

# BRAIN INJURY

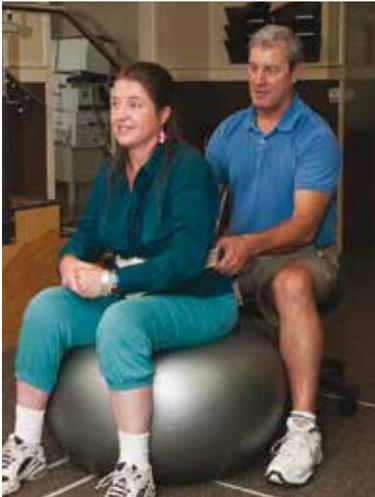
vol. 15 issue 4

professional

Cultural Issues in  
Rehabilitation



# BUILDING FUTURES *through* BETTER OUTCOMES



For over 30 years, Learning Services has been Building Futures by delivering outcome driven post-acute neurorehabilitation services for people with acquired brain injuries. With seven neurorehabilitation facilities strategically located across the country, Learning Services provides a wide range of specialized programs including neurorehabilitation, neurobehavioral stabilization & rehabilitation, supported living, day treatment rehabilitation and evaluation only services.

Programs are available in Northern and Southern California, Colorado, Georgia, North Carolina and Utah. We understand the serious challenges facing people with brain injury and their families and we help them navigate the complicated process of treatment, recovery, and rehabilitation.

- *Post-Acute Neurorehabilitation*
- *Neurobehavior Rehabilitation*
- *Supported Living*
- *Day Treatment Rehabilitation*
- *Pain Rehabilitation Program*
- *Comprehensive Functional Evaluations*

*For more information on our programs, please call  
888-419-9955 or visit [LearningServices.com](http://LearningServices.com).*



# BRAIN INJURY

professional

vol. 15 issue 4

## departments

- 5 Editor in Chief Message  
7 Guest Editor's Message  
30 Literature Review

## features

- 8 How Cultural Considerations Guide Service Delivery in the Brain Injury Specialty Program – a Saudi Perspective  
Mohammad Hassan, MSc, OT • Sadia Misbach, BSc OT, MPH  
Dakeel Abdulrahman Al Judaie, BSc, PT
- 12 The Influence of Filial Piety on Brain Injury Rehabilitation  
Lanrong Chen, MMed • Yunhua Fang, MD • Chengyan Liu, MMed  
Shanli Yang, MD
- 14 Outcome Indicators That Really Matter in Traumatic Brain Injury Multi-site Follow-up and Related Challenges: The CReACTIVE Endeavour, the European Model  
Mikaella Kokkinou, MSc, PhD • Guido Bertolini, MD  
Joanne Fleming, BA • Fofi Constantinidou, PhD, CCC-S, CBIS  
Andrea Montis, MD • Greta Carrara • Theodoros Kyprianou, MD, PhD, EDIC
- 20 Tihei Mauri Ora: The Sneeze/Breath of Life  
Ngawairongoa Herewin
- 22 Recovery in Culture: A Singapore Experience  
Debbie Chow, SPD
- 27 Long-term Outcomes After TBI in the Best Country in the World to Live in – Why aren't they better?  
Marianne Løvstad • Nada Andelic, MD, PhD • Solveig Læg Reid Hauger  
Ida M. H. Borgen. • Hilde Margrete Dahl • Silje Fure  
Emilie Isager Howe • Cecilie Røe, MD

*Brain Injury Professional* is a membership benefit of the North American Brain Injury Society and the International Brain Injury Association



### NORTH AMERICAN BRAIN INJURY SOCIETY

**CHAIRMAN** Mariusz Ziejewski, PhD  
**VICE CHAIR** Debra Braunling-McMorrow, PhD  
**IMMEDIATE PAST CHAIR** Ronald C. Savage, EdD  
**TREASURER** Bruce H. Stern, Esq.  
**FAMILY LIAISON** Skye MacQueen  
**EXECUTIVE DIRECTOR/ADMINISTRATION** Margaret J. Roberts  
**EXECUTIVE DIRECTOR/OPERATIONS** J. Charles Haynes, JD  
**MARKETING MANAGER** Megan Bell-Johnston  
**GRAPHIC DESIGNER** Kristin Odom

### BRAIN INJURY PROFESSIONAL

**PUBLISHER** J. Charles Haynes, JD  
**EDITOR IN CHIEF** Debra Braunling-McMorrow, PhD - USA  
**EDITOR IN CHIEF** Nathan Zasler, MD - USA  
**ASSOCIATE EDITOR** Juan Arango-Lasprilla, PhD - Spain  
**DESIGN AND LAYOUT** Kristin Odom  
**ADVERTISING SALES** Megan Bell-Johnston

### EDITORIAL ADVISORY BOARD

Nada Andelic, MD - Norway  
Philippe Azouvi, MD, PhD - France  
Mark Bayley, MD - Canada  
Lucia Braga, PhD - Brazil  
Ross Bullock, MD, PhD - USA  
Fofi Constantinidou, PhD, CCC-SLP, CBIS - USA  
Gordana Devecerski, MD, PhD - Serbia  
Sung Ho Jang, MD - Republic of Korea  
Cindy Ivanhoe, MD - USA  
Inga Koerte, MD, PhD - USA  
Brad Kurowski, MD, MS - USA  
Jianan Li, MD, PhD - China  
Christine MacDonell, FACRM - USA  
Calixto Machado, MD, PhD - Cuba  
Barbara O'Connell, OTR, MBA - Ireland  
Lisandro Olmos, MD - Argentina  
Ronald Savage, EdD - USA  
Caroline Schnakers, PhD - USA  
Olga Svestkova, MD, PhD - Czech Republic  
Lynne Turner-Stokes, MD - England  
Olli Tenovu, MD, PhD - Finland  
Asha Vas, PhD, OTR - USA  
Walter Videtta, MD - Argentina  
Thomas Watanabe, MD - USA  
Alan Weintraub, MD - USA  
Sabahat Wasti, MD - Abu Dhabi, UAE  
Gavin Williams, PhD, FACP - Australia  
Hal Wortzel, MD - USA  
Mariusz Ziejewski, PhD - USA

### EDITORIAL INQUIRIES

Managing Editor  
Brain Injury Professional  
PO Box 131401, Houston, TX 77219-1401  
Tel 713.526.6900 Email: mbell@hdiplib.com  
Website: www.nabis.org

### ADVERTISING INQUIRIES

Megan Bell-Johnston  
Brain Injury Professional  
HDI Publishers  
PO Box 131401, Houston, TX 77219-1401  
Tel 713.526.6900 Email: mbell@internationalbrain.org

### NATIONAL OFFICE

North American Brain Injury Society  
PO Box 1804, Alexandria, VA 22313  
Tel 703.960.6500 / Fax 703.960.6603  
Website: www.nabis.org  
ISSN 2375-5210

*Brain Injury Professional* is a quarterly publication published jointly by the North American Brain Injury Society and HDI Publishers.  
© 2019 NABIS/HDI Publishers. All rights reserved. No part of this publication may be reproduced in whole or in part in any way without the written permission from the publisher. For reprint requests, please contact, Managing Editor, Brain Injury Professional, PO Box 131401, Houston, TX 77219-1400, Tel 713.526.6900, Fax 713.526.7787, e-mail mbell@hdiplib.com.

# Proven Experience, Exceptional Care

Tree of Life Services has been helping persons with acquired brain injury optimize their functional outcomes for over 15 years under the leadership of Nathan D. Zasler, MD, internationally recognized brain injury neurorehabilitation physician. We provide transitional rehabilitation and long-term assisted living services in home-like settings in our community.

We strive to optimize client's functional outcomes by utilizing evidence based medical and neurorehabilitation assessment and treatment strategies along with close medical oversight. Our competitive, individualized per diem rates make us a cost effective choice given our scope of services , quality of care, and beautiful living environments.



## Tree of Life

*Specialized Post-acute Brain Injury Services*



[tree-of-life.com](http://tree-of-life.com)

888-886-5462

Call today to make a referral or to schedule a free phone consultation with Dr. Zasler.

# *from the* editor in chief



**Debra Braunling-McMorrow, PhD**

## Biography

**Debra Braunling-McMorrow, PhD**, is the President and CEO of Learning Services. She serves on the board of the North American Brain Injury Society as Vice Chair. She has served as a chair of the American Academy for the Certification of Brain Injury Specialists (AACBIS), board of executive directors of Brain Injury Association of America, and several national committees, editorial boards, and peer review panels. She is a published author and lecturer in the field of brain injury rehabilitation for over 30 years. To contact Dr. McMorrow, please email [conference@nabis.org](mailto:conference@nabis.org).

The *Brain Injury Professional* is now a product of The North American Brain Injury Society, as well as The International Brain Injury Association. Two primary parts of its mission are to move brain injury science into practice and to build alliances between regional, national and international practitioners and organizations. This edition helps meet these targets by highlighting some of the many cultural issues in rehabilitation across the world and in describing some research efforts directed toward developing a uniformed measurement system in the European Union.

I am pleased to have Dr. Fofi Constantinidou and Chris MacDonell as the returning editors for this special edition on cultural issues in rehabilitation. They give us a view into the world of brain injury rehabilitation.

Each has a rich history and expertise in working across many cultures and countries. Chris MacDonell, who has spearheaded and leads The Commission on Accreditation of Rehabilitation Facilities, CARF's international development, has been the bridge builder for many professionals around the world in the interchange of ideas and expertise. Dr. Fofi Constantinidou has worked both in the U.S. and Cyprus and has lead or participated in multinational collaborative research efforts much of her career. Both are members and leaders of several international associations including the International Networking Group of the American Congress for Rehabilitation Medicine.

**They bring us a variety of articles on culture, spirituality, values and beliefs that influence the perception of disability and rehabilitation as well as the availability and delivery of rehabilitation services around the world.**

In addition, Cloie Johnson provides a review of the Life Care Planning and Case Management Handbook (4th Edition) and does your homework for you in comparing and contrasting this latest version which includes additional information on multi-cultural issues.

Finally, mark your calendars for the upcoming IBIA World Congress in Toronto, March 13-16, 2019 at the Sheraton Centre Hotel. Held every two years, the World Congress on Brain Injury is one of the premier brain injury conferences, attracting well over 1000 professional delegates from across the world. We hope to see you there.





Restore-Ragland



Restore-Roswell



Restore-Lilburn

Restore Neurobehavioral Center is a residential, post acute healthcare organization dedicated exclusively to serving adults with acquired brain injury who also present with moderate to severe behavioral problems. Services range from intensive inpatient neuro-rehabilitation and transitional community re-entry services to long term supported living services. Restore Neurobehavioral Center, located in a suburb north of Atlanta, is the site of our inpatient post acute neuro-rehabilitation program as well as one of our supported living sites. We operate two other community living sites, Restore-Lilburn (GA) and Restore-Ragland (AL).

www.restorehealthgroup.com  
800-437-7972 ext 8251

# BRAIN INJURY LEADERSHIP ACADEMY

mindfulness applied

## The Conscious Therapist Workshop: Mindfulness Applied

An introduction to mindfulness for providers in the field of neurorehabilitation.  
An opportunity for significant personal exploration and growth.

