Introducing...
The Essential Brain Injury Guide 5.0
The all new EBIG 5.0 provides a wealth of vital information

PLUS
Speech and Language Development in Young Children
An Introduction to Aquatic Therapy
Competitive Employment: The Gold Standard
We have seen a significant amount of consolidation recently within the post-acute brain injury rehabilitation market in Michigan. This follows a trend we’ve seen with hospitals over the last few decades. Over the past three years alone, more than a dozen brain injury rehabilitation companies have been involved in a transaction. A number of small- to medium-sized programs have sold to or traded between larger national programs, while other local programs have either merged or are now working in collaborative ventures.

This is unprecedented activity that is likely being driven by timing on a few fronts. Investible cash from large investors is at a high point in the cycle making it easier to get a deal and presumably at higher prices for sellers. Following the recession, there was a dearth of buyers and a large buildup of cash. Now that the markets have stabilized, buyers are jumping in with gusto in Michigan and beyond.

The demand for services for individuals with brain injuries increased significantly in the late 1980s and 1990s, resulting in a surge in provider organization startups. Many of these new service providers were established by an individual owner and operated successfully for many years. Now some 20 to 30 years later, while demand continues to grow, a large number of owners are nearing the end of their careers and succession planning is critical to ensure they get value for their life’s work.

Selling outright may seem more appealing to some rather than getting into an earn-out situation, where the ultimate retirement plan is based on the success of the individuals involved in the earn-out as well as the reliability of the primary funding source.

Which brings me to the last point.

Michigan’s auto no-fault insurance system, the primary funding source for brain injury treatment and care, has been changing significantly over recent years. Through a variety of Appellate and Supreme Court decisions, the benefits available to accident victims today are materially different and less than the benefits available 10 years ago.

Additionally, the changes in claims handling practices of insurance companies and the use of serial independent medical exams to determine patients’ ongoing benefit eligibility have rendered the clinical and business practice of providing rehabilitation services more difficult to navigate while success is less certain. For some business owners, these realities can be an additional deterrent to staying the course.

Despite the activity going on around us, Rainbow is focused on organic growth through development of new programs from scratch such as our more recent Vocational Rehab Campus, Farmington Hills Treatment Center, and the new Southfield Center project currently underway. We also evaluate acquisition opportunities. We look for good companies that make sense for Rainbow and also for the seller, such as our strategic purchase of Functional Recovery in 2009. We are not interested in growth for the sake of growth. Rather, whether growth is organic or through acquisition, we strive to create a stronger company that can best serve patients by improving our competencies, capabilities, service offerings, and locations. At the same time, growth assists in controlling the overall costs of care via economies of scale that come from a larger organization.

I believe a combination of the availability of cash, a large group of providers nearing the end of active careers, along with the realities of a changing marketplace, have heavily influenced the volume of merger and acquisition activity Michigan.

In the near term, I anticipate the trend to continue despite ongoing efforts in the legislature to make reforms to the current auto no-fault insurance system. Rainbow remains focused on excellence in patient care.
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Although there is no single way in which a child learns how to communicate, there is a general pattern of speech and language development. This pattern of development occurs at a different rate for all children due to intellect, personality, learning style, family structure, birth order, and socioeconomic status.

Large changes in speech and language skills occur within brief periods of time, and girls often develop these skills faster than boys. It is more important that children show steady progress rather than achieve milestones at a specific age.

By providing an engaging, language-rich environment, parents can help those skills develop to their full potential. Listening and responding to your child, following your child's interests, using gestures and non-verbal communication to enhance your messages, reading on a daily basis, talking about what you see, hear, feel, etc., and engaging in play with your child are all ways in which parents can help foster those skills.

Younger children learn and respond best to interacting with people during the first few years of life. In order to best understand how to help those skills develop, let's look at what “speech” and “language” skills are.

The term “speech” refers to the verbal means of communicating and consists of the following: articulation (how sounds are produced), voice (vocal fold movement and breathing patterns), and fluency (the rhythm of speech).¹

Speech requires precise neuromuscular coordination in order to produce specific sounds and sound combinations. Since their fine motor skills are developing and not as fine-tuned as an adults, children’s speech can be expected to sound different.

Children will typically have “sound replacements,” otherwise called phonological patterns. These phonological patterns are a normal part of development and disappear as motor skills become fine-tuned.

Potential problems with speech development include: stuttering (non-fluent speech), apraxia (inability to coordinate motor movements to produce the sounds), dysarthria (motor speech disorder affecting the ability to produce sounds clearly), and voice impairments.

Reading, writing, gesturing, and speaking are all types of language. Language can be divided into the following categories: expressive, receptive, and pragmatic.

Expressive language refers to the ability to state thoughts, ideas, and needs. Receptive language is the ability to understand what is said and pragmatic language refers to our social skills or ability to interact with others. This includes skills such as knowing how and when to respond to questions, identifying the non-verbal aspects of communication (eye contact, body language, etc.), maintaining a topic of communication, maintaining personal space when interacting with others, making appropriate comments, and determining the appropriate way in which to talk with different people.

A child can have a delay with one type of language, such as expressive language, or with multiple areas of language. Language learning occurs through interactions with people and the environment. It is important to observe children’s content, form, and use of language in order to determine if there is a problem with development.
Effects of Traumatic Brain Injury on Speech and Language Skills

The general pattern of language development can easily be disrupted by a traumatic brain injury (TBI), which is the leading cause of death and disability in children.\textsuperscript{2} Children’s brains develop in spurts, with an explosion of language skills occurring in the first few years of life.

Early childhood TBI is associated with a number of cognitive outcomes, including deficits in memory, attention, intellectual functioning, and language acquisition.\textsuperscript{3} Specifically, children between the ages of two and seven at the time of a TBI are more likely to have impaired expressive language, attention, and academic achievement and show less recovery of IQ compared with children injured at later ages \textsuperscript{4,5,6,7,8,9} as cited in Tayler et al., 2008.\textsuperscript{10}

Deficits might not be immediately apparent after the injury due to limited communication skills and developmental level. Impairments may be identified later when skills don’t develop as they should. Ronald Savage described TBI in childhood as a developing disability that needed to be closely monitored to prevent deficits from getting worse. The severity of the injury and family environment can be expected to have an impact on outcomes of TBI.\textsuperscript{11}
**MEDICAL CORNER SPEECH AND LANGUAGE DEVELOPMENT…**

Speech and language development should be monitored by parents and health professionals following a TBI at a young age. The first step is to discuss your concerns with your child's pediatrician. He/she can then recommend a speech–language pathologist (SLP) to assist if needed. A speech–language pathologist is a specialist trained in identifying and correcting communication problems.

Don't hesitate to report issues to your health care provider or set up an evaluation. Remember, you are the expert on your child. If you feel that something isn't right, follow through with your instincts. A child is never too young to be evaluated by an SLP.

Visit the American Speech-Language-Hearing Association (ASHA) website at www.asha.org for more information and useful checklists.

The following chart is a general outline of speech and language milestones:

<table>
<thead>
<tr>
<th>AGE</th>
<th>SPEECH</th>
<th>LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 months</td>
<td>Vegetative sounds (grunts, crying, etc.), coo, laugh, and babble.</td>
<td>Recognizes and responds to caregivers’ voices, smile when you speak to them.</td>
</tr>
<tr>
<td>4-6 months</td>
<td>Babbling, gurgling sounds.</td>
<td>Responds to “no,” tone of voice and to sounds other than speech (i.e., toys).</td>
</tr>
<tr>
<td>7-12 months</td>
<td>Babbling has more consonant and vowel sounds, 1-2 word phrases by 12 months.</td>
<td>Listens when spoken to, looks when called by name, plays games like “peek-a-boo.” By 12 months: follow simple requests (Don’t touch!), understands some questions, recognizes names of familiar objects (ball, dog, etc.), understands 3-50 words.</td>
</tr>
<tr>
<td>1-2 years</td>
<td>Average talking vocabulary is 50-100 words, speech is understood 50 percent of the time.</td>
<td>Points to pictures in books, points to some body parts, follows simple directions, and likes to have same story repeated.</td>
</tr>
<tr>
<td>2-3 years</td>
<td>Puts 2-3 words together to talk about and ask for things, average talking vocabulary is 200-300 words.</td>
<td>Follows two-part directions, requests information, acknowledges others, understands basic locations (on, under, in, etc.).</td>
</tr>
<tr>
<td>3-4 years</td>
<td>Speech is understood 76 percent of the time, longer sentences, fluent speech, more complex sentences.</td>
<td>Understands simple “who,” “what,” “where” questions and understands basic color words.</td>
</tr>
<tr>
<td>4-5 years</td>
<td>Speech should be 100 percent understood, might continue to have errors with s, r, l, “th” and consonant blends (sl, str, bl, etc.), produces long and detailed sentences.</td>
<td>Understands “when” and “how” questions, understands words for basic shapes, use of size vocabulary (big, small, etc.).</td>
</tr>
</tbody>
</table>
References – Speech and Language Development in Young Children


Introducing...
The Essential Brain Injury Guide 5.0

By Heidi Reyst, Ph.D., CBIST
Rainbow Rehabilitation Centers
The EBIG 5.0 Development Process

With great fanfare, I am excited to be writing about the rollout of the Essential Brain Injury Guide 5.0 (or EBIG for short). In 2012, the Academy of Certified of Brain Injury Specialists (ACBIS) Board of Governors began the process of developing the new guide. This was done by developing an exhaustive topic list of potential areas that are germane to brain injury. From that list, ACBIS constituents, namely our CBIS and CBIST certificants, were queried regarding these brain injury topics. For each topic area, we asked them three questions:

1. **How important is this topic area to the overall CBIS curriculum?**
   - 1 Not Important
   - 2 Somewhat Important
   - 3 Very Important
   - 4 Critical

2. **What level of depth of information for this topic area should be included?**
   - 1 Basic Information Only
   - 2 More than Basic, but not Advanced
   - 3 Advanced

3. **What type of knowledge for this topic area is useful?**
   - 1 Theoretical Knowledge
   - 2 Practical Knowledge
   - 3 Theoretical and Practical Knowledge

We used the data from our respondents to determine the topic areas for the EBIG 5.0. Once the final topics were identified, we then put out the message to the brain injury community that we were looking for writers for this next edition. Over the span of the next year, we had assembled more than 60 outstanding professionals working in the field to write content and contribute to the EBIG. A sampling of authors is shown on page 8.

