut Med, Glut Min, Perforans, Iliopsoas, Psoas  
Gracilis, **Quads**, **Rect Fem**, Vast Lat, Vast Int, Vast Med, Adductor  
Add Long, Add Brev, Add Magnus, Pectineus, Sartorius, Hamstrings  
Semi M, Bi Fem, Bi Fem Long, Bi Fem Short

Muscle	Right Dose (units)	Left Dose (units)	Dilution	Sites	Localization	Planned
Lumbar ParaSp	—	55	2:1	1	EMG	<input type="radio"/>
Thoracic ParaSp	—	55	2:1	1	EMG	<input type="radio"/>
Glut Med	—	40	2:1	1	EMG	<input type="radio"/>
Glut Min	—	30	2:1	1	EMG	<input type="radio"/>
Quads	35	—	2:1	1	EMG	<input type="radio"/>
Rect Fem	45	—	2:1	1	EMG	<input type="radio"/>



## Local leaders in Alberta use RHSCIR to improve the model for care for people living with SCI

Dr. Chester Ho, Professor at the University of Alberta and Teren Clarke, Executive Director of SCI Alberta, developed and implemented a person-centric model of care into the community follow-up phase for RHSCIR.

Up to this point, community follow-ups with RHSCIR participants were conducted by RHSCIR research team members. However, the attrition rate during this portion of the study was high and researchers noticed a trend – declining interest in participating in research and increasing interest in accessing social and clinical support services.

To address this, staff at SCI Alberta were trained to conduct the community follow-ups. Now, when participants raise health or social issues during their interviews, the staff leading the interviews are able to connect them to the appropriate services.

According to Teren Clarke, SCI Alberta’s Executive Director, this partnership “enhance[s] the number of unique individuals that data is gathered from so that research and services can be strengthened and policies can be better informed.”



The SCI Alberta team is an essential part of our data collection that is used for research and clinical purposes. This partnership is groundbreaking and is establishing a very new collaborative model with mutual respect and trust for our healthcare system.

DR. CHESTER HO



**UER**  
(Upper Extremity Right)

Elbow flexors C5  
Wrist extensors C6  
Elbow extensors C7  
Finger flexors C8  
Finger abductors (little finger) T1

Lowest non-key muscles with motor function:  
Right:   
Left:

Comments:

0 = absent  
1 = altered  
2 = normal  
NT = not testable

• Key Sensory Points

**UEL**  
(Upper Extremity Left)

C5 Elbow flexors  
C6 Wrist extensors  
C7 Elbow extensors  
C8 Finger flexors  
T1 Finger abductors (little finger)

## The ISNCSCI Algorithm continues to be used internationally as a best practice

The algorithm is a free, user-friendly app that can be used to support education, research and clinical care. It was developed by RHI, in collaboration with the International Spinal Cord Society (ISCoS) and a group of international experts to address the need for standardized scoring. The algorithm automates the calculation of the International Standards for Neurological Classification of Spinal Cord

Injury (ISNCSCI) examination – the gold standard for determining neurological impairment after SCI – using the 2011 scoring rules.

Since its release in 2012, RHI’s ISNCSCI Algorithm has been accessed by 48,000 users in 161 countries, downloaded more than 1,000 times, and integrated into electronic medical records and registries around the world.

## 4 REGISTRIES HAVE INTEGRATED THE ALGORITHM

- Australasian Spinal Care Registry
- New Zealand Spinal Cord Injury Registry
- Spinal Cord Injury Model Systems
- Rick Hansen Spinal Cord Injury Registry



INTEGRATED INTO  
ELECTRONIC MEDICAL  
RECORDS FROM  
**AROUND  
THE WORLD**

- DENMARK**  
Clinic for Spinal Cord Injuries, Rigshospitalet
- DENMARK**  
Spinal Cord Injury Center of Western Denmark
- FINLAND**  
Oulu University Hospital
- USA**  
The Craig Hospital
- USA**  
Epic Systems Corporation

**LEARN MORE ABOUT THE ISNCSCI ALGORITHM**



Watch a short video about the BC pressure injury prevention initiative: [https://youtu.be/5UJuyPT5\\_YM](https://youtu.be/5UJuyPT5_YM)

### Three pressure injury prevention initiative cafés held across BC

Pressure injuries are one of the most debilitating secondary complications for individuals with SCI. An estimated 95% of adults with SCI experience at least one pressure injury in their lifetime. They also represent one of the costliest preventable medical errors. In BC the annual direct healthcare costs exceed \$49 million, for a population of 6,000 individuals with traumatic SCI. As a result, RHI initiated a five year process to prevent community-acquired pressure injuries for British Columbians living with a SCI.