Friday, April 5, 2019 (1:00-6:00 pm) and Saturday, April 6, 2019 (8:00 am-3:00 pm)  
Greenville, South Carolina

The unique challenges of being a neurorehab professional require a unique approach to increase resilience, therapist satisfaction and ultimately therapist impact on the lives of those they serve. This interactive workshop is meant to lay the foundation for significant personal and professional growth.

Topics for the two days include:

- The neuroscience of mindfulness
- Review of mindfulness and emotional intelligence
- The Conscious Therapist model

Activities include:

- Lecture and small group discussion
- Introduction to the Enneagram, a personality typing system that can support mindful growth
- An online sharing community will be available to support participants' growth in the year after the workshop.

Designed for PT, OT, ST, Nursing, Social Work, Psychology and others, the workshop aims to provide a mindfulness based model that will help navigate the many personal challenges of neurorehabilitation.

For more information, visit our website at <https://www.braininjuryleadership.com>

# from the guest editors



Fofi Constantinidou, PhD, CCC-SLP, CBIS, FASHA, FACRM

## About the Guest Editor

Fofi Constantinidou, PhD, CCC-SLP, CBIS, FASHA, FACRM, is Professor of Language Disorders and Clinical Neuropsychology & Director Center for Applied Neuroscience at the University of Cyprus ([www.cancyprus.org](http://www.cancyprus.org)). Her research, teaching, and clinical expertise center on acquired adult neurological disorders and their effects on neuropsychological functioning. Constantinidou is a member of several national and international associations and has held several leadership positions. Currently, she serves on the Board of Governors of the American Congress of Rehabilitation Medicine (ACRM) and is Chair of the International Networking Group and Chair of the Partnership Committee of ACRM. She participates in many local and international professional and scientific committees and international scientific review boards. Constantinidou is the 2013 recipient of the Experienced Researcher Award of the Cyprus Research Promotion Foundation for her work on the Neurocognitive Study on Aging. She is Fellow of the American Speech Language Hearing Association and the American Congress of Rehabilitation Medicine.

We are honored and humbled by the invitation to edit the Special Cultural Issue of the *The Brain Injury Professional*. The two of us have collaborated on many projects in the past, including the 2014 Special International Issue of this journal. We are thrilled to be invited back.

As rehabilitation specialists in very different roles we have the opportunity to observe and identify the uniqueness of rehabilitation in a variety of countries. These countries with their well-defined cultural identities and views on disability assist us in recognizing that the world is small and we can all learn from each other. Through this edition, we aimed to expose the readers to the development and the needs of ABI rehabilitation in different regions of the world, highlighting that culture has a direct impact on perceptions of the injury, management, outcomes, and rehabilitation practices.

One of the concepts we hope by reading these articles will be promulgated is *cultural humility*. A very simple definition is: **Cultural humility** is a lifelong process that ensures that professionals learn about other **cultures** and are sensitive to **cultural differences**.

In this issue we have solicited articles from service delivery providers accredited by CARF International, covering a very wide wing span: Norway, Saudi Arabia, China, Singapore, and New Zealand. As an international accreditor, CARF International has the unique position to look at the rehabilitation programs in 27 countries. The organization has a focus on person-centered practices, and recognizes that cultural needs and diversity facilitate a life-long process of learning. Through CARF's peer review accreditation process surveyors and others in the field have been exposed to the enriched life we all have by learning from others and respecting their unique cultures. The goal of enhancing the lives of individuals served in these brain injury programs is a worthwhile and humbling experience. The articles included in this issue describe various aspects of cultural beliefs and practices and ethnic characteristics that extent beyond sex/gender and language issues. Religious practices, non-western medicine principles, alongside with traditional western evidence based models are integrated in some cases in order to create the much needed therapeutic alliance. Despite differences in the rehabilitation process, all systems have a common goal: to maximize therapeutic gains for the patient and the family. The measurements implemented to measure success though, may differ across these systems and countries.

Service delivery in ABI begins at the emergency scene and continues in the emergency room, intensive care unit, neurorehabilitation floor, and proceeds through the various acute and post-acute, inpatient, outpatient, and community rehabilitation phases. In our 2014 Special International Issue we presented information on a multinational, multimillion euro project investment funded by the European Union for developing uniformed measures in ICU patient monitoring. Fast forward to our current issue, the major data collection phase of the project is nearly completed. The consortium provides us with some of the challenges and opportunities faced by the CREATIVE project. This massive effort consisting over 100 ICUS from 7 European countries (Cyprus, Greece, Hungary, Israel, Italy, Poland, and Slovenia) truly offers a framework for cross-border, cross-cultural, longitudinal collaboration.

We would like to thank the Brain Injury Professional for recognizing the importance of always looking outside our day-to-day practice and allowing us to bring other thinking and learning to the field.

In today's world of rapid information exchange we hope that all of us who engage in the world of rehabilitation will always find time to reflect on what we can learn and how we can all work toward continuous improvement of rehabilitation for individuals with ABI.

Respectfully submitted,  
Fofi Constantinidou and Christine MacDonell



Christine M. MacDonell

## About the Guest Editor

Christine M. MacDonell is the Managing Director of Medical Rehabilitation and International Medical Rehabilitation and Aging Services.

Chris began her varied career in the health care industry as an occupational therapist after graduating from the University of Southern California. While still in California, she became an administrator of a full continuum of care. Chris came to CARF in 1991. She has served as the Managing Director of Medical Rehabilitation and Aging Services during her time with CARF.

Chris is a Fellow of the American Congress of Rehabilitation Medicine. Chris has represented CARF International at international, national, regional and local meetings to promote and interpret standards and the use of accreditation as a quality business and clinical strategy throughout the continuum of care. She is part of the medical rehabilitation team responsible for the training of CARF surveyors and also the development and revision of CARF standards.



## How Cultural Considerations Guide Service Delivery in the Brain Injury Specialty Program – a Saudi Perspective

Mohammad Hassan, MSc, OT • Sadia Misbach, BSc OT, MPH • Dakeel Abdulrahman Al Judaie, BSc, PT

While it is acknowledged that disability is to a large extent defined by the sociocultural context of an individual and the community they participate in, rehabilitation interventions are often focused on maximizing independence in self-care with less emphasis on the role of the extended family and socio-cultural religious practices. In Saudi Arabia, rehabilitation is a developing field. Physical therapy was established more than 30 years ago. One of the areas requiring specialized rehabilitation is for patients with traumatic brain injury. It is estimated that over 7,000 people are killed annually in Saudi Arabia due to road traffic accidents with 39,000 people suffering from severe injuries that also occur because of the epidemic of traffic accidents. Furthermore, traffic accidents occur every minute in KSA with 7% resulting in permanent disabilities (Joffe-Walt 2010). It is reported that 21 billion Saudi riyals is spent annually in health care related to motor vehicle accidents (Arab News, 2016).

The demand for rehabilitation is ever increasing, with an estimated 8000 rehabilitation beds required in the coming years (Aljadid, 2013). Inpatient rehabilitation facilities are generally limited in the Kingdom. Rehabilitation for persons with brain injury is provided at Sultan Bin Abdul Aziz, one of the largest rehabilitation facilities in the Middle East accredited by Commission on Accreditation of Rehabilitation Facilities, Joint Commission International Accreditation and Saudi Central Board of Accreditation of Hospital Institutions. The Brain Injury Specialty Program served about 480 patients in 2017 from across the Kingdom of Saudi Arabia with over 34% from Riyadh; the capital city. A high percentage (58%) of patients admitted are males, aged 18 years to 35 years as a result of the road traffic accidents. Patients are admitted with a Rancho Los Amigos Scale Level 3 and above and stay for an average of 44 days. The main funding sources are from the Ministry of Health. With national transformation in the Kingdom of Saudi Arabia and the implementation of Vision 2030,

a trauma network is being established to enhance health care and rehabilitation referral. Public private partnerships are expected to increase together with primary and community level health care. These initiatives would assist with enhancing the continuity of care, especially for patients with brain injury that may require life-long follow-up and rehabilitation intervention.

## Culture

While much has been written on providing culturally sensitive care, limited research exists on providing culturally relevant physical rehabilitation services especially in Saudi Arabia. Research also tends to focus on western countries providing services to a diverse population. In Saudi Arabia a diverse foreign workforce provides services to the population.

Saudi Arabian culture focuses on traditions and collectivism that are strongly embedded within the governmental laws and regulations. Successful rehabilitation approaches to address participation restrictions and activity limitations emphasize the importance of sociocultural religious context; however exploring clinical practices and the patient's understanding of disability has not been documented well in the research literature.

In Saudi Arabia, Islamic and Arabic cultural values guide the daily life of citizens. Islamic prayer occurs 5 times daily and family life, business and work activities are structured around these timings. Spiritual healing is often practiced together with rehabilitation and medicine for persons with disabilities. Spiritual healing may involve recitation of the Quran, use of specific foods and herbs, traditional medicine (cupping, cauterization) may form part of the healing.



*Canoeing at Vinland's main campus in Loretto, Minnesota*

# drug & alcohol treatment for adults with disabilities



Vinland Center provides drug and alcohol treatment for adults with cognitive disabilities, including traumatic brain injury, fetal alcohol spectrum disorder and learning disabilities. We make all possible accommodations for cognitive deficits and individual learning styles.

Located in Loretto, Minnesota — just 20 miles west of Minneapolis.

**(763)479-3555 • [VinlandCenter.org](http://VinlandCenter.org)**

Elderly are treated with much respect and there are clear roles between the elderly and younger family members regardless of the disability. Elderly are responsible for decision-making in the family that includes marriage and family. Visiting the sick is encouraged in Islamic traditions and therefore the patients at SBAHC rehabilitation hospital receive many visits from the extended family members. Respect for these practices by health professionals is essential in building culturally sensitive care.

## Rehabilitation Clinical Considerations

There is a common belief that the causes of injuries, diseases and disability is due to evil eye, black magic (which is a bad practice aimed to harm certain people) and “Jinn” (is unintentional possession or harm by Jinn because of certain practices that are regarded as incorrect such as children playing or shouting during sunset time. Healing is often sought through faith healers and traditional/religious medicine especially for the management of psychological and behavioral effects of Traumatic Brain Injury (TBI) such as anxiety, depression, insomnia etc. (Al Habeeb, 2003).