Over the course of the next two or so years, we gathered the submissions, assembled them into cohesive chapters, laid them out for design, and searched for and created graphics to complement the writings. The final year, 2015, was primarily dedicated to design and editing. While it took some time to incubate, it was well worth the wait. All told, those 50 plus topics were amassed into 25 chapters, as shown in Table 1 (next page).
The all new Essential Brain Injury Guide Edition 5.0 provides a wealth of vital information about brain injury, brain injury treatment and brain injury rehabilitation. It is written by experts in non-medical language, making it accessible to professionals and para-professionals. Pages 9 through 11 of this magazine highlight pages from the book.

The **EBIG 5.0** Rollout Plan

Because of the breadth of expansion of topic areas in the new EBIG, there will be an extended transition time as we move from the EBIG 4.0 and the old test to the EBIG 5.0 and the new test. This time frame will provide the needed time for CBISTS to learn the new material in the expanded guide, obtain training on the new course preparation materials, and plan in advance the course offerings for their CBIS trainings.

The current EBIG 4.0 continues to be available for purchase, and CBIS, CBIST and PCBS applicants will be able to take the current certification examination, including second tests, if necessary, through August 31, 2016. To purchase the EBIG 4.0, go to shop.biausa.org.

The EBIG 5.0 is now available at a pre-publication discount price, and shipping will begin March 1. To pre-purchase the EBIG 5.0, go to shop.biausa.org. Effective September 1, 2016, the new test will be used for certification.

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**EBIG 5.0 Pricing**

<table>
<thead>
<tr>
<th>Single Copy Price</th>
<th>Price with Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>$135.00</td>
<td>$90.00</td>
</tr>
</tbody>
</table>

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Chapter 12

PSYCHOSOCIAL COMPLICATIONS

Learning Objectives

By the end of this chapter, the reader will:

1. Be familiar with factors associated with the post-injury development of psychiatric disorders.
2. Be able to articulate why patients with TBIs are at increased risk for certain psychiatric disorders, such as depression, bipolar disorder, panic disorder, generalized anxiety disorder, and schizophrenia.
3. Be able to discuss Organic Personality Disorder as a potential outcome of TBI.
4. Gain an understanding of the relationship between location and severity of the injury and the development of psychiatric symptoms and conditions.
5. Be able to distinguish between causes caused by TBI versus those originating from a different cause, and
6. Be able to describe how a psychiatric disorder can complicate the rehabilitation process and create additional barriers to communication and independence for a person with TBI.

LONG TERM MEMORY

(Permanent Consolidation & Storage)

<table>
<thead>
<tr>
<th>EXPLICIT MEMORY</th>
<th>IMPLICIT MEMORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory with Consistent Recall</td>
<td>Memory without Consistent Recall</td>
</tr>
</tbody>
</table>

Example:

- Explicit Memory: Recall of facts, names, dates, and events.
- Implicit Memory: Skills and habits, such as driving or typing.

Processing Speed

People with TBI may experience difficulties with processing speed, which can impact their ability to concentrate and complete tasks efficiently. Strategies to improve processing speed include:

- Break down tasks into smaller, manageable steps.
- Use visual aids and reminders to support memory.
- Practice mindfulness techniques to improve focus and concentration.

Examples of strategies to improve processing speed:

- Mindfulness meditation
- Deep breathing exercises
- Progressive muscle relaxation

Adapted by: The Essential Brain Injury Guide 5.0

RAINBOWREHAB.COM
About the author

Heidi Reyst, Ph.D., CBIST
Vice President of Clinical Administration

Heidi Reyst Ph.D., CBIST began her career in the field of Brain Injury in 1991. She has experience on both the care side and the administrative side as a Program Director, Systems Director, Director of Clinical Administration, and Vice President of Clinical Administration. Dr. Reyst is an advocate for ensuring that individuals working in brain injury are trained in the specific issues salient to brain injury. She is a Certified Brain Injury Specialist Trainer and is a member of the Academy of Certified Brain Injury Specialists. In 2008, Dr. Reyst was the recipient of the Brain Injury Association of Michigan’s Legacy Society “Professional Service Award”; this was awarded based on her involvement in advocating for those with brain injuries and for her training of those working in the field of Brain Injury through the ACBIS program.

Dr. Reyst has been a member of the ACBIS community since 2004, when she joined the ACBIS Corporate Alliance Council as Rainbow’s representative. In 2005 she became a member of ACBIS Board of Governors, serving as a member as well as the Vice Chairperson of Information Management. In January of 2016, Dr. Reyst became Chairperson of the ACBIS Board, and additionally, joined the Board of Directors of the Brain Injury Association of America. She was one of the 100 professionals from across the country selected to participate in the Guidelines for the Rehabilitation and Chronic Disease Management of Adults with Moderate to Severe Traumatic Brain Injury project sponsored by the Brain Injury Association of America and the Brain Injury Research Center at the Icahn School of Medicine at Mount Sinai.
The **ACBIS** Experience

Providing education, training, certification, and ongoing resources for specialists in the brain injury community

By **Heidi Reyst**, Ph.D., CBIST
Rainbow Rehabilitation Centers

**HISTORICAL BACKGROUND**

In the 1970s and early 1980s, advancements in trauma care and improvements in motor vehicle safety resulted in legions of individuals surviving brain injuries who previously would have died. As more and more people survived their injuries; more and more people lived with a brain injury. While trauma care and acute care were improving, care after these phases was a relatively new field. Post-acute care was slowly evolving, and in those early years, families, physicians, and providers were navigating in unknown territory, to a degree.

As the evolution of post-acute care unfolded in the late 1980s, prominent leaders in the field of brain injury rehabilitation gathered to discuss the importance and need for education and training of persons providing brain injury services. These leaders anticipated the many changes and challenges that would emerge, and they envisioned a dynamic process that would support, foster, and communicate relevant and current information.

In 1990, a survey was completed of 565 acute, sub-acute, and post-acute programs regarding the training needs of licensed and non-licensed staff providing brain injury services. The results of that survey provided the building blocks for the establishment of a voluntary national certification program that established best practices for the training of individuals working with this population. This was the impetus for the Brain Injury Association of America establishing the American Academy for the Certification of Brain Injury Specialists (AACBIS) in 1996.

The mission of AACBIS was to improve the quality of care given to individuals with brain injury through the education, training, and certification of those who work in brain injury services. Certification was not restricted to any one profession or discipline. Rather, it was intended for any person who delivers services specific to brain injury.

The initial program placed emphasis upon building strong foundations in knowledge and clinical application in brain injury rehabilitation, as well as emphasizing the importance of maintaining ongoing education within a rapidly changing and advancing profession.

**THE FIRST DECADE**

The early years involved the establishment of the certification process, development of the curriculum, development of infrastructure to support the certification process, and active marketing to promote the product.

The driving force behind AACBIS was a host of experts in the field of brain injury. These pioneers recognized the need for education and training at all levels of care. They queried those in the field to determine what was needed, put together a strong team of experts to mold and guide the overall development, and created the curriculum that would make a remarkable difference in the lives of individuals living with a brain injury.
The Certification Process

From a certification process perspective, the AACBIS program provided three certifications, the Certified Brain Injury Specialist Level 1–Basic (CBIS Level 1), the Certified Brain Injury Specialist–Clinical Instructor (CBIS-CI), and the Certified Brain Injury Specialist–Clinical Examiner (CBIS-CE). For each of the various credentials, there was a clear process to certification. The steps in that process included:

1. Complete the application package.
2. Review the AACBIS Training Manual, via self-study or through an affiliated training.
3. Complete the examination, which required the assistance of a CBIS-CI, CBIS-CE, or proctor through a state BIA affiliate.
4. Upon successfully passing the test, the applicants’ file was then sent to the credentialing committee which rendered a positive or negative recommendation for moving forward in the process.
5. Once a positive recommendation was received from the credentialing committee, the applicant was then able to sit for the Performance-Based Assessment (PBA). Taking the PBA required the services of a CBIS-CE.

CBIS Level 1 Certification Process

The focus of Level 1 training was direct care staff providing care to individuals with brain injuries. The applicants’ only prerequisite for taking the examination was having one year of experience in direct care. Obtaining CBIS certification consisted of two parts. The first part was the exam, which was paper and pencil at that time. The second part was the Performance-Based Assessment (PBA—see page 41 for more information). Passing the PBA meant the individual demonstrated the knowledge and skill to earn the CBIS Level 1 certification. Once the individual became certified, that certification was valid for three years. Renewal was then required prior to the certification ending, and certificants had to work at least 1500 hours as a CBIS and obtain at least 36 hours of continuing education activities or retake the exam.

CBIS Clinical Instructor Certification Process

Clinical instructors were professionals who had at least five years of full-time professional experience and at least three years in a supervisory capacity. The CI certification was essentially viewed as the “Advanced Practice,” and the test was twice as long and considerably more in depth. Upon meeting all the vocational requirements and passing the examination, the Clinical Instructor would then participate in a three-hour administrative orientation that would give them the working tools to teach CBIS applicants and proctor examinations for new applicants.

CBIS Clinical Examiner Certification Process

In order to become a Clinical Examiner, certification as a Clinical Instructor was required. Once Clinical Instructor status was achieved, the certificant would receive additional training in the administration of the PBA. There was a formal guide for Clinical Examiners to follow. Upon achieving CE status, the individual was able to train applicants, complete PBAs, and proctor examinations.
The CBIS-CEs were tasked with assessing how well the future certificant was able to apply the knowledge learned from the AABCIS curriculum through the PBA. The PBA was essentially a structured interview designed to assist the CBIS Level 1 candidate in demonstrating their ability to perform skills and competencies outlined in the AABCIS Training Manual.