This year, a series of meetings were held in the **BC Interior**, **Vancouver Island** and the **Fraser Valley** to learn more from key stakeholders within the province about services, access and supports for residents of those regions who are coping with community-acquired pressure injuries as a result of their SCI. Consultations with stakeholders across the province will continue over the coming months as we work together to define the problem and build solutions.

Ultimately, the Institute views pressure injuries as an outrage and if we can prevent stage 1 from becoming stage 2 and stage 2 from becoming stage 3 then we will have made a huge difference in the quality of life experienced by people living with SCI

BILL BARRABLE, CEO  
RICK HANSEN INSTITUTE



READ THE MEETING  
SUMMARY REPORT



WATCH A SHORT VIDEO

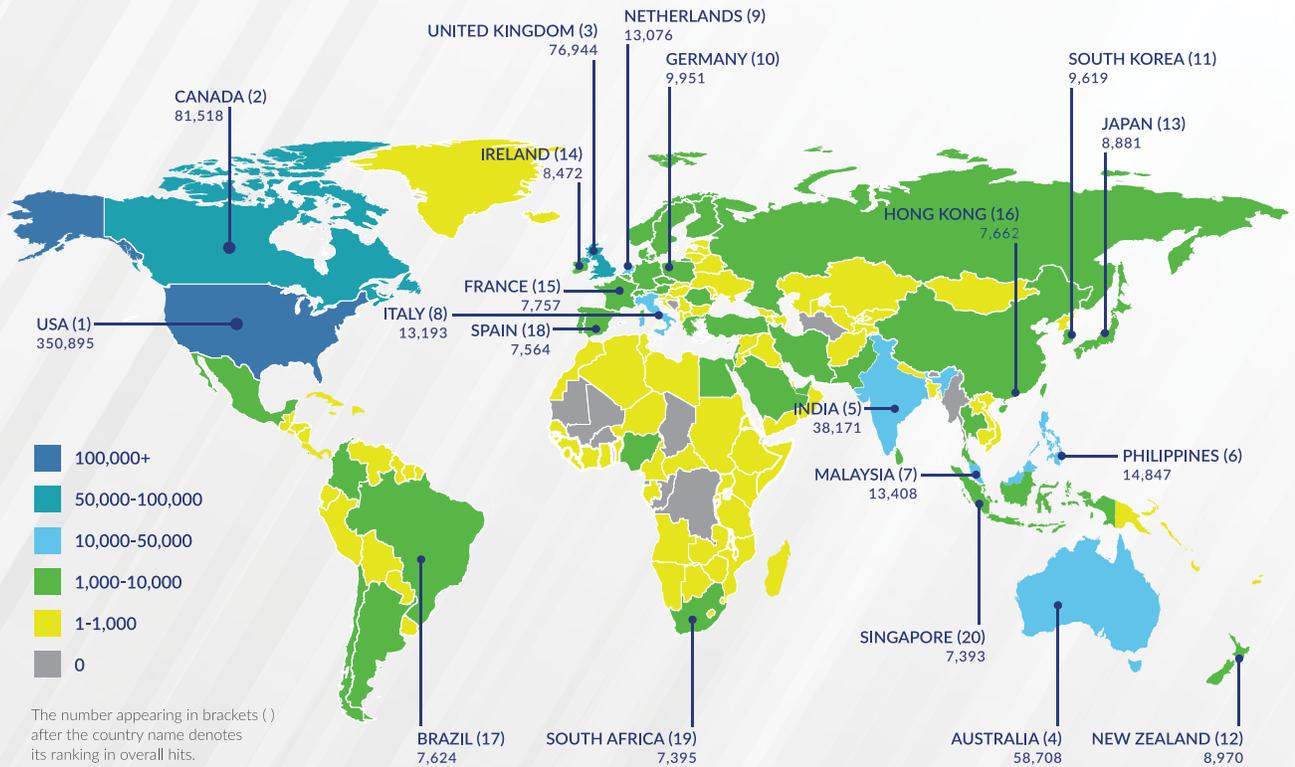


## Three new post-doctoral fellowships in spinal cord injury created in Ontario

With funding from the Government of Ontario and in partnership with the Ontario Neurotrauma Foundation and the University of Toronto, RHI established three new post-doctoral fellowships in Ontario.