Seeking healing from traditional healers has shown to improve the wellbeing and motivation of patients as reported by rehabilitation therapists. These positive emotions (wellbeing and motivation) are respected by clinicians to promote further healing and participation in the rehabilitation program. However, the negative aspect of belief in the evil eye has been noted in that some patients do not want to show their improvements publicly (e.g. progressing to walking successfully with a mobility device), in fear of further harm from evil eye. Therapists often use the terms “mashAllah” (according to God’s will) to encourage patients to participate and to respect their beliefs. As the long term behavioral and psychological effects of TBI persist, some family members believe the cause to be Jinn possession (demon possession). Some families would not prioritize cognitive and behavioral rehabilitation and prefer to address this through religious and traditional healers. Patient family education and family conferences are used to provide education on the medical rehabilitation perspectives of brain injury, its long term effects, prognosis, impact of social skills, behavior, life roles and occupation etc. Families and patients generally understand this view and integrate both perspectives in search of health and wellbeing. During the rehabilitation process, standardized tests are used with flexibility as many cognitive tests have not been validated for the Arabic language and culture. Patients are admitted with a family member or paid caregiver that receives training throughout the rehabilitation process. Families actively participate in decision-making and goal setting as there are roles and responsibilities with regard to guardianship.

Mobility and communication goals are highly prioritized by the patient and family. In Saudi culture, communication, family and social interaction and participation in religious activities are highly valued. Generally, rehabilitation practices and models tend to prioritize daily living tasks such as self-care. In Saudi culture, these tasks can be

performed with assistance of a paid caregiver, therefore the priority for most patients is achievement of higher level functions such as social interaction, communication and mobility. When clinicians collaborate with patients in determining the priority goals, while still focusing on self-care etc., patients sense of autonomy, self-esteem and positivity towards recovery is noticed. These achievements related to social interaction, communication and mobility are also seen as pre-cursors to fulfillment of religious and cultural obligations and fulfillment of tasks associated with roles related to marriage, visiting sick family members and the role of siblings within the family. Within rehabilitation, cultural concerns are practically reflected in training to eat with the right hand, performing ritual ablutions (wudu) for prayer (salat), maintaining privacy of the body during hygiene and self-care and performing prayers that involve specific movements and sequences. Scheduling of therapy sessions are arranged around prayer times and during the holy month of Ramadan (month of fasting), timings for therapy are changed according to the patient’s preference as most patients fast during the day. Religious holidays and festivities are incorporated into the program as part of the socialization and family support goals. Patients can access a spiritual leader (Sheikh) and or participate in the communal prayers which is on site at the facility. The call to prayer is heard through overhead speaker across the hospital and patients and Muslim staff participate in the prayer ritual. This prayer ritual guards against alienation as it provides an “equal opportunity” for patients to participate with Muslim patients, staff, friends, family members and visitors in congregational prayer.

Some patients express their choice of gender specific clinician as there are some restrictions related to physical contact. The TBI program has regular cultural and socialization activities such as coffee drinking, traditional dancing, simulated desert camping, cooking traditional food, Islamic and Arabic arts and crafts and games.

In conclusion, rehabilitation interventions in Saudi Arabia are a family oriented recovery process as families are involved in decision-making, assist with goal prioritization, and provide care through the extended family. Rehabilitation programs should include an understanding of the sociocultural dynamics underlying activities of daily living and participation. In developing cultural competence, foreign expatriate therapists need to develop constant self-reflective practice while continuously learning about the complex and subtle dynamics of a culture other than their own and how it translates into rehabilitation practice.

## References

- Al-Shahri, M. (2002). Culturally Sensitive Caring for Saudi Patients. retrieved from [https://www.researchgate.net/publication/11414729\\_Culturally\\_Sensitive\\_Caring\\_for\\_Saudi\\_Patients](https://www.researchgate.net/publication/11414729_Culturally_Sensitive_Caring_for_Saudi_Patients)
- Al-Habib, A., A-Shail, A., Alaqeel, A., Zamakhshary, M., Al-Bedah, K., Alqunai, M., and Al-Enazi, S. (2013). Causes and patterns of adult traumatic head injuries in Saudi Arabia: implications for injury prevention. *Ann Saudi Med*.
- Al-Habeeb, T. A. (2003). A pilot study of faith healers’ views on evil eye, jinn possession, and magic in the kingdom of Saudi Arabia. *Journal of Family & Community Medicine*, 10(3), 31–38.
- Arabnews. (2016). Annual cost of traffic accidents SR20bn. Retrieved from <http://www.arabnews.com/saudi-arabia/news/899991>
- Al-Jadid, M. S. (2013). Disability in Saudi Arabia. *Saudi Medical Journal*. Vol. 34 (5) 453-460.

## Author Bios

**Mohamed H. Hassan**, MSc, OT, Brain Injury Rehab Program Manager. An Occupational Therapist with 18 years’ experience mostly in Pediatrics and Brain Injury Rehab. Interests include Culture and Culturally Congruent Care.

**Dakeel AL Judaie**, BSc, PT, Masters in Health care management student. Clinical Supervisor, Brain injury Program, Physical Therapist with 12 years’ experience with 10 years in Brain Injury Rehab, interest include Assistive technology and Gait Rehabilitation. Currently serves as a member in the Research and Ethical Committee

**Sadia Misbach**, BSc OT, MPH, PhD Student, Assistant Director, Rehabilitation. An Occupational Therapist with over 20 years’ experience across different health care settings. Interests include rehabilitation program development, community based rehabilitation, ICF, culture and disability.

# events

## 2019

### March

13 - 16: *IBIA 13th World Congress on Brain Injury*, March 13-16, Toronto, Ontario. For more information, visit [ibia2019.org](http://ibia2019.org).

13 - 16: *North American Brain Injury Society 32rd Annual Conference on Legal Issues in Brain Injury*, March 13 -16, Toronto, Ontario, Canada. For more information, visit [nabis.org](http://nabis.org).

### April

4 - 7: *AOTA Annual Conference & Expo*, April 4-17, New Orleans, LA, USA. For more information, visit [aota.org](http://aota.org).

4 - 7: *13th World Congress on Controversies in Neurology*, Madrid, Spain. For more information, visit [comtecmed.com/cony/2019/](http://comtecmed.com/cony/2019/).

11 - 14: *AOCNR2019*, Nanjing, China. For more information, visit [aocnr2019.rehabmg.com](http://aocnr2019.rehabmg.com).

### May

10 - 11: *1st International Conference on Teleneurorehabilitation*, Crotona, Italy. For more information, visit [1ictnr.it](http://1ictnr.it).

16: *Family Matters: Understanding and addressing family needs after acquired brain injury*, London, UK. For more information, visit [abisolutions.org.uk](http://abisolutions.org.uk).

22 - 24: *5th European Stroke Organisation Conference*, Milan, Italy. For more information, visit [eso-conference.org/2019](http://eso-conference.org/2019).

22 - 24: *Neurorehabilitation and Neural Repair From Science to Evidence-based Practice*, Maastricht, The Netherlands. For more information, visit [neurorehabrepair.eu](http://neurorehabrepair.eu).

30 - 31: *2nd World Heart and Brain Conference*, Istanbul, Turkey. For more information, visit [heart-brain.conferenceseries.com](http://heart-brain.conferenceseries.com).



 Success Rehabilitation, Inc.

**We Put You First**

...By improving the lives of individuals with a traumatic brain injury or other neurological impairment through residential and/or outpatient therapies.

5666 Clymer Road • Quakertown PA 18951  
215-538-3488 • [SuccessRehab.com](http://SuccessRehab.com)



**STARK & STARK**  
ATTORNEYS AT LAW

*Experience You Can Trust in Brain Injury Law*

With over 30 years of experience in the area of head and brain injuries, nationally recognized Stark & Stark attorney Bruce H. Stern devotes himself to obtaining the compensation his injured clients deserve and to providing them with personal guidance to coordinate and promote the healing process.

**Bruce H. Stern, Esq.**  
[bstern@stark-stark.com](mailto:bstern@stark-stark.com)

---

[www.StarkInjuryGroup.com](http://www.StarkInjuryGroup.com)  
[www.BrainInjuryLawBlog.com](http://www.BrainInjuryLawBlog.com)  
1-800-53-LEGAL

Follow Us:     

993 Lenox Drive, Lawrenceville, NJ 08648



## The Influence of Filial Piety on Brain Injury Rehabilitation

Lanrong Chen, MMed • Yunhua Fang, MD • Chengyan Liu, MMed • Shanli Yang, MD

Brain injury rehabilitation is a long-term process. The support of a patient's family has a great influence on his/her rehabilitation outcomes.

Brain injury survivors often must cope with aphasia, dysphasia, cognitive impairments and physical problems. They face difficulties to independently perform daily living activities and engage in therapy. Psychological and behavioural issues may also be present, such as depression, agitation and low self-esteem. In this complex process, family members play a critical role. A loving and caring family is the strongest support for a patient to fight disability and overcome fear. The engagement of a patient's family brings love, attention and a satisfaction of their emotional needs. Also, not only is it feasible, but more effective to practice basic ADLs at home with their own families. Whether a person can live independently and return to community, largely depends on the family supports.

Filial piety is a virtue in traditional Chinese culture that elders are respected and taken good care of. However, an offset has been observed clinically. To fulfil their filial duties, some family members tend to over-protect the brain injured individuals. The family would help patients with their daily activities by doing everything for them. For instance, if the individual tries to fetch something, his/her family will quickly get it for them. Some family member would feed the patient, although he/she is able to eat independently. Some are reluctant to let the elder patients practice getting dressed or brush their teeth. Some cannot bear to let the patients attend intensive therapy. This kind of "support" is counterproductive for the brain injury rehabilitation. It often results in reduced self-reliance and psychological fragility. Some patients under-estimate their ability and potential, even become self-denying and lose the motivation to live. These negative factors can jeopardise developing independence and lead to unfavorable rehabilitation outcomes.

Findings of a multicentre study conducted in mainland China by our research team suggested that family members' attitudes have a direct impact on stroke patients' rehabilitation outcomes. Family members' expectation for the patients to perform basic activities of daily living (BADLs) at discharge is positively associated with the patients' functional gain. (Fang et al., 2017)

Some cannot bear to let the patients attend intensive therapy. This kind of “support” is counterproductive for the brain injury rehabilitation.

Clinicians should always provide education on the facts of brain injury and the importance of the individual's active engagement in rehabilitation. It is equally crucial to help the family members understand their roles and establish attitudes that would facilitate the recovery. It is stressed that the person with brain injury plays a central role in rehabilitation.

Rather than always taking over, family members should respect the individual's initiative, assist their self-care tasks only when it is necessary. Understanding the relationship between their appropriate support and the outcome of brain injury, family members can better help and encourage the patient to regain independence through rehabilitation and achieve a higher quality of life.

## Reference

Fang, Y., Tao, Q., Zhou, X., Chen, S., Huang, J., Jiang, Y., ... Chan, C. C. (2017). Patient and Family Member Factors Influencing Outcomes of Poststroke Inpatient Rehabilitation. *Archives of Physical Medicine and Rehabilitation*, 98(2), 249–255.e2. <http://doi.org/10.1016/j.apmr.2016.07.005>



## Author Bios

**Lanrong Chen** graduated from Fujian University of Traditional Chinese Medicine (FUTCM) specialized in Acupuncture in 1996. She earned a MMed and worked at the rehab department of The Second People's Hospital of Fujian Province. In 2012, she moved to Fujian University of Traditional Chinese Medicine Subsidiary Rehabilitation Hospital (FUTCMSRH) where she currently holds the position of Medical Director, the Third Neuro-rehab Department. Working with PTs, OTs and STs, she runs a medical rehabilitation program serving people with TBI and strokes.