**Curriculum**

Nearly two dozen professionals collaborated to create the AABCIS Training Manual. It consisted of the following chapters:

1. Overview of Brain Injury Rehabilitation
2. Brain and Behavior Relationships
3. Functional Impact of Brain Injury
4. Health, Medical and Safety Issues
5. Treatment Philosophy and Planning
6. Children and Adolescent Issues
7. Family-related Issues
8. Legal and Ethical Issues

While there were textbooks focused on brain injury at the time, this curriculum established a baseline of information that any and all individuals who worked in the field of brain injury should possess. To become a brain injury specialist, a certificant was able to either self-study from the AABCIS Training Manual or they could attend an instructional course provided by a CBIS–CI or CE. In those early days, often a course was provided prior to a significant conference which a focused on brain injury.

In early 2003, data from the previous seven years (1996-2002) showed a slow moving certification process. Looking at Figure 1, in a seven-year period, approximately 800 individuals applied for Level 1 certification. This worked out to 114 applications per year on average, with 43 certifications per year on average. When looking at how many applicants went on to become certified (Figure 2), it was clear that a significant difference existed between Clinical Examiners/Clinical Instructors and Level 1 certificants. All applicants for CE and CI went on to become certified, while only 38 percent of Level 1 applicants became Level 1 CBIS certificants.

When looking at the CBIS Level 1 numbers, which was the bread and butter of the certification program, the disparity between those who applied versus those who were certified was problematic. Certainly some of those who had applied, but were not yet certified, were likely still in process towards certification. However, based on the processes involved, it was clear that there were significant barriers to timely certification or, alternatively, there were likely people who never reached certification due to lack of satisfaction with the process. By and large, application,
testing, and certification depended on telephone calls, documents sent through regular mail, and review processes handled by volunteer board members and a single AACBIS assistant. Moreover, for the basic Level 1 certification, the applicant was compelled to find a CBIS-CE that either lived in close proximity or they themselves had to travel to a CBIS-CE, most typically found at a brain injury conference or symposium that may or may not have been local. Keeping in mind that this level was clearly intended for direct care staff, those levels of costs would have been prohibitive if their facility would not pay the costs for them.

In those early years, it was estimated that the typical CBIS–Level 1 certification process took upwards of six to nine months, irrespective of applicant training time. The six to nine months timeframe was the time it took from applying to become certified to receipt of the certificate as a Certified Brain Injury Specialist.

As can be seen from Figure 3 (on the left), for one Clinical Examiner, the path to certification took him to three different cities, none particularly close to home. As early as 2002, the Board leadership understood the 6–9 month time frame to be a problem that was potentially stalling AACBIS from growing and moving toward being a household name in the world of brain injury rehabilitation. Out of this recognition, a number of ideas regarding process improvement were discussed, including moving the old paper and pencil processes to be delivered across the Internet, and addressing the PBA's practicality for this type of certification, especially as numbers of certificants grew.

So, the focus in late 2002 and early 2003 was on finding ways to shorten the time from application to certification, development of new marketing initiatives, and ways to spur AACBIS forward.

There were procedural changes to the certification process made including:

1. Changing the process of employment verification,
2. Eliminating the requisite committee vote on every applicant,
3. Simplification of recertification procedures, and
4. Instituting a requirement of only completed applications being accepted.

In addition, another significant change was the elimination of the CBIS–CE and CBIS–CI certifications, which were merged into a new certification titled Certified Brain Injury Trainer or CBIT. This last step effectively eliminated the PBA.

While the PBA was an excellent measure of skill demonstration for applicants, it was a major factor in the extended length of time to obtain certification, and its continued use was untenable.

While the PBA format was eliminated, the Board of Governors made additional efforts on an ongoing basis to assess applicants’ ability to synthesize the material. This was accomplished through test modifications. Scenarios which included clinical information on a fictitious patient were provided to the examinee. Answering the scenarios required the examinee to apply information learned through study of the training manual as well as drawing on real experiences in working with patients. Altogether, these changes were positive steps forward, resulting in a reduction of the barriers experienced in the certification process.

Another significant change in 2003 that greatly impacted the forward trajectory of AACBIS was the formation of a Corporate Advisory Council (CAC). The CAC was instituted to assist the certification program to become financially and programmatically viable. The corporate members were invited to the table based on their status as having been identified as providing quality services to the brain injury community (see the sidebar on page 16 for a list of the CAC members). Rainbow was one of the programs invited to the CAC.

The CAC provided financial stimulus, in that each joining corporate member provided a $5000 contribution to the AACBIS program. In addition, the CAC was charged with analyzing the overall program and making recommendations for improvement.

The AACBIS Board and CAC met in August of that year to discuss major initiatives including revision of the AACBIS Training Manual, test development, moving to a web-based certification process, increasing marketing efforts, and focusing on facility-based certification and grant writing for future endeavors.

MAJOR ACHIEVEMENTS
THE FIRST DECADE

- Establishment of the AACBIS Board of Governors
- Development of the AACBIS curriculum
- Establishment of Certifications and Certification Processes
- Establishment of the Corporate Advisory Council
- Material changes to the program to increase visibility and accessibility to the AACBIS program
In the years immediately following the inception of the CAC, and with the extraordinary efforts of the AACBIS board, the program enjoyed a remarkable transformation in terms of increased visibility and prominence, as well as the number of people in the field applying for and obtaining certification. In retrospect, what seemingly occurred as a by-product of the CAC, through the funding support and the clear marketing efforts, was that many of those initiatives were brought to fruition. The numbers themselves are a great indicator of the story, as seen in Figure 4. The efforts in 2003 resulted in more than a 300 percent jump in certifications in the next year alone. That burst of momentum proved to be a major factor in the ongoing success of AACBIS.

Overall, the first decade of AACBIS was a clear success. While the number of certificants was not earth-shattering, the founding members had accomplished major goals.

AACBIS established a baseline of knowledge for any individual working in the field of brain injury and for many in direct care roles, provided an avenue to tangibly demonstrate that they specialized in the care of individuals living with a brain injury.

The founders developed a strong, enduring curriculum and trained thousands in those years. They made AACBIS a household name for those of us working in brain injury, and they provided enumerable opportunities for young upstarts working in the field (say, like me) to find a niche in the wonderful, crazy world of brain injury rehabilitation.

AACBIS was in a position of forward momentum, and all future success was built on the blood, sweat, tears and vision of these remarkable people. While I know it would be impossible to name all those who impacted the AACBIS program, I would be remiss not to try. Folks who made a significant contribution are listed on the right. From all of us who have benefited from their hard work, we say a big, loud “THANK YOU!”

**SIGNIFICANT CONTRIBUTORS IN THE FOUNDING OF THE AACBIS PROGRAM**

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THE SECOND DECADE

The success of the first decade of AACBIS didn’t dissuade the Board from looking forward. The year 2006 brought important numerous changes. Responding to questions received by AACBIS staff about the CBIS–Level 1 certification (questions like “what is Level 2”), the CBIS–Level 1 was simplified to CBIS. Additionally, the Board of Governors voted to change the CBIT designation to CBIST (Certified Brain Injury Specialist Trainer), to more accurately reflect their standing as both trainers and specialists.

As a continuation of the goals set by the Board of Governors and the CAC, the first online application system was rolled out in 2006. This significantly improved the application process and, to a large degree, applicant satisfaction. As processes became enhanced, both application rates and certification rates rose concomitantly.

By early 2007, the AACBIS Program had certified a total of 2,417 individuals over 11 years. Individuals conferred either a CBIS or CBIST were represented in 46 of 50 states. Table 1 outlines the total number of certificants by geographical region.

The state of Michigan had the largest number of AACBIS certified individuals, followed by Pennsylvania, New Jersey, Minnesota and Illinois. The Academy also had a percentage of international certificants as well, including individuals from Canada, Saudi Arabia, Singapore, and the United Kingdom.

The data in Table 1 shows a large representation from the East and Midwest and underrepresentation from the West. The region with the largest percentage of certificants was the Midwest, which was likely bolstered by the number of certificants from Michigan.

Michigan’s overwhelmingly large volume of AACBIS certified individuals was and is impacted by the commitment of the Brain Injury Association of Michigan and state providers. Michigan’s auto no-fault insurance provides resources that other states do not have in terms of number of providers and clients served. The collaborative efforts made in Michigan included providing three educational training opportunities throughout the state each year. This successful collaboration stood as a formidable model for other states.

One of the most significant enhancements to the program was an update of the training manual. In 2007, the AACBIS Training Manual version 3.0 was revised and renamed The Essential Brain Injury Guide, Edition 4.0 (Figure 5). The content remained largely the same, but the book went from a black and white document with a handful of graphics to a full four-color document designed with publishing software. The new format of the manual enhanced the certificants experience and readability of the material. In addition, as the manual was being developed, so too were training materials for CBIST trainers to use.

Ongoing feedback from applicants indicated that there was significant variability in the content and quality of training courses provided by Certified Brain Injury Specialists/Trainers. The AACBIS Board of Governors felt it was important to maintain consistency in education and content.

The AACBIS Program, in concert with an outside consultant, developed a course curriculum for applicants preparing for the national certification. The course provided detailed instructions to both the trainers and the participant. The course utilized combinations of didactic lectures, scenario-based practicums, and interchangeable review activities. These interchangeable activities allowed the instructor to customize the learning needs and styles of the audience.

This training curriculum was met with very positive feedback from both trainers and applicants. Two important needs were met with this program: it provided a consistent

<table>
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<th>Region</th>
<th>2007 Certificants</th>
<th>Percentage</th>
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<tr>
<td>Southeast</td>
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<td>24%</td>
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<td>Midwest</td>
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<td>39%</td>
</tr>
<tr>
<td>Northwest</td>
<td>67</td>
<td>3%</td>
</tr>
<tr>
<td>Southwest</td>
<td>247</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2108</strong></td>
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</table>


Table 1. Number of Certificants by Region from Years 1996 to 2007

Figure 5. The Essential Brain Injury Guide Edition 4.0

Continued on page 38
On a beautiful Tuesday afternoon this past September, Rainbow Client Chuck Walker and his case manager Don Daniels sat on the back deck of his house. While soaking up the late summer sun, they reminisced on life. Chuck has always been the “life of the party.” His mom, Catherine, recalled through a laugh the time she had to go up to his school to apologize for his shenanigans. “He was the class clown,” she said.