One of the fellows who will be based at the University of Toronto's Department of Physical Therapy will be named in honour of Rick and Amanda Hansen for their contributions to SCI research and care.

The other two fellows will be based at the Waakebiness-Bryce Institute for Indigenous Health at the University of Toronto. The purpose of these fellowships is to increase capacity in SCI research in Ontario with the two based at the Dalla Lana School of Public Health specifically focusing on Ontario's Indigenous population.



The map above shows SCIRE's Professional website visitors from the beginning of the SCIRE project in December 2009 to March 2018.

## Almost a million users accessed SCIRE resources

The Spinal Cord Injury Research Evidence (SCIRE) project brings together more than 80 subject matter experts from around the world to review and rate current research on SCI health care. Their results are shared online eliminating the need for researchers and clinicians to search individual databases.

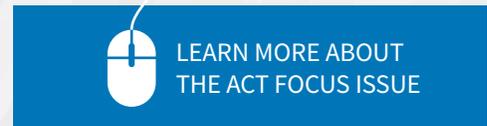
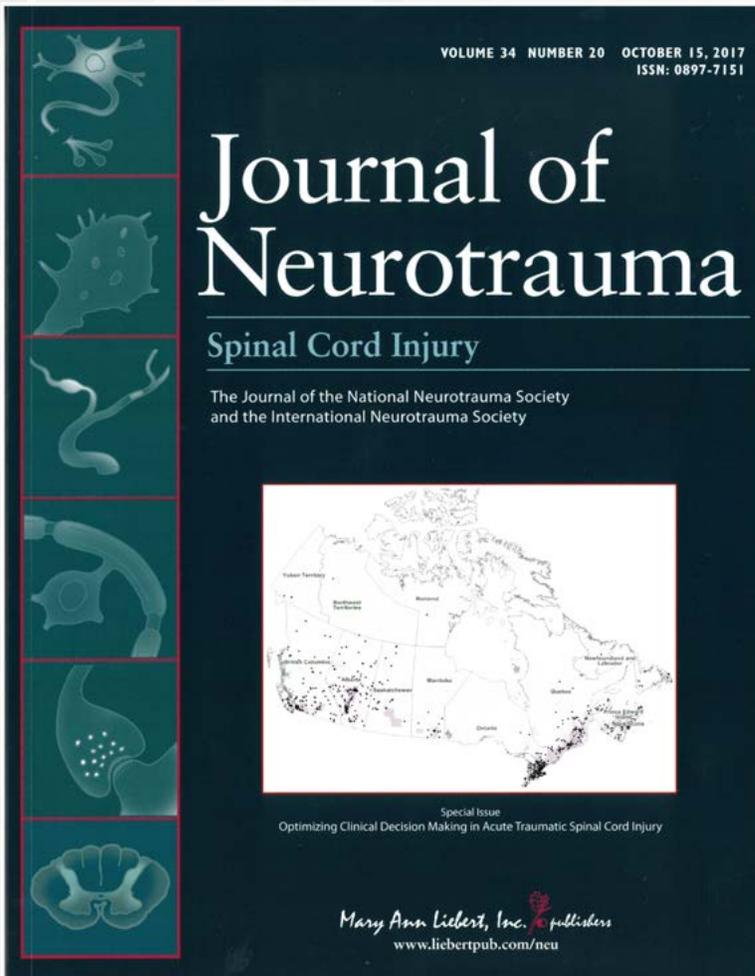
SCIRE is available in two versions – SCIRE Professional, which is written in academic language and intended for health professionals, and SCIRE Community, which is written in everyday language on curated topics selected by individuals with SCI and their caregivers.

From December 2009 to March 2018, more than 900,000 users accessed SCIRE's Professional website over 1.1 million times.