**Yunhua Fang** earned her MD from FUTCM in 2017. She now works as a rehabilitation doctor in Fuzhou, Fujian, China and her presently main research field is stroke rehabilitation.

**Chengyan Liu** earned her MMed from FUTCM in 2017, specialized in Pharmacology of traditional Chinese medical formulae. As a rehab physician, she serves people with brain injury and stroke in the Third Neuro-rehab Department of FUTCMSRH. She has actively engaged in provincial research projects, led a project sponsored by Department of Education, co-edited 2 publications and published 6 papers.

**Shanli Yang** [*corresponding author*] is a professor and doctoral advisor of FUTCM. In 2010, she earned her MD specialized in Integrated Traditional Chinese and Western Medicine. She joined FUTCMSRH in 2012 and has actively engaged in clinical practise, research and education in the field of neurorehabilitation.

# Outcome Indicators That Really Matter in Traumatic Brain Injury Multi-site Follow-up and Related Challenges: The CREATiVE Endeavour, the European Model

Mikaella Kokkinou, MSc, PhD • Guido Bertolini, MD • Joanne Fleming, BA • Fofi Constantinidou, PhD, CCC-S, CBIS  
Andrea Montis, MD • Greta Carrara • Theodoros Kyprianou, MD, PhD, EDIC



Approximately 50-60 million people suffer traumatic brain injury each year, resulting in an estimated international global burden of \$400 billion.

## Background

Traumatic Brain Injury (TBI) is an abrupt and complex injury accompanied by a wide spectrum of symptoms and disabilities. Approximately 50-60 million people suffer TBI each year, resulting in an estimated international global burden of \$400 billion (Maas et al., 2017). TBI is considered one of the leading causes of death and permanent disability, with lasting effects on the individual, the family and the community. One of the greatest barriers in capturing the full picture of TBI is its heterogeneity in terms of cause, pathology, severity and prognosis. The purpose of this article is to describe the massive effort of implementing the adult protocol of the Collaborative REsearch on ACute Traumatic brain Injury in intensive care in Europe (CREACTIVE), with a focus on the patient follow-up phase. The article provides information on the behind the scenes challenges at a conceptual and practical level, aiming to provide guidance to future similar endeavours.

## The CREATiVE Study

The International Initiative for TBI (InTBIR) is a collaborative effort of the European Commission (EC), the Canadian Institutes of Health Research (CIHR) and the National Institutes of Health (NIH). It was set up in October 2011 to advance clinical TBI research, treatment and care.

Within this common endeavour, a number of projects have been funded; among them CREATiVE, a European collaborative initiative to investigate TBI. CREATiVE is in turn a collaborative project of an established ICU network called PROSAFE/GiViTI (established with funding from Executive Agency for Health and Consumers [EAHC] – Grant no. 2007331). CREATiVE involves roughly 70 intensive care units (ICUs) in seven countries: Cyprus, Greece, Hungary, Israel, Italy, Poland, and Slovenia.

The ultimate aim of the study is to:

1. describe the epidemiology of moderate to severe TBI that leads to Intensive Care hospitalization;
2. establish centralized repositories of clinical data (common data elements [CDEs] process and outcome indices), biological samples (blood and derived fluids, cerebrospinal fluid), and brain imaging;
3. build a prognostic model on short- and medium-term outcome measures;
4. identify the most effective processes, clinical interventions and hospital/ICU settings for optimally treating patients with moderate to severe TBI, and
5. recognize the centres of excellence in treating TBI and identify the determinants of optimal vs suboptimal performance.

Recruiting, coordinating and orchestrating the participating ICUs in several countries as well as individual researchers is not an easy task to start with.



Add to the equation thousands of patients, for which longitudinal collection of clinical, treatment and outcome indices (multiple recordings over time) has to be carried out, as well as protocolized blood sampling, processing and storing plus marking and uploading raw imaging data, all together constitute a highly complicated mission. The Hercules labours are, finally, spiced with a 6 and 12 month survivors' follow-up process. The CREATIVE project has so far recruited 5919 patients in the ICU databases and has performed 6 and 12 month follow-up assessments in a total of 4804 and 200 patients, respectively. The 12 month follow-up protocol was agreed after the start of the project, and only a minority (22) of ICUs actually adhered to this sub-study.

During the acute phase, various CDE indices are collected, such as demographics, pre-injury status, trauma characteristics, clinical and laboratory data, treatment, ICU management, comorbidities, complications and severity scores (e.g. SAPS II). The severity of brain injury can be classified into mild, moderate and severe based on assessment of the level of coma, loss or alteration of consciousness, duration of post-traumatic amnesia, and neuroimaging results. The collected patient data reflect the case mix of participating ICUs. Their particular characteristics, differences in policies and their overall performance, all contribute to the observed variability in TBI management. The collaborative database also enables multilevel individual ICU monitoring. The analysis of data from this registry will offer insights into a variety of different interventions e.g. intracranial pressure monitoring, performance of decompressive craniectomy, hypothermia treatment and rehabilitation timing. This can greatly advance our knowledge and provide us with recommendations for the scientific community, policy makers and pharmaceutical and biomedical companies, on the orientation of future research and analysis.

CREACTIVE also involves the implementation of centralized comprehensive repositories of biological samples and repeated clinical imaging, providing a unique opportunity for integrated analysis of secondary injury following TBI. The automated analysis of the imaging data will enable the study of the progression of both haemorrhagic lesions and perilesional oedema and their relation to outcome. This will be followed by analysis of circulating (and possibly cerebrospinal fluid [CSF]) biomarkers: either trauma-induced coagulopathy underlying haemorrhagic progression, or regulation of both blood-brain barrier permeability underlying vasogenic oedema, and ischaemic events underlying cytotoxic oedema (Donkin & Vink, 2010). Added to this are other specific markers for the phenomenon identified by imaging analysis as having the most prognostic importance (haemorrhagic lesion vs. perilesional oedema progression), and the testing of some highly innovative markers. Twelve months post injury, an aliquot of plasma and serum is collected, subject to the survivor's consent.

## Follow-up Challenges

From the patient perspective, mortality cannot be considered the only outcome by which to assess the impact of the condition, given the importance of TBI-related chronic disabilities. TBI is an unexpected condition with long-term effects that give rise to different impairments in body functions and structures, leading to dramatic life changes, not only for the patient but also for his or her family, and ultimately for society at large. Survivors of TBI can be assessed for a variety of impairments including: motor impairments (e.g. weakness, altered tone, balance and incoordination), pain, bulbar problems affecting speech and swallowing, sensory dysfunctions that can impact on safety including hearing loss,

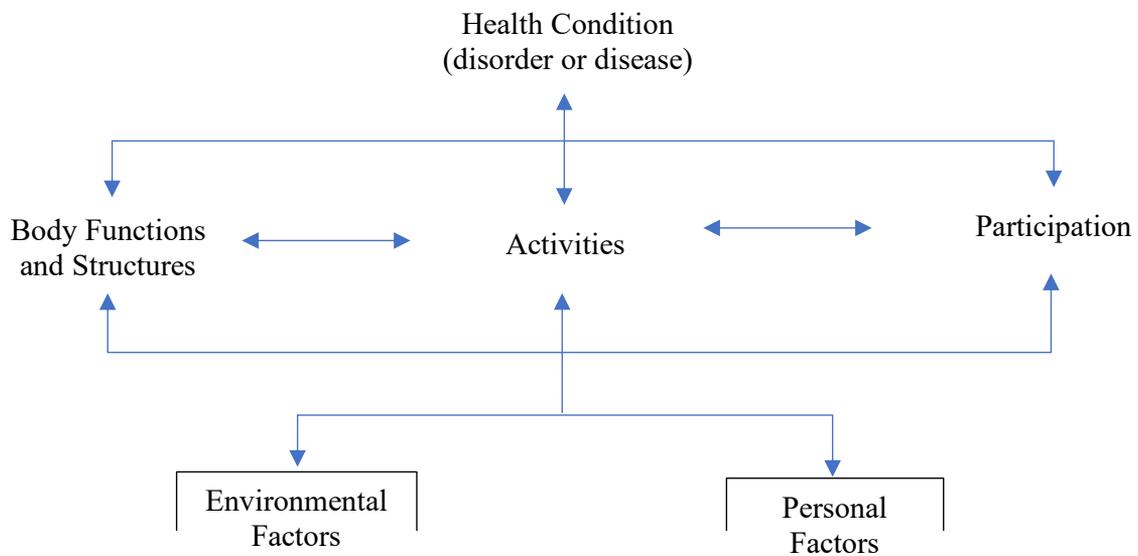
numbness, visual problems, reduced bowel and bladder control, cognitive deficits (e.g. impairments in attention, orientation and memory), and behavioural dysregulations including potential emotional/behavioural issues and personality changes.

Moreover, according to the literature, a phenomenon of diminished self-awareness post-injury is observed cross-culturally (Arnould, Dromer, Rochat, Van der Linden, & Azouvi, 2016; Kelley et al., 2014), suggesting that the problem is related to neurologic impairments of perception and secondary psychological coping mechanisms. Accounting for this phenomenon and in order to capture the genuine picture of TBI, the follow-up assessment of any survivor shall further consider/involve the perspective of the caregiver as well as clinician's judgment. The diversity of the areas that can potentially be affected by TBI calls for a multidisciplinary approach, which was one of the main barriers in developing a standardized assessment-tool protocol that is simultaneously flexible enough to be adapted to and account for any kind of disability. Even when reliable measures are available for certain impairments, they typically rely on western concepts, content and values thereby posing another obstacle in the process (Dingwall, Lindeman & Cairney, 2014).

Another complex question is related to the classification of functioning and disability. According to the International Classification of Functioning, Disability, and Health (ICF) of the World Health Organization (WHO, 2001), disability is a multidimensional and interactive concept that can be considered as the outcome of a complicated relationship between a person's health condition, personal factors and the external factors that represent the circumstances in which the person lives. Thus, different environments can have a very different impact on the same person with a brain-injury. Society can hinder a person's performance by failing to provide facilitators (e.g. unavailability of assistive devices) or by creating barriers (e.g. inaccessible buildings). For example, thinking through the lens of CREATIVE, the rehabilitation system of each country involved differs in that some countries have a fragmented health care system, with limited access to inpatient rehabilitation and no post-acute comprehensive rehabilitation services for survivors of TBI, whereas other countries offer a comprehensive, holistic approach to rehabilitation. This in turn, can have a major impact on the level of disability and functionality. From this viewpoint, the phenomenon of disability is relative to the observer's perspective rather than absolute (Michailakis, 2003). Thus, in the conceptualization of disability and functioning concepts with respect to the diverse population of survivors with brain injury, it is highly important to account for the different cultural perceptions.