And that hasn’t changed.

In agreement with Catherine’s statement, through a heartfelt smile, Don said, “he’s honest, open and a true blue guy that just likes to do guy things.”

Chuck was electrocuted 26 years ago while working for the City of Detroit Light Department. He grabbed a live wire he thought was disconnected. His heart stopped for 29 minutes. He was given an open chest cardiac massage to get his heart pumping again. Due to the length of time without a heartbeat, he sustained global anoxia resulting in a traumatic brain injury.

Before his accident, you could find Chuck on a boat or on his Harley-Davidson motorcycle with his “give ‘em hell attitude” that no disability could take away. His life before his accident was fast and furious, and after his accident his spirit never changed. He loves going to concerts, playing his guitar, enjoying a few adult beverages and living his life to the very fullest. He’s always lived by the motto “you only live once” and boy has he made the most of his.

When Chuck was diagnosed with cancer in July this year, his fearless attitude turned into bold ambition.

With a collaborative effort from Chuck’s mom and sisters Nancy, Mary and Julie, the family started planning things he wanted to do while he still could. He raced around Michigan International Speedway this past October, and when his sisters suggested they go skydiving, it didn’t take a lot of persuasion for him to agree to take the jump. On August 22, Chuck and his sisters strapped in and suited up to get ready for the ride of his life.

Chuck is a father, a grandfather and a strong presence to many young kids. He’s earned a black belt in martial arts under his Sensei, Martin, and now continues to leave a legacy along side of him as well. For the last eight years, he’s been a mentor with the Association Latino Alcanzando Sueños (ALAS) which helps teach Latino teens how to speak English. ALAS is a program that is associated with Martin’s Speedy Dojo.

Known as “Grandpa Chuck” with the ALAS kids, Chuck always enjoys his time with them. With the prognosis of his cancer becoming more serious, he said the message he’d like to leave to the kids is “Don’t smoke cigarettes and have fun.” Well, there’s no better person to define the message of “fun” like he can.

Martin, or Sensei as Chuck refers to him, has worked with Chuck for the last nine years. He speaks so highly of the changes he’s witnessed over the years. “It’s been a joy working...
with Chuck,” said Martin. Recalling from the beginning how vibrant Chuck was and the only thing they had to contend with was his frequent use of a four letter word. He made that change very quickly, and Martin says his demeanor changes when he comes into the dojo. Chuck comes in and greets Sensei and the other guys before he leads the class in upper body basics.

Along with his passion for martial arts, music has always played a huge part in Chuck’s life. From his years of involvement with his heavy metal band growing up, he was destined to continue his work of creating music. Rainbow’s Music Therapist Jonathan Carmona has been along for the ride since 2009. He’s been rocking out next to Chuck with his guitar and has accompanied him to a handful of concerts. As the cancer has progressed and his physical limitations increased, he’s spent more time singing than playing guitar. Jonathan has set him up with a program on his laptop so that Chuck can compose custom songs to which he can add both his lyrics and guitar.

Martin and Jonathan both speak so highly of Catherine and all that she does for her son. However, Catherine could not be more thankful for Rainbow and everyone who has a part in Chuck’s life. “Rainbow is the best place for Chuck. They’re wonderful. They go above and beyond,” she said.

On one of their weekly lunch dates, Chuck sat beside Catherine who was writing in one of her 300 notebooks that she’s used to record Chuck’s years since his accident. She said how they’re only seeing one doctor these days and how impressive it is that he’s made it so far. “They don’t think he’s dying, and the way he’s going, I sometimes don’t think so myself,” she said. The emotion in the room got heavy when she continued, “I’m never, ever going to give up on my son… he’s not ready to go yet, and I’m not ready to let him go.”

He is making sure to accomplish the plans he and his family started. When the plane door opened on the day they went skydiving, Chuck said his only thought was “oh no.” With his two sisters behind him and Mary and Martin waiting safely on the ground, he did what he’s always done in life—jumped.

Chuck has such optimism for the future. He plans on going for a hot air balloon ride, continuing his passion for playing the guitar and enjoying every day doing what he wants to do. Just like the rest of us, the length of his life is unknown. Chuck Walker is an amazing man who has left such an impression on those lucky enough to have crossed his path. He has always done and will continue do some amazing things for the rest of his days. ☛
An Introduction to

When I first heard of aquatic therapy, my initial thought was, “You can do more than just swim in a pool?” Through my education and experience, I have learned that there is much more than just swimming when it comes to pool use. I have also learned that there are many different techniques to use when providing aquatic therapy. The focus of this article will include a brief history of aquatic therapy, an overview of aquatic principles, the therapeutic benefits, as well as aquatic therapy techniques including, Bad Ragaz Ring Method, Watsu®, Ai Chi, and AquaStretch™.

THE HISTORY OF AQUATIC THERAPY

There is a long history of the use of water for therapy. Over the course of that history a great number of terms have been generated to describe this type of therapy such as hydrotherapy, balneotherapy, hydrology, hydrogymnastics, water therapy, spa therapy, water therapeutics and water exercise. Today, it is most commonly referred to as aquatic rehabilitation or aquatic therapy.

Aquatic Rehabilitation is a late-twentieth century term that describes a scientific therapy, medical rationale, and a set of clinical procedures using water immersion for the restoration of physical mobility and physiologic activity, and, at times, for effecting psychological transformation.¹

The long history of water therapy began as hot and cold baths that were used to treat disease as far back as 460 B.C. in Greece. Three hundred years ago, hot water was used with patients who were spastic or had muscles spasms, and cold water was used to reduce fevers.²

During the late 1700s, cold water was used for the treatment and comfort of smallpox victims.² In 1830, a Silesian peasant, Vincent Priessntiz, combined cold water with a vigorous exercise program to strengthen patients who were ill.² Priessntiz’s program created a stir in Europe which led to seminal research looking at water temperatures and their reaction times to various diseases.

Dr. Winterwitz of Vienna, Austria took part in researching the effects of water at different temperatures on sick patients, which eventually established an accepted physiological basis for hydrotherapy that still stands to this day.² In the United States, hydrotherapy was developed as a treatment modality for neurologic rehabilitation, initially in response to the polio epidemic, and then for the treatment of amputees following World War I.²

As years and centuries have gone by, using water for therapy spread throughout the world. Over time, new names to describe water therapy were created, new methods of treatment were discovered, and novel equipment was fashioned, but overall, aquatic principles have largely remained the same. Today, aquatic therapy is used to help individuals improve balance, coordination, weight bearing, muscular endurance, muscular strength, cardiovascular and pulmonary endurance, pain management, motor skills, motor control, range of motion, and circulatory function.³
Aquatic Therapy

AQUATIC PRINCIPLES AND THERAPEUTIC BENEFITS

Buoyancy

Archimedes’ Principle states that when a body is completely or partially immersed in a fluid at rest, it experiences an upward thrust equal to the weight of the fluid displaced. In modern vernacular, this is termed “Buoyancy.” In essence, buoyancy decreases the effects of gravity on the individual’s body by allowing someone who cannot weight bear on land to be able to place weight on their limbs while in the water. The amount of weight bearing the individual may tolerate is dependent on the depth of water in which they are immersed. An individual waist deep in water may experience only 50 percent of their weight. A person chest deep in water experiences only 25 to 30 percent of their body weight, and neck deep submersion equates to one experiencing only about 10 percent of their weight.

Another buoyancy concept relates to body weight in relation to water displacement. If the body or body part is more than the weight of the water displaced, the person or body part will sink. If the weight of body or body part is less than the weight of the water displaced, the person or body part will float.

The benefits of buoyancy for patients are numerous, including decreased joint compression forces, weight bearing, stress on connective tissues, fear of falling, and blood pooling. Buoyancy also supports weak muscles, enhances flexibility and range of motion, changes biomechanical stress, and strengthens muscles working in opposition to buoyancy. For therapists, it increases ease of handling. Immersion also increases oxygen delivery providing numerous other health benefits.

Hydrostatic Pressure

Hydrostatic pressure is force exerted on an immersed body by fluid molecules. As described above the pressure is proportional to the depth of the immersed body and is equal in all directions. This pressure has different effects on a patient’s cardiovascular system, renal system, respiratory system, and nervous system.

From a cardiovascular perspective, when a person is immersed in water, hydrostatic pressure forces blood from the legs into the chest. The results in the heart pumping excess blood, and the heart muscle to stretch. When the heart muscles are stretched, it produces an increased muscle contraction, causing it to empty more completely. This is called Starling’s Law, which results in fewer heartbeats per minute to pump the same volume of blood thereby decreasing a patient’s heart rate while in water. Routine water exercise, and the resulting hydrostatic pressure can increase breathing capacity outside of the water, and allow the heart to function with greater efficiency. Hydrostatic pressure can improve kidney function by increasing blood flow to the kidneys. Like the cardiovascular system, the renal system is more efficient due to hydrostatic pressure.

The respiratory system is affected due to blood being forced to the lungs. This makes it harder to
breathe, and the weight of the water on the outside of the chest puts pressure on the diaphragm. The weight of the water on the chest causes resistance to the diaphragm and forces air out of the lungs, improving the inhalation muscles and assisting with exhalation.

The nervous system interprets information about the body’s position in space, temperature, pressure, and sensation. When immersed in water, the body receives sensory information about water pressure and temperature which decreases pain due to over-sensory stimulation and increased circulation to muscles.

Benefits of hydrostatic pressure are decreased pain and edema, which will assist in increasing range of motion, and increased venous return and circulation, which decreases heart rate, evens tactile inputs, turns down reticular systems, strengthens muscles for inspiration and assists with exhalation.

Things to consider are patients with respiratory issues and patients with unstable blood pressure. It is suggested for these patients to enter and exit water slowly, especially during the first session, because of the increased sensation. Hydrostatic pressure will assist patients, especially those with cardiopulmonary disease, diabetes, development delay, or intellectual disability.