LEARN MORE ABOUT SCIRE

- PROFESSIONAL WEBSITE
- COMMUNITY WEBSITE



## RHI's research team answers key questions for people affected by traumatic SCI

The Access to Care and Timing team celebrated a major milestone this year with the publication of their findings in a special issue of the [Journal of Neurotrauma](#). The team has been working hard over the past several years to understand how to optimize patient flow through the health care system from the point of injury. Some of the key questions answered include:

- What level of care can Canadians with traumatic SCI expect to receive at SCI-specialized hospitals?
- Does it matter where you get injured?
- How does living in a rural setting compare to urban settings after SCI?
- What financial resources are required for future traumatic SCI care needs?
- What can the Canadian SCI Network do to enhance the quality of traumatic SCI care?

# FINANCIALS

## STATEMENT OF FINANCIAL POSITION

AS AT MARCH 31, 2018

	2018	2017
	\$	\$
<b>Assets</b>		
<b>Current assets</b>		
Cash and cash equivalents	1,303,493	705,821
Investments	1,935,512	3,719,918
Accounts receivable	10,024,881	11,595
Due from related party	102,115	-
Prepaid expenses	74,719	98,676
	<u>13,440,720</u>	<u>4,536,010</u>
<b>Capital assets</b>	<u>37,456</u>	<u>80,894</u>
	<u>13,478,176</u>	<u>4,616,904</u>
<b>Liabilities</b>		
<b>Current liabilities</b>		
Accounts payable and accrued liabilities	1,192,188	306,951
<b>Deferred contributions</b>	11,821,247	3,853,486
<b>Deferred capital contributions</b>	<u>37,457</u>	<u>80,894</u>
	<u>13,050,892</u>	<u>4,241,331</u>
<b>Unrestricted funds</b>	427,284	375,573
	<u>13,478,176</u>	<u>4,616,904</u>

For the Rick Hansen Institute's complete audited financial statements, please visit the Resources section of our website: [www.rickhanseninstitute.org](http://www.rickhanseninstitute.org).

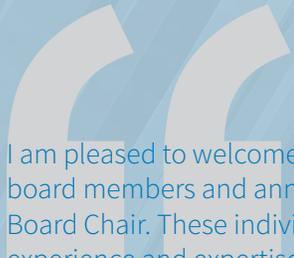
## STATEMENT OF OPERATIONS AND FUND BALANCES

FOR THE YEAR ENDED MARCH 31, 2018

	2018	2017
	\$	\$
<b>Revenue</b>		
Grants and contributions	10,467,564	10,716,707
Donations and sponsorships	3,227	172
Investment income	50,561	64,211
Other income	32,677	60,514
Amortization of deferred capital contributions	50,709	67,020
	<b>10,604,738</b>	<b>10,908,624</b>
<b>Expenses</b>		
Translational research	6,508,948	5,652,886
Best practice implementation	1,047,863	1,730,950
Informatics	1,168,889	1,170,589
Network development	497,707	751,727
Best & brightest	281,875	92,875
Consumer engagement	646,562	942,220
Fundraising	-	25,879
Management and administration	401,183	471,126
	<b>10,553,027</b>	<b>10,838,252</b>
<b>Excess of revenue over expenses for the year</b>	<b>51,711</b>	<b>70,372</b>
<b>Unrestricted fund balance - Beginning of year</b>	<b>375,573</b>	<b>305,201</b>
<b>Unrestricted fund balance - End of year</b>	<b>427,284</b>	<b>375,573</b>

# THANK YOU

This year we would like to thank our out-going board members Bernard Bressler, Graham Creasey and Kevin Lamarque for their service and dedication to our Board of Directors. We are also delighted and privileged to welcome Katharina Kovacs Burns as our new Board Chair as well as Nava Swersky Sofer and Michael S. Beattie as board members.



I am pleased to welcome Nava and Michael as new board members and announce Kathy as our new Board Chair. These individuals bring a wealth of experience and expertise in diverse backgrounds in translational research, discovery science and commercialization, and will be tremendous assets as RHI works to provide solutions for people living with SCI.

BILL BARRABLE, CEO  
RICK HANSEN INSTITUTE



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to be accredited by Imagine Canada