Consequently, one of the great challenges in CREATIVE was to be able to offer a comprehensive description of the functional status of survivors, post hospitalization, within the adoption of a unifying conceptualization of functioning, disability and health, using a distinct and independent classification framework. With the endorsement of the ICF, efforts were made to fully understand the burden of TBI. The ICF conceptualises a biopsychosocial model of disability, based on an integration of social and medical models. More specifically, the ICF (as illustrated in [FIGURE 1](#)) classifies an individual's level of functioning and disability as a dynamic, bidirectional interaction between Body Functions and Structures, Activities (focusing on an individual's functioning e.g. dressing) and Participation (individual's involvement in society e.g. relationships, employment). Contextual Factors integrate both environmental and personal factors. The model uses qualifiers to allow for the description of the extent of a problem in functioning (impairment, limitation, restriction) and the impact of the environment in functioning and disability.

FIGURE 1: Interactions between the components of ICF (WHO, 2001)



The ICF model offers an easy language-independent format accounting towards not only the limitations but also the strengths of an individual. It also takes into consideration different interactions and interrelationships between all the components. However, the model is still imperfect e.g. it is very time-consuming, and when it comes to defining functioning and disability, even the ICF is not completely free from self-contradiction thus the need for a precise definition of these terms remains (Ptyushkin, Vidmar, Burger, & Marincek, 2010). Furthermore, the ICF does not reflect the causal relationships between aspects of functioning.

A threat posing in every longitudinal study concerns the dropout rates. It is highly important to be able to predict which factors can potentially contribute in maximizing participation longitudinally, since patients leaving the hospital become disinterested and/or unreachable. A group that requires special attention in the follow-up phase of brain injury, are survivors with disabilities as they might not be able to travel for an assessment. Thus, a contributor in reducing the dropout rate from this groups of survivors, is to account for travel expenses in the project budget. At this point, it is worth noting that the ICU is usually a traumatic place for both the patient and the family, and therefore they are usually quite reluctant to return to the specific scene for an assessment. Consequently, if the assessment is performed as an in-house visit or at a neutral location it can aid in maximizing study participation. Another obstacle involved in the dropout rates, are foreigner patients moving out of the country after the acute phase. Recording accurate demographical data is important for the follow-up phase as the survivors can at least be reached through a telephone interview assessment. Additionally, participation incentives can be considered (e.g. offering medical examination, assessment report) for increasing participation.

## CREACTIVE: Follow-up Assessment Protocol

Building on the above, the biggest challenge for CREATICE was the need to set up an assessment protocol that can ultimately quantify the impact of TBI without burdening survivors with long assessment processes. The protocol adopted in CREATICE was built upon the conceptualization of the ICF, via a thorough search for the magic formula, whilst resisting the temptation to extensively assess each potential area of impairments.

Given the significance of TBI-related disabilities, the follow-up phase of CREATICE involves two targeted time periods. The first assessment is performed six months after the trauma event and is two-tiered. The first level is administered over the phone and consists of the extended version of the Glasgow Outcome Scale (GOSe) to identify the objective elements of functioning relevant to TBI, and the Quality of Life after Brain Injury – Overall Scale (QOLIBRI-OS), evaluating the person's subjective view of functioning and well-being. QOLIBRI and GOSe cover relevant domains of TBI survivor functioning as defined by the ICF frame of reference (Koskinen et al., 2011). At this stage, the assessment is quite brief since the patients are likely to still struggle with major primary complications related to the brain injury. The second assessment, called ambulatory follow-up, encompasses a more thorough in-person evaluation of TBI impairment. More specifically it involves physical and neurocognitive examination including: ambulation ability, gross manual dexterity, cognitive function such as attention and concentration, executive function, memory, language, visuocognitive skills, conceptual thinking, calculations and orientation, psychological screening (Insomnia, Anxiety and Depression, Post-traumatic Stress Disorder), administration of the GOSe and QOLIBRI-OS, as well as examination of the rehabilitation pathway (i.e. examining the rehabilitation services provided and duration). The adoption of this multidisciplinary approach, based on the ICF, has proven quite effective (Ptyushkin, Vidmar, Burger, & Marincek, 2010). However, to date none of the measures used are considered standard and none of them covers all aspects of functioning.

## Conclusions

A major issue for professionals working with TBI internationally, concerns the large variation in currently available measures to address function and disability in TBI as well as the vast amount and diverse sets of data to work with for better understanding. There is little standardization in the use of these instruments and therefore comparison of data is quite difficult. Capturing the true nature and recovery course of TBI is as complex as the injury itself, especially since the heterogeneity of the disease is culturally-sensitive.



However, within the adoption of a universal framework that considers socio-economic diversity and the impact on the person, we can ultimately reach the goal of understanding. Simultaneously there is a need to discover novel approaches to toss out the compulsory selectivity that features every observation and description in a functionally differentiated society (Michailakis, 2003).

Dropouts and human error in data collection are unavoidable, but it can sometimes be caught and corrected/revised when there is adequate supervision of the data collection process. Specific mitigation strategy and actions must be in place right from the beginning, including data governance protocols, processes and procedures, training and incentives to the personnel involved in data collection, proper communication plan for the patients and their participating family members; all these are key enablers that can be proved catalytic in enhancing the data quality and completeness of the project. With the correct guidance and direction, the trust of human collaboration, teamwork and attention to detail can triumph over human error and circumstance.

## Acknowledgements

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 602714 (CREACTIVE).

The CREATIVE Study Country coordinators and members of the Steering Committee are as follows: Luca Antiga, Guido Bertolini (Coordinator), Akos Csomos, Or Duek, Primoz Gradisek, Rafael Kaps, Vera Knyazer, Theodoros Kyprianou, Isaac Lazar, Roberto Latini, Malgorzata Mikaszewska-Sokolewicz, Giulia Paci, Nektaria Xirouchaki.

## References

- Arnould, A., Dromer, E., Rochat, L., Van der Linden, M., & Azouvi, P. (2016). Neurobehavioral and self-awareness changes after traumatic brain injury: Towards new multidimensional approaches. *Annals of Physical and Rehabilitation Medicine*, 59, 18-22.
- Dingwall, K. M., Lindeman, M. A., Cairney, S. (2014). "You've got to make it relevant": barriers and ways forward for assessing cognition in Aboriginal clients. *BMC Psychology*, 2, 13.
- Donkin, J. J., & Vink, R. (2010). Mechanisms of cerebral edema in traumatic brain injury: therapeutic development. *Current Opinion in Neurology*, 23(2), 293-299.
- Kelley, E., Sullivan, C., Loughlin, J. K., Hutson, L., Dahbah, M. N., Long, M. K., ... Poole, J. H. (2014). Self-awareness and neurobehavioral outcomes, 5 years or more after moderate to severe brain injury. *Journal of Head Trauma Rehabilitation*, 29(2), 147-152.
- Koskinen, S., Hokkinen, E., Wilson, L., Sarajuuri, J., Steinbuchel, N. V., & Truelle, J. (2011). Comparison of subjective and objective assessment of outcome after traumatic brain injury using the International Classification of Functioning, Disability and Health (ICF). *Disability and Rehabilitation*, 33(25-26), 2464 – 2478.
- Maas, A. I., Menon, D. K., Adelson, P. D., Andelic, N., Bell, M. J., Belli, A., ... Yaffe, K. (2017). Traumatic brain injury: integrated approaches to improve prevention, clinical care, and research. *The Lancet Neurology*, 16(12), 987 – 1048.
- Michailakis, D. (2003). The systems theory concept of disability: One is not born a disabled person, one is observed to be one. *Disability and Society*, 18(2), 209-229.
- Ptyushkin, P., Vidmar, G., Burger, H., & Marincek, C. (2010). Use of the international classification of functioning, disability and health (ICF) in patients with traumatic brain injury. *Brain Injury*, 24(13-14), 1519-1527.
- World Health Organization (2001). International classification of functioning, disability and health: ICF. Geneva: World Health Organization.

## Author Bios

**Mikaella K. Kokkinou**, MSc, PhD, is a candidate at the University of Cyprus Clinical Psychologist with working experience at the Intensive Care Unit of Nicosia General Hospital (Cyprus) and research in the field of Traumatic Brain Injury.

**Guido Bertolini**, MD, is Head of the Laboratory at Mario Negri Institute for Pharmacological Research, Department of Public Health - Laboratory of Clinical Epidemiology in Italy. He is the Principal Investigator of CREATIVE.

**Joanne M. Fleming**, BA, is Health Research Project Manager with 17 years' experience in health research project management, particularly in neurological disorders and intensive care.

**Fofi Constantinidou**, PhD, CCC-S, CBIS, is Professor of Psychology & Director, Center for Applied Neuroscience, University of Cyprus with expertise in neurorehabilitation of patients with acquired brain injuries. She is a member of Follow-up Board of CREATIVE.

**Andrea Monti**, MD, is a Consultant Psychiatrist and rehabilitation team leader at the the G.Brontzu Hospital in Cagliari. She is a local coordinator for CREATIVE Project.

**Greta Carrara**, is a statistician at the Unit of Medical Statistics and Mathematical Physiology with expertise in clinical data analysis and prognostic model development.

**Theodoros Kyprianou**, MD, PhD, EDIC, [Corresponding Author] is a Consultant Physician in Respiratory & Intensive Care Medicine at Nicosia General Hospital (Cyprus) & Associate Professor of Medicine at the University of Nicosia Medical School. He is a National Coordinator of CREATIVE for Cyprus.

# Raising the bar for *inpatient* and *day* *rehabilitation* *services*



**Children's Healthcare of Atlanta is Commission on Accreditation of Rehabilitation Facilities (CARF)-accredited for pediatric rehabilitation services.**

## We offer:

- An expansive Inpatient Rehabilitation Program
  - A spinal cord system of care, brain injury and pediatric specialty programs that have received CARF specialty recognition
  - A team of brain injury board-certified pediatric physiatrists
  - Comprehensive care for young patients from birth to age 21
  - Therapy seven days a week
  - 28 private patient rooms
- A Day Rehabilitation Program to assist patients during recovery
- Technology-assisted therapy through our Center for Advanced Technology and Robotic Rehabilitation
- A full-service hospital with emergency services



## Learn more or make a referral:

 404-785-2274

 [choa.org/rehab](http://choa.org/rehab)



**Children's**<sup>SM</sup>  
Healthcare of Atlanta

# Tihei Mauri Ora: The Sneeze/Breath of Life

## Ngawairongoa Herewin

Aotearoa (New Zealand) is a small island nation in the south Pacific with a population of just over four million, of which approximately 15% identify as Māori, the indigenous ethnic group. In today's progressive milieu, Māori history, customs, and te reo (language) are undergoing something of a cultural renaissance. In health care and rehabilitation, this is reflected in the recognition that one's Māori culture can be integral to supporting optimal return to well-being. Below, we share some observations as the nation's largest provider of traumatic brain injury (TBI) rehabilitation.