**Resistance/Viscosity**

Viscosity is a measure of the frictional resistance caused by cohesive or attractive forces between molecules of liquid. Viscosity provides equal amounts of resistance throughout a movement in water. This makes water a useful strength training medium because it resists more as more force is exerted against it, and strengthens without the need for weights. However, the resistance stops instantly when the forces of movement stops. Because of the resistance provided by viscosity, all muscle groups are worked equally, unlike resistance training on land.

The benefits of resistance to movement include improved muscle strength and tone, better muscle balance, decreased edema, and improved cardiac and pulmonary output. Resistance of water will especially assist patients with Parkinson’s disease and cerebral palsy due to dampening of involuntary movements. Contraindications include patients that have difficulty moving, tactile defensiveness or vestibular issues who may overstimulated by the water.

**AQUATIC THERAPY TECHNIQUES**

**Bad Ragaz Ring Method (BRRM)**

**History**

This technique originated in Germany in 1957 and was introduced by Dr. Knupfer to the therapeutic thermal pools of Bad Ragaz in Switzerland. Dr. Knupfer utilized three floatation rings to help keep a client in a supportive horizontal supine position (or even prone) with floatation devices at the neck, pelvis, and knees and or ankles. Since then, the technique has become more clearly defined as the Bad Ragaz Ring Method.

**Concept/Description**

BRRM is a method used for muscle re-education utilizing specific patterns of resistance, endurance, elongation of the spine, relaxation, range of motion, and tone reduction.

Requirements of the pool environment are a warm water temperature of 92 degrees Fahrenheit, at least an 8 feet by 8 feet pool area 3 to 4 feet in depth, and the ideal position for the therapist is between thoracic vertebra 8 to thoracic vertebra 11.

![Figure 1. Therapist is positioned at patient’s head.](image1)

![Figure 2. Therapist is positioned at patient’s legs.](image2)
vertebra 11 of their thoracic spine. Floatation devices such as neck collars to support neck, floatation belt for pelvis, and floatation cuffs for ankles or knees and arm or wrist are utilized. The therapist can be located at the patient's head, sides or feet to perform swaying, rocking, rolling or other movement. See Figure 1, Figure 2, and Figure 3 to see therapist with floatation devices and variations of the therapist's locations.

While the patient is in this position, the therapist will use aquatic principles to interact with the patient, creating progressive exercises that are passive to active, isometric, isokinetic, and isotonic and incorporate fundamentals of Proprioceptive Neuromuscular Facilitation (PNF) to induce characteristics of normal motor patterns.

Passive BRRM is when the patient is slowly moved through the water for passive trunk elongation, relaxation, and tone inhibition.

Isometric means same length when performing a muscle contraction. Isometric BRRM is when a patient is holding a fixed position while being moved through the water, and the hold against resistance creates muscle contraction for trunk stabilization.

Isotonic refers to same tension when performing a muscle contraction. Isotonic BRRM is when graded resistance is controlled by the therapist where the therapist acts as the stabilizing factor but also moves through the water with the patient, and the patient is either pushed or pulled in the direction of the movement.

Isokinetic refers to same speed when performing a muscle contraction. Isokinetic BRRM is when graded resistance is controlled by the patient and the therapist acts as the fixator by stabilizing the body part while the patient moves though the water either toward, away, or around the therapist, which allows the patient to determine the resistance by the speed of the movement.

**Outcomes and Contraindications**

The benefits of BRRM are tone reduction, trunk alignment and stability, pre-weight bearing activation, and improved range of motion. Patients that would benefit from BRRM include those with pain with movement, decreased range of motion, spasticity, decreased coordination, proprioceptive or sensory deficits, weakness or low tone, and restricted weight bearing.

Precautions and contraindications of using BRRM would be patients with ear problems and frequent ear infections. Make sure to monitor the patient's breathing to make sure that they are breathing and not holding their breath.

**Watsu**

**History**

Watsu has been referred to as a mixture of Bad Ragaz Ring Method and shiatsu massage. Watsu was created in 1980 by Harold Dull of Harbin Hot Springs in Northern California and based on his experiences with Zen Shiatsu. Dull gained his knowledge of Zen Shiatsu in Japan from Shizuto Masunaga and the two foremost teachers in America, Reuho Yamada and Wataru Ohashi. Dull combined his creativity as a poet, his understanding of energy, and his knowledge of shiatsu to create gentle rhythmic moves in the water (Brody & Geigle, 2009).

**Concept/Description**

These moves affect the patient from the viscera to the limbic system, the nervous system, the musculoskeletal system, and their psyche. Requirements of the pool
environment are warm water temperature of 92 to 96 degrees Fahrenheit, at least an 8 feet by 8 feet pool area with 3 to 5 feet depth. The ideal position for the therapist is between thoracic vertebra 8 to thoracic vertebra 11 of their thoracic spine.3

Watsu, unlike Bad Ragaz Ring Method, does not use any floatation devices to support the patient. It depends on the therapist to cradle the patient in their arms in a supine position. One arm is called the father arm (right arm first and then left arm after patient is reversed) and the other arm is called the mother arm (left arm first and then right arm after patient is reversed). The mother arm supports life and is positioned with the elbow flexed under the patient’s neck to allow the patient to breath. The father arm supports the rest of the patient and is positioned with the elbow flexed under the patient’s knees.

The therapist rhythmically moves the patient through the water, left to right, stretching body parts and coordinating breathing in (as the patient moves right of the therapist) and breathing out (as the patient moves to the left of the therapist).

To stretch the other side of the patient, the therapist’s arms will be reversed, as will the patient’s.

Movements can range from the father arm of the therapist under the patient’s hip for trunk extension. Another movement is the father arm of the therapist under the patient’s one leg closest to therapist, letting the other leg drag, or the father arm of therapist under the patient’s leg farthest away from the therapist letting other leg drag to work on breathing and stretching of internal/external range of motion of hips. See Figure 5 to see the different movements of Watsu.

Outcomes and Contraindications

Benefits of Watsu are decreased muscle guarding, decreased muscle pain, increased range of motion, increased energy level, improved breathing patterns, improved sleeping, and improved body awareness.3

Specific patients that could benefit from Watsu include those that have pain with movement, traumatic brain injury, neuromuscular disorder, soft tissue dysfunction, chronic fatigue, hyperactivity, depression, stress, and anxiety. Precautions and contraindications of using Watsu include patients with ear problems, frequent ear infections, vestibular disorders, and a range of motion precautions.3
Ai Chi
History
Ai Chi was created in 1990 by Jun Konno. Konno has a long history of connection to water, working as one of Japan’s youngest Olympic swim coaches at the time, during the 1980s (Brody & Giegle, 2009).

Through observation of Watsu, Konno embraced the principles of fluid movement and the emphasis on long axis of the body, but believed the concept of working in pairs would be uncomfortable for some people. Out of this, he developed Ai Chi which people can perform alone and achieve some of the benefits of Watsu. Along with the concepts of Watsu, Ai Chi utilizes the concepts from Tai Chi and Qigong.

Concept/Description
Ai Chi emphasizes posture and works through the long axis of the body to keep the mind and body in balance. It encourages people to become aware of muscle activity and movement patterns, attention to posture and breathing combined with visualization and imagery.

Requirements of the pool environment are warm water temperature of 86 to 95 degrees Fahrenheit and water depth at shoulder level. Ai Chi is performed in shoulder depth water with feet shoulder-width apart, toes out and knees slightly bent using a combination of deep breathing, coordinating inhalation and exhalation, with slow broad movements of the arms, legs, weight shifting, and core.

Figure 6 illustrates a few Ai Chi movements. Similar with Tai Chi and Yoga, Ai Chi focuses on deep breathing, body awareness, and mindful movements.

Outcomes and Contraindications
Benefits of Ai Chi are increased flexibility, range of motion, general mobility, increased metabolism, and increased blood circulation. It improves the circulation of energy along important meridians, massages vital organs, improves liver efficiency, decreases stress, insomnia, depression, anger, fatigue, and anxiety. It also increases mental alertness and improves body awareness and balance.

Specific patients who could benefit from Ai Chi would be those that have pain with movement, cardiovascular disease, pulmonary disease, type II diabetes, arthritis, fall issues, immunodeficiency disorders, orthopedic problems, anxiety and depressive disorders.

Precautions and contraindications of using Ai Chi would be to have patients work within their pain-free range of motion.

AquaStretch™
History
AquaStretch was developed in 2010 by George Eversaul, A.P.H. in Nevada. AquaStretch was demonstrated to a few aquatic therapists while at an Aquatic Therapy and Rehabilitation Institute conference in Nevada. AquaStretch is a relatively new technique that has been utilized in wellness techniques and as a specific aquatic therapy technique.

Concept/Description
AquaStretch is considered a breakthrough in pain management and preventive medicine.

Requirements of the pool environment are warm water temperature of 82 to 92 degrees Fahrenheit, pool depth of 3 to 5 feet, and the ideal position is to have the patient in the corner of the pool for most of the exercises.

AquaStretch exercising seems to quickly dissolve (“release”) fascial adhesions by controlling “stretch resistance,” accomplished by wearing weights (5 to 15 lbs.), by changing buoyancy, and by accenting the body’s “intuitive movements” that occurs when joints are subjected to stretch pressure.

In the low environment of water, the body may stretch in positions it cannot while under the influence of normal gravity on land and for much longer periods of time. It is primarily the connective tissue such as the fascia being stretched rather than the muscles.

The technique requires the therapist to progress a patient through a series of starting positions and hand-grips while encouraging movement. By applying the basic procedure to the patient-specific areas of tightness, the therapist works with the patient to restore motion.

The basic AquaStretch procedure consists of four steps:
1. Play
2. Freeze
3. Pressure
4. Move (if you feel the need to move).

First, have the patient “play” with their body’s movement to find a position in which they experience pain or restriction. Second, the patient is asked to “freeze” their body in the exact position they feel their pain or restriction. Third, the therapist will ask the patient specifically where the pain is located on their body. Then the therapist will apply “pressure” with their thumb, hand, or fingers where the patient feels the pain or restriction while the patients maintains the “frozen” position. The

Continued on page 43
Tips for success
It is often said when working with persons with moderate to severe brain injury, “it’s not getting a job that is hard; it’s keeping the job.” Left on their own, over half of patients who return to work end up unemployed within a year.1

Work is a valuable way to earn money and contribute to society. Work improves the potential of a person having a healthy self-image. A stable pattern of activity reduces the secondary complications of isolation.

What makes Rainbow’s program successful? We polled our vocational therapists to get real world tips for success.

Start with the philosophy that anyone can work
Some studies have shown that the amount of time since the injury is correlated positively with attachment to the labor market.2,3 Start in an environment that appeals to the person and that offers the right amount of support to maximize success. Consider non-traditional approaches like starting one’s own small business using personal and community-based networks.4 Support can include vocational counseling, individual job coaching, a job-coached work group in a competitive setting, or even an advisory committee.

Have a relevant résumé
A résumé can be improved by expanding work experiences after injury. The vocational rehabilitation program may have a program where a time-limited work experience can be developed under a program called the “On the Job Experience” (OJE) program. The participant collaborates with the vocational counselor to identify a site where relevant work experience can be obtained and where there may be potential to become employed.

The person then starts with the employer while remaining employed with the rehabilitation program and with benefits covered by the rehabilitation facility. The employer has the opportunity to see the potential employee work successfully before hire. Even if a job offer does not materialize, valuable work experience and a reference is obtained.

When the person served is working in competitive employment, individualize the amount and length of contact with the person served and the employer
People with a cognitive disability from brain injury may have difficulty judging their own performance and need for support/training. With the consideration that the person served chooses whether to disclose their relationship with a rehabilitation provider, support can be at the employment site or “behind the scenes.” When the relationship is disclosed, a job coach is available to assist with orientation, training, and periodic job coaching when needed.
Work success is integrally tied to successful instrumental activities of daily living. There is more to successful employment than showing satisfactory work performance on the job. Knowing how to use the employer’s computer-based scheduling system or time off system, managing a paycheck and public or insurance benefits, arranging private or public transportation may also be factors contributing to success. The individual may need training and/or ongoing support to manage these activities.

Become an interview star
Persons looking for work do best in interviews when they know how to explain an interrupted work history. Practice interviewing is essential in becoming comfortable in interview situations. Recording the practice for review later can help a person improve their performance. The persons served may also request assistance from their vocational rehabilitation counselor in communicating with the employer.

Start part time when possible
Although full-time work is a goal for many, best results come when the cognitive and physical demands are within the client’s tolerance level. Remember, too, that the person seeking work may need to continue to qualify for benefits such as Medicare or Social Security to live independently and have adequate health insurance. If full time is the desired option, engage in “work hardening” before starting the job. An interdisciplinary rehabilitation environment with gym space for work conditioning or engagement in a work hardening program may be beneficial.

Educate and support the person served about how brain injury has impacted them
It is not easy for a person with brain injury to judge their own skills in social interaction and communication. Group therapy such as the GIST group (see Fall 2015 Rainbow Visions) offers opportunities for people to learn from their peers and clinicians. Understanding creates the potential to develop strategies to compensate. Remaining in therapy, for example, vocational counseling, mental health, or speech–language pathology may assist a person in cognitive/behavioral success on the job.

Educate and support the employer
Certainly every work environment is different and employers have varying degrees of comfort hiring people with a disability. Assist employers in realizing that, once they hire someone with a disability, they are not alone. Team members can offer resources and training to understand the effect of brain injury (see page 28). Studies show that people with disabilities have attendance, safety, and performance records far above the norm.

About Rainbow's Vocational Rehabilitation Program
Rainbow Rehabilitation Centers has over 30 years’ experience assisting people with brain injury to return to work. With four locations in Michigan holding CARF accreditation in Vocational Services for people with brain injury, nearly 250 persons were served in 2015.

Unique to the program is a subsidiary company called Rainbow Industries Production Company (RIPCO) which pays a wage to working program participants on a short- or long-term basis.

Human resource and employment rules apply, giving program participants not only the opportunity to earn a wage but a real work environment to learn and improve in, while also having the benefit of working with an interdisciplinary team.

References

About the author

Lynn Brouwers, MS, CRC, CBIST
Director of Program Development
Lynn Brouwers holds a Master of Science in Rehabilitation Services from the University of Wisconsin. She has more than 25 years of leadership experience in medical rehabilitation with a specialty in programs for persons with traumatic brain injury and spinal cord injury. She has managed neurological rehabilitation programs in hospitals, skilled nursing facilities, residential facilities, and in the home and community.
Finding employment after a traumatic brain injury can be a long, uphill road. It is so important to find the right fit within a company willing to accommodate your needs when returning to work after such a catastrophic event.

Rainbow Rehabilitation staff experiences this process right along side their clients seeking employment. In January 2015, Vocational Therapist Laurie Cooke noticed a job posting advertising a dishwasher position at the Grand Traverse Pie Company in Ann Arbor, MI. Thinking this might be a perfect fit for her client, she picked up the phone and scheduled an interview.

When Laurie walked into the warm smell of pies and feeling of hospitality that the restaurant has to offer, she was confident that this was going to be a great experience. During her first meeting with owner Beth Zeigler, her optimism grew for a future relationship between Rainbow and Grand Traverse.

Beth and her husband Dave Zeigler were looking for a career change six years ago which led them to open up their own Grand Traverse Pie Company franchise. Although it was Dave’s dream from the beginning, Beth is the first to admit that she has never felt more grateful for the paths that this crazy adventure has led them on.

The Zeiglers always look at potential employees who embody a certain something. “I can teach anything,” she said before elaborating on what she looks for in an applicant. With staff ranging from 16-84 years of age, she’s come to realize that a diverse “pie crew” makes for a well-rounded, fantastic team. The criteria she looks for is the will to work, will to learn, and the ability to work within the team.

Laurie raves about how amazing the direct placements have gone with the Zeigler franchise. Starting with just one employee almost a year ago, there are now four to six Rainbow Rehabilitation clients and graduates employed at the store at any given time. Depending on the clients’ needs, they may or may not have a job coach accompany them for their first shifts to make sure they’re able to do what is expected and that they can do so efficiently.

The job coach will join the client on their first day, if needed, to do a walk-through tour of what would be expected from the client. They take this tour with another employee first and then the job coach is responsible for running through that tour again to see what the client remembers and to make sure they can safely complete the tasks.

Rainbow Team Leader Denise Genereaux assisted with training three clients. One client/employee, Mark Fornetti, was taking on more responsibility from washing dishes and dinnerware to adding the many cookie sheets to his load. It was a task that she didn’t have to help with for long because he mastered it quickly. She speaks so highly of the accommodations the Zeiglers have made for the direct placements. When one client was trying to balance his work schedule while going to college, she allowed him to drop to 20 hours from his previous 30. One of the other direct placements was struggling with a lack of range of motion and the Zeiglers found a new job that he could fulfill.

“Each client benefits from their work in different ways,” said Denise. One of her clients, Shanya Oglesby, had a bit of a breakthrough while she was there. “I was so excited to see that!” she says referring to her shy client. Her duties at work consist of floating around the dining room and checking on customers and getting them anything if needed, refilling things on tables, and changing out the coffee dispensers every couple of hours. Keeping the customers satisfied is the biggest priority for this hostess, and when Denise witnessed her stepping out of her comfort zone, she couldn’t have been more proud.

The pie crew, as well as the clients, have grown immensely from these direct placements. Beth discussed the change she’s witnessed in the pie crew through a
heartfelt grin, saying that the clients becoming part of the pie crew really strengthened the whole team. “The other employees look out for [the clients] and it has allowed them to recognize when people need help, and they have helped them,” she said.

Some of the direct placements have never worked in the community, and this opportunity has really allowed them to step out of their comfort zones and helped them grow.

One of the Rainbow graduates has gone from washing dishes to now preparing food and learning culinary skills, while others bus tables and are responsible for janitorial duties. All of the clients take pride in their work, and their work has really boosted their self esteem.

It was when Beth started talking about her Rainbow employees that her face really lit up. Speaking of when Mark first joined the pie crew, through wide eyes, she explained how dedicated he is, that he’s a “breath of fresh air” and how “he’s really grown and blossomed!” When recalling the growth of her most recent hire, she simply said “she’s another one of the good ones.”

The Zeigler franchise didn’t only open their doors and welcome these people with disabilities, but Beth continues to contact Laurie if she feels something could use improvement. When one of the dish washers was getting too wet doing his job, Beth reached out to make sure he could get some more appropriate, waterproof clothes for work. Laurie was visibly emotional when talking about the accommodations Beth takes to make sure the clients are not only capable of completing tasks but that they’re doing so safely. “She’s willing to start them slow and build hours as they become more confident,” said Laurie.

Of the five employees hired through the Zeigler franchise, positions range from dishwasher, hostess, food service, to most of all—customer service. These hires have given clients such valuable opportunities to gain skills and experience that will benefit them through the rest of their lives. Returning to work is so much more than a paycheck after such a traumatic event, it’s returning to the most normal life they’ve known since the accident. ☁
Jamall Duffey, presently a 22-year-old male enrolled in the Young Adult Program at the Rainbow’s Oakland Treatment Center, was involved in a pedestrian vs. motor vehicle accident on June 20, 2003. Jamall sustained a traumatic brain injury and was admitted to the Children’s Hospital of Michigan for an extended stay.

Initial impairments were apparent in Jamall’s bilateral coordination, speed and high-level balance resulting in the placement of Universal California Braces (U.C.B.) on his lower extremities.

Clinical impairments were diagnosed as the following: memory loss, word-finding deficits, difficulty with simple mathematical computations, and moderate to severe errors in spelling and grammar.

Jamall experienced initial difficulty in peer interaction post-TBI. Episodes of inappropriate behaviors resulted in physical altercations with peers after discharge from the hospital. When questioned by adults, Jamall denied wrong doing.

In a report dated November 17, 2005, a statement indicated a premorbid history of attention problems and hyperactivity at age six.

Shortly after Jamall’s accident, a guardianship change occurred with Jamall being placed in the home of Mrs. Sabrine Duffey and Mr. Anthony Duffey, who provided a nurturing environment with structure and organization.