The brain and head are tapu (sacred). Thus, a TBI is not 'simply' a medical emergency. It is traumatic in every sense of the word. In the immediate aftermath, the injured person is supported in the hospital by their whānau (extended family, which may encompass a variety of familial and emotional bonds). Fears, concerns, and stresses are all on each family member's shoulders as they confront the vulnerability that TBI represents, and face their own shock and distress. Carried by whānau at this time is the fear of losing their loved one. Questions may pass -- 'What is the future?' 'Will they be normal?' 'What if that's not going to be the case?' 'How will we care for them?' -- despite knowing that there's no answer. At other times, whānau members sit in silence with the thickness of fear weighing heavy. The experiences of the whānau within the medical system may complicate matters. Questions or reports from medical professionals often do not have an impact because their language feels off-putting, foreign, or intimidating, and so asking questions seems a waste of time. Whānau may feel powerless.

A TBI is seen to disconnect one's wairua (spiritual) wellness from their hinengaro (mental or emotional) wellness. Recovery, then, is about re-establishing the intrinsic link between the wairua and hinengaro energies.

Tinana (physical) wellness is another important factor. Wairua is fundamental and has the first priority. The instinctive drawing-together of the whānau is the first step toward wairua healing for the person with TBI because the presence of whānau is comforting and a crucial source of well-being. The whānau will connect with each other and also with others who have since passed on through storytelling to enhance and strengthen them all at this time. Cultural healing of the disconnection with the wairua and hinegaro will emerge using resources found in karakia (prayer), waiata (song), pepehā (personal origin stories), whakapapa (genealogy of ancestors), and whanaungatanga (kinship or family connections).



Korowai (feathered cloak)

The person with TBI will be reminded of these and of their links to Ranginui (Father Sky), Papatuanuku (Mother Earth), and to the land and environment that sustain the mauri (life force) of all things.

As the person with TBI moves on from the hospital to inpatient rehabilitation, some time will have passed since the trauma. A new set of issues will now present itself as the person emerges from post-traumatic amnesia and begins the work of preparing for a safe return home. Now, the whānau works alongside health workers to build plans, keep on-track toward rehabilitation goals, and to learn new skills to support their loved one now and in the future. For the person with TBI, their growing awareness of their new post-injury life can present another set of challenges.

At our rehabilitation facility, we use the metaphor of the korowai (feathered cloak) to ensure that all those who come through the threshold of our centre enter into an environment of the same sort of safety, warmth, and security that a korowai provides when it is worn. We are guided by a Māori services model called Whakaritenga Mahi which is a practical guide to providing culturally appropriate rehabilitation service in a holistic approach alongside western practice. The person with TBI and their whānau are at the centre of rehabilitation planning, implementation and evaluation.

In this way, cultural resources can be integrated with medical services in an individualised way. A successful outcome will see the person with TBI and their whānau in balanced wairua, hinengaro, and tinana well-being.

## Author Bio

Ngawairongoa Herewin is humbled to hold the Māori Cultural Support role with ABI New Zealand. She is a Graduate in Business Māori Development. She teaches the Māori language in the community and her Māori cultural heritage and language have determined all of her pathways in life.



# Recovery in Culture: A Singapore Experience

Debbie Chow, SPD

Singapore is a small country located at the tip of the Malaysian peninsula. Once a British colony, the citizen population is made up of Chinese (the majority), Malay, Indian, and Eurasian residents. This Asian culture places great value on family, respect for the elder family members through filial piety, and preserving the honour of individual and family by saving face. These values and other cultural beliefs impact the recovery process of many who have sustained acquired brain injury.

In order to identify these values and determine the impact on recovery, two focus group discussions were held among the rehab team at SPD, a voluntary welfare organisation serving individuals with disabilities in Singapore. The importance of filial piety was one of the first values identified. One way that adult children show love and respect for their parents is to care for and provide for them in old age or when sickness, disease, or disability affects them. This produces a very positive outcome for elderly to either live with adult children or be supported by them.

Most adult children feel the deep responsibility to fulfil this duty of care. This sense of family is very strong and impacts the attitude of caregiving and recovery. Sometimes those of the older generation who have worked very hard during their lifetime regard old age as a time for well-deserved rest, a time to be taken care of.

If these individuals sustain an acquired brain injury it may be possible for them to remain in a “sick role” and be taken care of by family. In these cases, the individual may not be willing to invest in the hard work required to achieve recovery of functional independence. At times, adult children may push their parents to engage in rehabilitation to promote their physical recovery but if the longstanding dependency mind-set is firmly ingrained it forms a barrier to engagement. Alternatively, the individual who is recovering may want to be independent but family members become overprotective and prevent him from performing activities of daily living on their own. Family caregivers may feel that it is their duty and an act of love to do all for their loved one. Additionally, there are some who can afford to hire the services of a foreign domestic helper.

Over-reliance on a domestic helper may hinder the process of regaining independence. These various mind-sets and beliefs create barriers to recovery of independence.

Those who are recovering from an acquired brain injury and their families may struggle with the need to preserve their dignity by avoiding humiliation or embarrassment also known as saving face.



Using assistive devices or a wheelchair in public places may be humiliating especially at the onset. Loss of physical function and ability may be an embarrassment. As a result, social situations or settings outside the home may be avoided by the person undergoing recovery in order to save face. This may apply in the work setting, where some may reject efforts to modify the work station (which will facilitate performance of the job) in order to save face. A common solution to the shame of using a cane has been the popular use of the umbrella cane: a supportive cane with non-slip rubber tip which looks like and even functions as an umbrella.

There have been occasions where clients have believed that an acquired brain injury (among other diseases) is an act of judgement or punishment from God. Those under recovery may feel that it is their burden to bear. Others may be hindered in their recovery process by the expectation that recovery will only occur through miraculous, divine intervention or religious practices.

These beliefs may prevent some from seeking out physical rehabilitation opportunities.

*This sense of family is very strong and impacts the attitude of caregiving and recovery.*

Efforts are underway by Government organisations and non-profit organisations to improve health literacy, and “empower the Singapore public with knowledge and skills to take ownership of their health”. Health education may assist members of various faith groups to navigate physical recovery within the parameters of faith based belief systems.

Sexuality and intimacy are taboo topics for much of the population. Empowerment through knowledge may help many needing information in these areas as well. Open but sensitive communication will support recovery in these private and personal areas of life.

The society in Singapore is on the journey toward inclusiveness of people with disabilities: many remarkable and progressive changes to infrastructure have been introduced. Shifts in cultural values and beliefs which promote independence and acceptance of those undergoing recovery will serve to benefit Singapore in this journey.



### Author Bio

**Deborah K Chow, SPD**, earned her BS in Physical Therapy from SUNY@Stony Brook in 1983. She worked as a physical therapist in New York, Connecticut, Massachusetts, Washington D.C, and Maryland. In 1998, she moved to Singapore where she is registered as a physiotherapist. She joined SPD in 2004 and currently holds the position of Assistant Director, Therapy Hub working with a team of PTs, OTs and STs.

THE INTERNATIONAL BRAIN  
INJURY ASSOCIATION  
PRESENTS THE

13<sup>TH</sup> WORLD CONGRESS  
ON BRAIN INJURY



MARCH 13-16, 2019  
SHERATON CENTRE HOTEL  
TORONTO, ONTARIO  
CANADA

REGISTER NOW: [WWW.IBIA2019.ORG](http://WWW.IBIA2019.ORG)

# Neuro-Recovery



GALVESTON • LUBBOCK

Call: 800.TLC.GROW

[www.tlcrehab.org](http://www.tlcrehab.org)

## The TLC Continuum

- Intensive inpatient and outpatient/day program for brain & spinal cord injuries
- Community Re-entry
- Long-term supported living and respite care
- Licensed physician and nurses
- 6 hours of daily therapy from licensed/certified therapist
- Nationally recognized not-for-profit programs focused on quality of staff and patient care



DADS #123713

## SAVE THE DATE!

### 32<sup>nd</sup> Annual Conference on Legal Issues in Brain Injury

Sheraton Centre Hotel  
Toronto, Canada  
March 14-16, 2019

In-depth session devoted  
to neuro-imaging with  
Erin Bigler

17 hours of CLE credit  
with ethics!

Thorough review of the  
latest medical literature!

Bring a colleague  
for 1/2 price!

For advanced  
practitioners: the  
opportunity to attend the  
concurrent IBIA World  
Congress on Brain Injury!

Learn from top trial attorneys and  
medical experts who will present a  
broad array of practical information  
covering the latest literature, diagnostic  
testing methods, trial techniques,  
cutting-edge demonstrative evidence  
and much more.

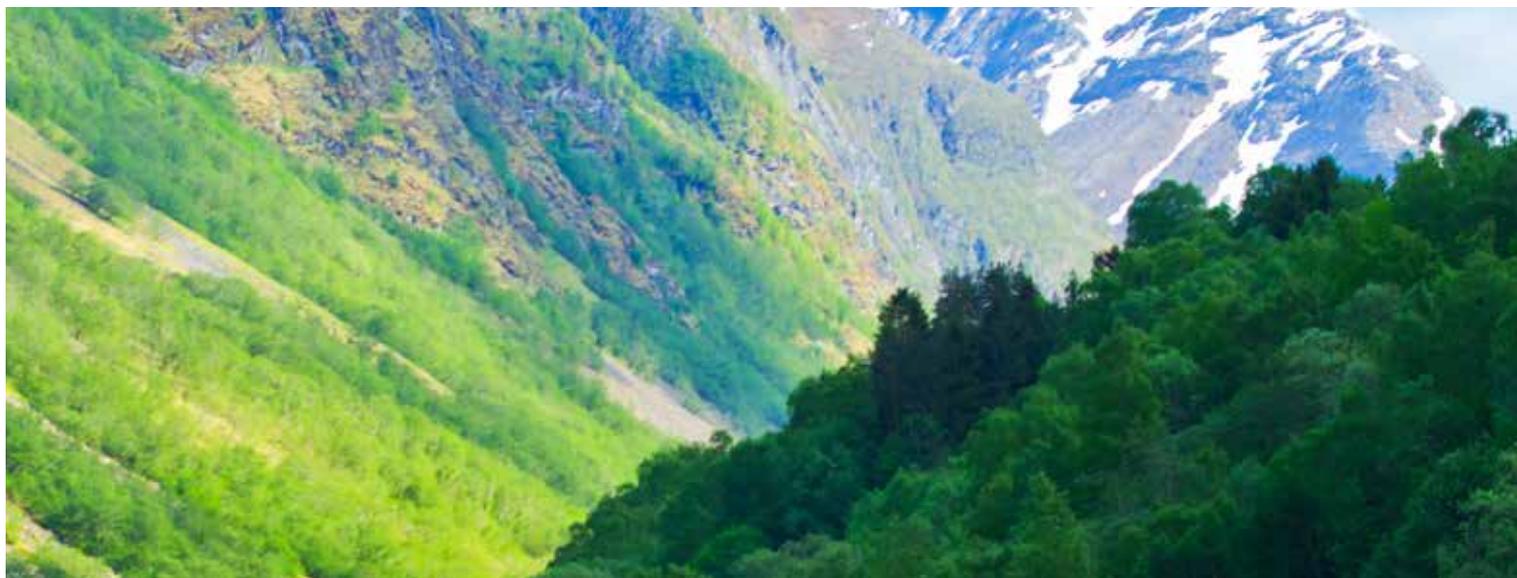
More information to be posted on the NABIS  
website as the conference nears.