Jamall was assessed for speech–language pathology treatment, initially in February 2007 with discharge in August 2007. His ambulation was no longer a concern and Jamall was not scheduled for physical therapy treatment. Jamall returned to Rainbow Rehabilitation in February 2011, and continued speech–language pathology treatment as an outpatient.

Jamall graduated from Harrison High School in Farmington Hills, MI in 2011 and received speech–language pathology treatment, occupational therapy, and art therapy as an outpatient while enrolled in the academic program at Harrison High School. Jamall’s treatment program also involved home care services in occupational therapy.

Upon receiving his high school diploma, Jamall enrolled for two years in a post-secondary educational program that serves young adults 18-26 who have physical and developmental disabilities.

In reviewing Jamall’s progress in speech–language pathology treatment, the improvements that occurred over the years were significant. On the day of the initial assessment, he stared at the ceiling and established no eye contact with the speech–language pathologist.

Word recognition was significantly impaired, and Jamall’s ability to identify phonemes was severely reduced with the presentation of words, phrases and sentences. Formal and informal testing results indicated the level of severity across speech and language areas in the report dated February 2007.

Jamall’s demeanor was characterized by decreased initiation of conversation. Jamall would respond when questioned, but the content of his responses were telegraphic in content with decreased detail information.

Advancing forward to 2015, Jamall has changed in a
positive direction. Jamall is now able to compose articles for the Young Adult Newsletter which is circulated at the Oakland Treatment Center. Although challenged by errors in spelling and grammar, significant improvements are apparent. Several years ago, Jamall began reading the dictionary and would practice the spelling of words in conjunction with learning the definitions.

Jamall remains inhibited in conversation but establishes eye contact with people. Through the Young Adult Program, he has placements in employment settings with the assistance of a job coach.

Inappropriate social behaviors are inconsistent, although aggression with peers does not occur as social documentation indicated in his earlier years.

Jamall struggles with deficits in memory recall and his ability to complete mathematical computations. The loving and nurturing environment of his guardians continues to influence Jamall’s ability to function positively with others.

Jamall has goals and aspirations to become an auto mechanic and loves automobiles. One of his hobbies includes working on model automobile kits.

As indicated, Jamall requires encouragement to initiate conversation with others. In order to demonstrate Jamall’s thoughts about life and his family, the above article, written by Jamall, presents a picture of a young man who can now express himself in writing.

My New Year Resolution

I want to start by saying Happy New Year.

My New Year started good with spending time with family and going on the computer to see how to build parts that go into a car and how they are made.

I have started getting along with all kinds of people and more of not always arguing and being mad at every little thing. You can’t always dwell on some things that get you down. You have to stay positive not always have negative thoughts. You have to focus on your life and not all the negatives. Life is not all smooth, it’s going to have a couple of crazy moments that are okay. Life is what you make it, so no matter what happened in it as long as you get a great experience in your everyday living, as long as you have a good job and a great college degree, you can be what you want to be in life.

Never say I can’t do it, always say I can and I will.

Jamall D.
### March

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Website</th>
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<tbody>
<tr>
<td>March 2-5</td>
<td>IBIA 11th World Congress on Brain Injury</td>
<td>The Hague World Forum – The Netherlands</td>
<td>internationalbrain.org</td>
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<tr>
<td>March 8</td>
<td>RIM Foundation Gala</td>
<td>Fox Theatre – Detroit, MI</td>
<td>rimfoundation.org</td>
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<tr>
<td>March 12</td>
<td>AACIL Gala Benefit</td>
<td>UM Biomedical Science Bldg. – Ann Arbor, MI</td>
<td>aacil.org</td>
</tr>
<tr>
<td>March 10</td>
<td>CMAA Vendor Night</td>
<td>Lansing Center – Lansing, MI</td>
<td><a href="mailto:smith.nicole@aoins.com">smith.nicole@aoins.com</a></td>
</tr>
<tr>
<td>March 15</td>
<td>MI ARN Spring Conference</td>
<td>Laurel Manor – Livonia, MI</td>
<td>miarn.org</td>
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### April

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<tbody>
<tr>
<td>April 2</td>
<td>BIAMI Legacy Society Spring Tribute Dinner</td>
<td>Suburban Collection Showplace – Novi, MI</td>
<td>biami.org</td>
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<tr>
<td>April 3</td>
<td>Carnival of Care</td>
<td>Sterling Inn – Sterling Heights, MI</td>
<td>mydman.org</td>
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<tr>
<td>April 2-6</td>
<td>ACMA National Conference</td>
<td>Tampa Marriott Waterside – Tampa, FL</td>
<td>casemanagementconference.com</td>
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<tr>
<td>April 6-9</td>
<td>NABIS Brain Injury Conference</td>
<td>Grand Hyatt Hotel – Tampa, FL</td>
<td>nabis.org</td>
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<tr>
<td>April 12</td>
<td>CMSA Detroit Dinner Conference</td>
<td>Burton Manor – Livonia, MI</td>
<td>cmsadetroit.org</td>
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<tr>
<td>April 15-16</td>
<td>MAJ Annual Convention</td>
<td>Westin Book Cadillac – Detroit, MI</td>
<td>michiganjustice.org</td>
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<tr>
<td>April 21</td>
<td>WMBIN Symposium</td>
<td>Prince Conference Center – Grand Rapids, MI</td>
<td>maryfreebed.org</td>
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<tr>
<td>April 21</td>
<td>MI Health &amp; Rehab Conference</td>
<td>Sterling Inn – Sterling Heights, MI</td>
<td>firsttoserve.com</td>
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<tr>
<td>April 21-22</td>
<td>Northeast Ohio Case Management Network Conference</td>
<td>LaCentre Conference Center – Westlake, OH</td>
<td>neocmn.org</td>
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<tr>
<td>April 22</td>
<td>Bradley Consulting Workers’ Comp Seminar</td>
<td>The Ritz Charles – Carmel, IN</td>
<td>bradleycm.com</td>
</tr>
<tr>
<td>April 28-29</td>
<td>ICLE No Fault Summit</td>
<td>The Inn at St. John’s – Plymouth, MI</td>
<td>icle.org</td>
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### May

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<th>Date</th>
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<tr>
<td>May 5-6</td>
<td>Williamsburg Conference</td>
<td>Double Tree Hilton – Williamsburg, VA</td>
<td>tbiconferences.org</td>
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<tr>
<td>May 9-11</td>
<td>Care Coordination Summit</td>
<td>Hilton – Baltimore, MD</td>
<td>decisionhealth.com/carecoordinationsummit</td>
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<tr>
<td>May 11</td>
<td>BIAMI Capitols Day</td>
<td>State Capitol Building – Lansing, MI</td>
<td>biami.org</td>
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<tr>
<td>May 11-12</td>
<td>Arrowhead TBI Conference</td>
<td>The Westin Arlington Gateway – Arlington, VA</td>
<td>tbiconferences.org</td>
</tr>
<tr>
<td>May 13</td>
<td>Spectrum Health Neurosciences Symposium</td>
<td>Prince Conference Center – Grand Rapids, MI</td>
<td>spectrumhealth.org</td>
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<tr>
<td>May 19-20</td>
<td>Michigan Guardianship Conference</td>
<td>Wyndham Hotel – Sterling Heights, MI</td>
<td>michiganguardianship.org</td>
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<tr>
<td>May 31</td>
<td>MAJ Annual Golf Outing</td>
<td>Western Golf &amp; Country Club – Redford, MI</td>
<td>michiganjustice.org</td>
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### June

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<tr>
<td>June 2</td>
<td>DMC/RIM Spring Symposium</td>
<td>The Dearborn Inn – Dearborn, MI</td>
<td>rimrehab.org</td>
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<tr>
<td>June 17</td>
<td>CPAN Golf Outing</td>
<td>Eagle Eye Golf Course – Lansing, MI</td>
<td>cpan.us</td>
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<tr>
<td>June 20-23</td>
<td>CMSA National Conference</td>
<td>Long Beach Convention Ctr. – Long Beach, CA</td>
<td>cmsa.org</td>
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**MBIPC**
Michigan Brain Injury Provider Council

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**Learn Over Lunch**

Meeting times are noon – 1:30 p.m.
(Registration at 11:30 a.m.)
Cost: MBIPC Member $25 / Non-member $60
For information call 810.229.5880

**March 8, 2016**
MBIPC Annual Executive Luncheon
Speakers: Committee Members from Government Relations
Location: MSU University Club, East Lansing, MI

**April 12, 2016**
Topic: Endocrine Issues
Speaker: Craig Jaffe, MD
Location: Holiday Inn, Livonia, MI

**May 10, 2016**
Topic: Update: National Brain Injury Guidelines Project
Speakers: Heidi Reyst, Ph.D., Rainbow Rehabilitation Centers
and Lela Hickonbottom, CNS
Location: Prince Conference Center, Grand Rapids, MI

**June 14, 2016**
Topic: Update: National Brain Injury Guidelines Project
Speakers: Heidi Reyst, Ph.D., Rainbow Rehabilitation Centers
and Lela Hickonbottom, CNS
Location: Holiday Inn, Livonia, MI

For updates on meetings, visit rainbowrehab.com or mbipc.org

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**RINC**
Rehabilitation & Insurance Nursing Council meetings

Registration at 11:30 a.m. • Lunch at Noon
Presentation begins at 12:45 p.m.