[www.nabis.org](http://www.nabis.org)



# Long-term Outcomes After TBI in the Best Country in the World to Live in – Why aren't they better?

Marianne Løvstad • Nada Andelic, MD, PhD • Solveig Lægreid Hauger • Ida M. H. Borgen. • Hilde Margrete Dahl • Silje Fure  
Emilie Isager Howe • Cecilie Røe, MD



Every year the United Nations publishes the Human Development Report, comparing almost 200 countries across a wide range of factors. For thirteen years in a row, Norway has been considered the top country to live in based on the standard of living, life expectancy and level of education. Mean life expectancy is now 82 years, largely due to good living conditions, and high-quality universal health care services. Norway has a state funded welfare system covering not only acute health care needs, but also long-term rehabilitation services, vocational rehabilitation, unemployment- and sickness benefits, as well as retirement pension.

The trauma-system in Norway is well organized and transparent. If you suffer a severe traumatic brain injury (TBI), you will receive treatment in one of the four university hospital level I trauma centers, which all are associated with specialized rehabilitation facilities. There has been a longstanding and very fruitful clinical and scientific collaboration between the major centers involved in TBI-rehabilitation. Patients with severe TBI, whom are in need of it, will be offered early rehabilitation in the acute phase, and comprehensive post-acute rehabilitation, with treatment periods of 3-4 months and beyond (Andelic et al., 2014).

However, we know that TBI leads to life-long and costly medical, cognitive, emotional and behavioral changes, which are largely dealt with by community-based health services.

One Norwegian study showed that 5 years after their injury, 70 % of patients with moderate to severe TBI report at least one health care need, and one third felt their needs were not met, most frequently in the areas of cognition, employment and emotional functioning (Andelic et al., 2014). The most common therapy received was physical therapy, indicating a lack of treatment, and a mismatch between service provision and patient needs. The findings are in line with U.S. studies, with the exception that financial burden is less prominently reported in Norway.

Also, a recent Norwegian 10-year follow-up of vocational outcomes has demonstrated that about 50 % of persons with moderate to severe TBI maintain employment during the 10 years following injury (Howe et al., submitted). This is largely comparable to studies from e.g. the U.S. With regard to children, a recent Norwegian report has revealed that there is a lack of systematic rehabilitation services for children with acquired brain injuries, and that the challenge is particularly prominent in the chronic phase.

The diagnosis-based financial system underlying the public health care in Norway favors emergency and surgical services, which may contribute to unmet health care needs in the chronic phase. We believe that Norway has the potential to improve long-term outcomes beyond the level we see today.

There is however a need for increased collaboration across levels of the health care system (e.g. specialized rehabilitation facilities and community-level service providers), as well as cross-sectorial collaboration within the welfare system, for example between the health care system and work-related welfare systems. This has been acknowledged by the government, and several political reforms have tried to elicit more collaboration between different levels and parts of the welfare system.

In order to investigate the effect of increased collaboration across levels and sectors, two innovative and pragmatic randomized controlled trials have been initiated in a collaboration between Oslo University Hospital and Sunnaas Rehabilitation Hospital, both serving the population of South-Eastern Norway, which covers more than a half of Norway's inhabitants. Both studies are ongoing. The first is entitled: "The effect evaluation of combined cognitive and vocational interventions after mild-to- moderate traumatic brain injury: a randomized controlled trial and qualitative process evaluation" (Howe et al., 2017).

The study includes adults who have sustained mild to moderate TBI, whom where employed at least 50% at the time of injury, but have not returned to work 8-12 weeks after the injury.

We combine group-based cognitive rehabilitation efforts with supported employment at the work-place (Twamley et al., 2016). The study is a collaboration between our two hospitals, the work-related welfare agencies, the Norwegian work research institute and the University of Oslo. The study will provide valuable knowledge on the efficacy of this program, in addition to essential experiences with cross-sectorial collaboration. So far it has vastly increased our awareness of addressing not only TBI symptomatology, but to address work-place related factors in vocational rehabilitation.

The second ongoing RCT provides home-based rehabilitation services in the chronic phase of TBI: "Traumatic brain injury; needs and treatment options in the chronic phase. A randomized controlled community-based intervention" (Borgen et al., submitted).

Experienced rehabilitation workers from the specialized health care system provide individualized and goal-oriented rehabilitation in the home. Family members and local health care providers are invited to partake in the intervention. The study is in an early phase, and we are so far astonished to see that very few of the patients who are many years down the road in their recovery process, have any contact at all with rehabilitation services. This study is modelled by a study by Winter and colleagues (Winter et al., 2016).

A pediatric intervention in the chronic phase is being planned, and there is an ongoing study of pediatric TBI that will explore unmet health care needs two years after TBI in children.

In summary, we acknowledge that we provide rehabilitation services in one of the most privileged parts of the world. We have achieved many improvements over the last two decades. However, we realize that we need to focus more on 1) long term outcomes and

50 % of persons with moderate to severe TBI maintain employment during the 10 years following injury.

service delivery in the chronic phase, and 2) contribute to increased collaboration across levels of the health care system and across different sectors of the welfare system. Hopefully, we can contribute to getting the most out of one of the world's most available health care systems, not only in the acute phase but also in the late-phase, to improve every-day lives of people with brain injuries.

## References

- Andelic, N., Sjøberg, H.L., Berntsen, S., Sigurdardottir, S., Røe, C. (2014). Self-Perceived Health Care Needs and Delivery of Health Care Services 5 Years After Moderate-to- Severe Traumatic Brain Injury. *Pm&R: 6:1013-1021*. doi: 10.1016/j.pmrj.2014.05.005.
- Andelic, N., Ye, J., Tornaas, S., Røe, C., Lu, J., Bautz-Holter, E., Moger, T., Sigurdardottir, S., Schanke, A.-K., Aas, E. (2014). Cos-effectiveness analysis of an early-initiated, continuous chain of rehabilitation after severe traumatic brain injury. *J. Neurotrauma*, 31: 1313-20. doi: 10.1089/neu.2013.3292.
- Twamley, E.W., Thomas, K.R., Gregory, A.M., Jak, A.J., Bondi, M.W., Delis, D.C., Lohr, J.B. (2014). CogSMART Compensatory Cognitive Training for Traumatic Brain Injury: Effects Over 1 Year. *J Head Trauma Rehabil: 30:391-401*. doi: 10.1097/HTR.0000000000000076.
- Howe, E.I., Langlo, K.-P.S., Terjesen, H.C.A, Røe, C., Schanke, A.K., Lundgaard, H.S., Sveen, U., Lu, J., Aas, E., Enehaug, H., Alves, D.E., Klethagen, P., Sagstad, K., Moen, C.M., Torsteinsbrend, K., Linnestad, A.-M., Nordenmark, T.H., Rismhyr, B.S., Wangen, G., Ponsford, J., Twamley, E., Ugelstad, H., Spjelkavik, Ø., Løvstad, M. & Andelic, N. (2017). Combined cognitive and vocational interventions after mild-to-moderate traumatic brain injury: study protocol for a randomized controlled trial and qualitative process evaluation. *Trials*, 18:483. doi: 10.1186/s13063-017-2218-7. doi: 10.1186/s13063-017-2218-7.
- Winter, L., Moriarty, H.J., Robinson, K., Piersol, C.V., Vause-Earland, T., Newhart, B., Iacovone, D.B., Hodgson, N., Gitlin, L.N. (2016). Efficacy and acceptability of a home-based, family-inclusive intervention for veterans with TBI: A randomized controlled trial. *Brain Infj*, 16:1-15. DOI: 10.3109/02699052.2016.1144080.

## Author Bios

**Marianne Løvstad** graduated as a psychologist from the University in Oslo in 2000. She obtained her speciality in clinical neuropsychology in 2005, and her PhD in clinical neuroscience in 2012. She is now head of psychology at Sunnaas Rehabilitation Hospital and associate professor at the Department of Psychology at the University of Oslo. She is involved in several research studies regarding brain injury outcome and rehabilitation.

**Nada Andeli**, MD, PhD, specialist in Physical Medicine and Rehabilitation, has been involved in different areas of Physical Medicine, Rehabilitation and Rheumatology both in Montenegro (1982-1992) and Norway (since 1993). She took her PhD on trends and challenges in traumatic brain injury (TBI) at the University of Oslo in 2010. She is the head of Research and Development at the Department of Physical Medicine and Rehabilitation, PI/co-PI in several large TBI studies, senior consultant at the TBI outpatient department, Oslo University Hospital, and Professor in Rehabilitation Models and Services at the University of Oslo.

**Solveig Lægred Hauger** graduated as a psychologist from the University of Aarhus, Denmark, in 2002. She specialized as a clinical neuropsychologist in 2012, and has worked at Sunnaas Rehabilitation Hospital, Norway, since 2002, where she also finished her doctoral thesis in 2017. She is now post.doc at Sunnaas and an associate professor at the Department of Psychology at the University of Oslo, Norway.

**Ida M. H. Borgen** graduated as a clinical psychologist from the University of Bergen, Norway in 2016. She is currently a Ph.D.-candidate at the Department of Physical Medicine and Rehabilitation, Oslo University Hospital. The focus of her Ph.D.-project is an RCT-study evaluating the effectiveness of a home-based intervention program in the chronic phase of TBI.

**Hilde Margrete Dahl** is a child neurologist at the Department of Clinical Neurosciences for Children at Oslo University Hospital since 1999, with a particular focus on acquired brain injuries. Since 2017 she has been working on a PhD on outcome and unmet needs the first 2 years after childhood TBI.

**Silje Fure** is a medical doctor, and she graduated from Riga Stradins University in 2017. She is currently employed at Oslo University Hospital, Dept. of Physical Medicine and Rehabilitation, where she is working on her PhD within the field of vocational rehabilitation after TBI.

**Emilie Isager Howe** earned her degree in clinical psychology from Aarhus University in 2015. She is currently a PhD candidate at the Department of Physical Medicine and Rehabilitation, Oslo University Hospital and Faculty of Medicine, University of Oslo, while also specializing in neuropsychology. Her PhD project evaluates the efficacy of a combined cognitive and vocational intervention on vocational and functional outcomes following traumatic brain injury.

**Cecilie Røe**, MD, graduated from the University of Oslo in 1987. She is specialist in Physical Medicine and rehabilitation since 1999, and PhD from the Medical Faculty, University of Oslo in 2001. She is Professor in Physical Medicine at the University of Oslo and Head of the Department of Physical Medicine and Rehabilitation, Oslo University Hospital. She works with traumatic brain injuries and painful musculoskeletal conditions.



**RAINBOW**  
REHABILITATION CENTERS®

Brain and Spinal Cord Injury Rehabilitation Programs for People of all Ages



Residential Programs • Outpatient Services • Day Treatment • Spinal Cord Rehabilitation  
Home & Community-Based Rehabilitation • Home Care • Vocational Programs  
Comprehensive Rehabilitation • Medical Care • NeuroBehavioral Programs

To schedule a tour or to speak with an Admissions team member, call **800.968.6644**

[rainbowrehab.com](http://rainbowrehab.com)



## HMR Funding — Your “Go to” Funding Solutions Company



**TBI - Inpatient or Out • Neurosurgery • Psychiatric Treatment • Neuro-Rehabilitation • Other**

### IS YOUR CLIENT UNINSURED OR UNDERINSURED?

- ✓ Have they been hurt at no fault of their own?
- ✓ Do they need help paying for medical care?
- ✓ Do they need living expense advances?



### HMR FUNDING IS YOUR SOLUTION!

- ✓ Medical receivables funding
- ✓ Pre-settlement funding
- ✓ Non-Recourse - we take the risk along with you
- ✓ We work with a nationwide network of medical providers

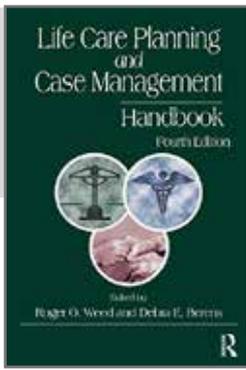


Call Us Today and Find Out Why We're  
THE Leader in Medical Receivables Funding

**8 7 7 - 6 3 0 - 6 3 6 1**

[www.hmrfunding.com](http://www.hmrfunding.com)

**Auto Wrecks • Premises Liability • Denied Workers Comp • Product Liability • Other**



# literature review

## Life Care Planning and Case Management

By Roger O. Weed, Debra E. Berens

In this fourth edition Dr. Weed and Dr. Berens have again partnered as co-editors, enlisting 42 contributors, to provide a comprehensive resource for up to date issues in case management and life care planning. The intended audience is anyone who interfaces with life care planning. Consumers would include families, clients, medical/allied health care professionals, and representatives of the legal profession. The editors have enhanced the material last updated in 2009 and added chapters on multi-cultural considerations in life care planning, admissibility of life care plans in U.S. Courts, Canadian life care planning practice, medical coding and costing for life care planners, life care planning in non-litigated contexts, as well as research and education within life care planning. Further expanding their efforts for comprehensiveness, that have included the updated Standards of Practice, 3rd Edition, Consensus and Majority Statements derived from Summits since 2000, and tools for life care planners.

As in the prior editions, the book opens with an overview of Life Care Planning: Past Present and Future. The roles of life care plan team members are described in the first section with updated chapters on the role of the Psychiatrist, Rehabilitation Nurse, Vocational Rehabilitation Counselor, Psychologist, Neuropsychologist, Occupational Therapist, Physical Therapist, Speech-Language Pathologist and Assistive Technologist, Audiologist, and Economist. Updated information is provided on issues such as training/qualifications, areas of expertise (with implications for life care planning), and an explanation of the recommended knowledge base for each profession. Each chapter provides the reader a table of contents, introduction, conclusion, and reference portion as well as where relevant, Appendices and Tables. New authors were incorporated to provide updated and additional information. Expansion of the chapter Speech-Language Pathologist and Assistive Technology (AT) provides for the inclusion of practitioners who are taking an active role in the coordination of a life care plan.

The second section provides material on topics and issues specific to selected disabilities including their classification, types of injury, definitions of terms, evaluation considerations, treatment options, and complications. Chapters are provided on the specific life care planning needs of persons who have sustained Amputation, Acquired Brain Injury, Burn Patient, Depressive Disorders, Obsessive-Compulsive Disorder and Schizophrenia, Chronic Pain, Spinal Cord Injury, Organ Transplantation, Visual Impairment and who require Elder Care Management. The chapters are consistent with past editions; however in this edition Life Care Planning for individuals with HIV/AIDS was removed.

Each chapter again includes a table of contents with an introduction, conclusion and references as well as a case study.

The third section is titled Forensic Considerations, although Dr. Weed makes it very clear that life care planning, while not solely used in litigation, has unique aspects to be aware of when involved in the forensic setting. The use of life care plans is varied, however in the forensic or litigation setting there are issues to be aware of when one encounters a life care plan. The section provides specific aspects of forensic issues, perspectives from an individual with an impairment, as well as a Plaintiff and Defense attorney, which provides first-hand experience and insight into the implications of life care planning. Updates to the chapters on Life Care Planning and the Elder Law Attorney, and Day-in-the-Life Video Production are included. The chapter on Ethical Considerations is also placed in this section versus the section on General Issues.

The fourth section focusing on General Issues, is a potpourri of information with relevant inclusion and enhancement from prior versions. Reliability of Life Care Plans; A Comparison of Original and Updated Plans; Americans with Disabilities Act, Life Care Planning Resources, Medical Equipment Choices, Home Assessment, Vehicle Modifications, Admissibility, Cultural Considerations and Life Care Planning in Canada comprise the last formal section of this book. The chapter on Credentialing is relocated from a fifth section, and the breadth of the specific areas included in this section allowed for the removal of a chapter regarding Other Issues in Life Care Planning.

Appendices are added for the benefit of the reader with access to the references readily applicable to the reader. As in the prior edition, the Standards of Practice for Life Care Planners is included, however there is now the addition of the Consensus and Majority Statements Derived from Life Care Planning Summits Held in 2000, 2002, 2004, 2006, 2008, 2010, 2012 and 2015 both reprinted from the Journal of Life Care Planning in Appendix I and Appendix II. The third Appendix is the Journal of Life Care Planning Title Index provided chronologically. The Bibliography of Life Care Planning and Related Publications was removed. The final two sections are indices of author and subjects. This provides the reader a quick reference. I was struck with the voluminous amount of information and resources within each chapter and section.

Drs. Weed and Berens have again provided a comprehensive resource, not only for the novice and experienced Life Care Planner, but also for the team of medical, rehabilitation, vocational, and legal professionals who develop life care plan and interact with them through their work. The 1st edition was 502 pages and the 3rd edition was 984 pages; this 4th edition is fewer at 904 pages, but continues to concisely reflect the growth and interest in the development and implementation of a life care plan and the practice of case management. The text is a worthwhile investment for keeping up to date for professionals involved in case management and life care planning.

### About the Reviewer

**Cloie B. Johnson** is a Rehabilitation Counselor and Case Manager at OSC Vocational Systems, Inc. in Bothell, WA. Cloie has chaired or co-chaired the Summits in 2010, 2011, 2012, 2015 and 17. She is also a past Chair of the IALCP the LCP Section of IARP and the 2016 Lifetime Achievement Award in Life Care Planning.

# Accreditation Matters



Highlight the quality services that you provide for people with acquired brain injury.

You have quality practices in place to ensure optimal outcomes.

Accreditation is the next step in growing your organization by demonstrating your person-centred focus, and your commitment to continuous quality improvement.

CARF is a leading independent, nonprofit accreditor of health and human services, that accredits more than 1,121 brain injury programmes in the United States, Europe, the Middle East, New Zealand, and Canada. Our accreditation covers the continuum of services offered to individuals with ABI in a variety of treatment settings.

#### About CARF:

- Accredits programs internationally
- Reviews business and clinical practices
- Guides person-centred, evidence-based practices
- Establishes quality performance improvement systems
- Hosts training and education on standards

#### Benefits of CARF accreditation:

- Service excellence
- Business improvement
- Funding access
- Competitive differentiation
- Risk management
- Positive visibility
- Accountability
- Peer networking



Snap the QR code or visit [www.carf.org/Programs/Medical](http://www.carf.org/Programs/Medical) for full program descriptions.



**Chris MacDonell**  
Managing Director,  
Medical Rehabilitation and  
International Aging Services

**To learn more about CARF and how accreditation can help your organization. Call or email us today!**

**(888) 281-6531**

**med@carf.org**

**carf** INTERNATIONAL  
[www.carf.org](http://www.carf.org)



PHOTO BY HERMAN PRIVETTE

## SCARLETT LAW GROUP

Scarlett Law Group is a premier California personal injury law firm that in two decades has become one of the state's go-to practices for large-scale personal injury and wrongful death cases, particularly those involving traumatic brain injuries.

With his experienced team of attorneys and support staff, founder Randall Scarlett has built a highly selective plaintiffs' firm that is dedicated to improving the quality of life of its injured clients. "I live to assist people who have sustained traumatic brain injury or other catastrophic harms," Scarlett says. "There is simply no greater calling than being able to work in a field where you can help people obtain the treatment they so desperately need."

To that end, Scarlett and his firm strive to achieve maximum recovery for their clients, while also providing them with the best medical experts available. "As a firm, we ensure that our clients receive both

the litigation support they need and the cutting-edge medical treatments that can help them regain independence," Scarlett notes.

Scarlett's record-setting verdicts for clients with traumatic brain injuries include \$10.6 million for a 31-year-old man, \$49 million for a 23-year-old man, \$26 million for a 7-year-old, and \$22.8 million for a 52-year-old woman. In addition, his firm regularly obtains eight-figure verdicts for clients who have endured spinal cord injuries, automobile accidents, big rig trucking accidents, birth injuries, and wrongful death.

Most recently, Scarlett secured an \$18.6 million consolidated case jury verdict in February 2014 on behalf of the family of a woman who died as a result of the negligence of a trucking company and the dangerous condition of a roadway in Monterey, Calif. The jury awarded \$9.4 million to Scarlett's clients, which ranks as

one of the highest wrongful death verdicts rendered in recent years in the Monterey County Superior Court.

"Having successfully tried and resolved cases for decades, we're prepared and willing to take cases to trial when offers of settlement are inadequate, and I think that's ultimately what sets us apart from many other personal injury law firms," observes Scarlett, who is a Diplomat of the American Board of Professional Liability Attorneys.

In 2015, Mr. Scarlett obtained a \$13 million jury verdict for the family of a one year old baby who suffered permanent injuries when a North Carolina Hospital failed to diagnose and properly treat bacterial meningitis that left the child with severe neurological damage. Then, just a month later, Scarlett secured an \$11 million settlement for a 28-year-old Iraq War veteran who was struck by a vehicle in a crosswalk, rendering her brain damaged.

536 Pacific Avenue | San Francisco, CA 94133  
PHONE 415.352.6264 | FAX 415.352.6265

[www.scarlettlawgroup.com](http://www.scarlettlawgroup.com)