**March 18, 2016**
Sponsored by Rainbow Rehabilitation Centers
Topic: Addiction Issues
Speaker: Dr. Carl Christensen, MD, Ph.D., FASM
Christensen Recovery Services
Location: The Inn at St. John’s
44045 5 Mile Rd., Plymouth, MI 48170
RSVP: Mary Mitchell at 800.968.6644 or rsvp@rainbowrehab.com

**April 2016**
Topic: TBD

**May 20, 2016**
Topic: Return to Work Issues
Speaker: Craig Jaffe, MD
Location: Holiday Inn, Livonia, MI

**June 17, 2016**
Topic: Pharmaceutical care for TBI, Orthopedic Injuries, and Chronic Pain
Speakers: Heidi Reyst, Ph.D., Rainbow Rehabilitation Centers
and Lela Hickonbottom, CNS
Location: Prince Conference Center, Grand Rapids, MI
RSVP by June 13 per registration on line

RINC meetings are presented the third Friday of each month.
For more information on meetings and membership contact
Diane Malley: 248.568.5555
dianemsh@gmail.com

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**NOTICE:** The conferences and events information listed on these pages is dated information. For the most up-to-date information on industry-related conferences and events, please visit: rainbowrehab.com.
New LiteGait Device at Farmington Hills Treatment Center

By Alison Thom, OTR/L, CBIS, CKTP and Alyssa Kelley, PT, DPT, CBIS, CKTP
Rainbow Rehabilitation Centers

Rainbow has recently acquired a new LiteGate device for the Farmington Hills Treatment Center in Farmington Hills, MI.
The LiteGate device is a postural control device that consists of a treadmill and a harness system to allow partial weight bearing and trunk control. The LiteGate provides posture, balance, and weight bearing assistance. It can also provide corrected upright positioning required for standing, ambulation, and numerous other static and dynamic activities. The device allows the therapist to facilitate and cue proper patterns of walking.\(^1\)

The treadmill provides an endless walkway, slower speeds (as low as .1 mph), improved therapist and patient body mechanics/positioning, rhythmic motions, reciprocal gait pattern, and efficient muscle firing patterns.\(^1\)

The LiteGate provides a means to lift patients into upright posture, distributes supporting forces to meet patient needs, and frees the therapist to facilitate weight shifting, foot placement, muscle stretch, or weight bearing, for example.\(^1\)

Clients that benefit from the use of the LiteGate device include those who need assistance to stay upright to walk or have weight bearing restrictions, orthopedic or neurological diagnoses that often lack posture, balance, and coordination to deal with the dynamics of walking.\(^1\)

With the new LiteGate system at the center, it will allow our facility to achieve increased efficiency and increase the number of patients who receive gait training and postural re-education. It provides a secure environment that allows the therapist to treat lower functioning clients and still achieve effective results with gait training. It helps to reduce the risk of back injury to therapists and the risk of falls to clients and offers therapy services to patients previously not eligible for gait training or neurological re-education due to the severity or complexity of their diagnoses. In short, it helps to create a safer, more successful and enjoyable environment for both the client and the therapist.\(^1,2\)

The LiteGate will benefit clients by helping them to achieve increased or decreased weight bearing status on the weaker side of the body. It provides a fall-free environment to walk, to begin gait and postural training earlier and at a lower level of function, to learn to walk with proper upright posture, to achieve controlled reduction of weight bearing, to experience a sense of accomplishment and have an improved interaction with the therapist.

It can also be used to as an assistive device over ground as the harness system can be used off the treadmill as well!

Along with gait training, the LiteGate can be used to help improve sitting posture, standing posture, quadruped positioning, running, balance, ADLs, etc.\(^2\)

Rainbow Client Frank Lee III uses the LiteGate for dynamic balance and dynamic gait activities. The harness allows him to work on more difficult skills that may not be safe without the harness.

The LiteGate system also has increased benefits for the therapists. It will allow therapists to control a client’s weight bearing status and posture to correct asymmetric movements, prevent excessive forward/backward displacement of body weight, train symmetric gait patterns for clients with one-sided body weakness, facilitate proper gait patterns, work on symmetry and weight shifting, training coordination without loss of balance concerns, manually assist limb placement, work on transfer, balance, and posture, and safely transfers patients to standing with decreased physical assistance from the therapist.\(^2\)

References
2. LiteGate Device and Therapy. LiteGate Powerpoint: Mobility Research (2015). Paragraphs: 3,4,5
The movie *Concussion*, which is based on a true story and opened nationwide on Christmas Day last year, stars actor Will Smith as Dr. Bennet Omalu, a Nigerian forensic pathologist who is credited with discovering the link between repeated concussions in professional football and a condition known as chronic traumatic encephalopathy (CTE). The discovery was reportedly made during an autopsy of Pittsburgh Steelers Hall of Fame lineman Mike Webster in 2002.

CTE is associated with, among other things, memory loss, impaired judgment, aggression, depression and dementia. Former NFL players Junior Seau, Dave Duerson and Ray Easterling committed suicide in the last four years, and all were found to have CTE.

Other players are claiming to have symptoms of CTE after playing in the NFL for many years. And yet others, seemingly healthy players, are leaving the game to protect their health and livelihoods.

There is some discussion in health care circles around the movie regarding Dr. Omalu and CTE. Nevertheless, it is yet another step in raising awareness of the damage repeated concussions can cause.

According to the Brain Injury Association of America, despite this increased attention to concussion, a majority of people in the U.S. do not understand the injury. In a recent Harris poll, 87 percent of Americans surveyed did not know what a concussion is, and 68 percent did not know that a person can sustain a concussion without receiving a blow to the head. Fewer than 50 percent of those polled knew all the signs and symptoms indicating that someone has sustained a concussion.

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**Concussion highlights how mild brain injury made it to the mainstream**

The movie *Concussion*, which is based on a true story and opened nationwide on Christmas Day last year, stars actor Will Smith as Dr. Bennet Omalu, a Nigerian forensic pathologist who is credited with discovering the link between repeated concussions in professional football and a condition known as chronic traumatic encephalopathy (CTE). The discovery was reportedly made during an autopsy of Pittsburgh Steelers Hall of Fame lineman Mike Webster in 2002.

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**The Terrace Bistro – A Great Learning Experience!**

The vocational team at Rainbow works every day to find vocational opportunities for our clients. The deli at the building that formerly housed Rainbow’s Livonia Corporate Center suddenly closed, leaving the building’s tenants with no food options.

Some members of the vocational team approached building management with an idea: let us open a deli and allow some of our clients to work there.

So, plans were underway to renovate the space, get some food preparation equipment, develop a menu, come up with a name and hire a manager to run it. And, the Terrace Bistro opened.

Meet Cynthia Forbing.

With over 20 years in the restaurant business, various management positions and a beaming personality, she was a great choice to run the new place.

Many of Rainbow’s vocational clients had an opportunity to work there. They would take food orders, run the cash register, clean when necessary, etc. They learned about great customer service, how to make change, follow orders, interact with customers, etc.

What was the best part about working with Rainbow clients at the Terrace Bistro?

“Seeing the clients accomplish something they didn’t think they could or deal with something better than they thought they would,” said Cynthia.

Cynthia ran a tight ship. She received scores of 100 percent on every one of the eight inspections conducted by the Health Department.

Because Rainbow moved its corporate headquarters, the Terrace Bistro has since closed. The last week that it was open, building tenants stopped in to say thanks and goodbye.

It turned out to be a great learning experience for clients and employees alike. Cynthia is now a Job Coach at the Farmington Hills Treatment Center.
Karen Sox, LPN
CM Licensed Practical Nurse
Karen earned her degree in nursing at St. Clair County Community College and joined the team at the Genesee Treatment Center as a CM licensed practical nurse. She has previous experience at A-One Hospice, Great Lakes Cancer Center, Whaley Children's Center and Lake Orion Nursing Center.

Hollie Wheeler, MS, SLP
Community Clinical Fellow
Hollie joins the Genesee Treatment Center as a community clinical fellow. She earned bachelor’s degrees in English, communicative sciences and disorders, and communicative disorders. She has previous experience at Willowbrook Rehabilitation and Fowlerville Public Schools.

Jill Hamilton-Krawczyk, BA
Sr. Graphic Designer
Jill joins the Marketing team at Rainbow’s Livonia Corporate Center as the Sr. Graphic Designer and Associate Editor of Rainbow Visions magazine. Jill earned an associate degree in design/photography from Oakland Community College and a bachelor’s degree in graphic design from Madonna University. Previously, she worked as the graphic designer at Madonna University.

Beth Albano, BS, OTR/L
Occupational Therapist
Beth is working as an occupational therapist at Rainbow’s NeuroRehab Campus®. She earned her bachelor’s at Utica College at Syracuse University in Syracuse, NY. She previously worked at Our Family Friend, Providence Park Rehabilitation and Danbury School System as an occupational therapist.

Elizabeth Bower, RN, BSN
Field Registered Nurse
Elizabeth Bower is a returning Rainbow employing having previously worked as a Rehabilitation Assistant. She earned her bachelor’s in nursing at Eastern Michigan University and will be working in the Ypsilanti/Ann Arbor area as a field registered nurse.

Laura Hand, BBA
Staff Accountant
Laura joins the Finance team at the Livonia Corporate Center as a staff accountant. She earned a Bachelor of Business Administration from Western Michigan University. She previously worked as an account associate at Community Living Centers.

Jill Hamilton-Krawczyk, BA
Sr. Graphic Designer
Jill joins the Marketing team at Rainbow’s Livonia Corporate Center as the Sr. Graphic Designer and Associate Editor of Rainbow Visions magazine. Jill earned an associate degree in design/photography from Oakland Community College and a bachelor’s degree in graphic design from Madonna University. Previously, she worked as the graphic designer at Madonna University.

Hollie Wheeler, MS, SLP
Community Clinical Fellow
Hollie joins the Genesee Treatment Center as a community clinical fellow. She earned bachelor’s degrees in English, communicative sciences and disorders, and communicative disorders. She has previous experience at Willowbrook Rehabilitation and Fowlerville Public Schools.

Yarizel Rodriguez, MSOT, OTR/L
Occupational Therapist
Yarizel joins the team at the Ypsilanti Treatment Center as an occupational therapist. Yarizel earned a bachelor’s degree in Interdisciplinary health services and a master’s in occupational therapy at Western Michigan University. Yarizel has previous experience at skilled nursing facilities as well as clinical work at Mary Free Bed.

Anne Brace, MEd, Learning Disabilities (SM) K-12 School Liaison
Anne joins the team at the Oakland Treatment Center as a school liaison. She earned degrees in elementary education and special education at Bowling Green University and the University of Michigan, respectively. She has previous experience at The Learning Disability Clinic and St. Hugo of the Hills as a teacher.

Angela Melville, MS, LPC
Case Manager Mental Health Therapist
Angela joins Rainbow’s Ann Arbor Apartments as a case manager and mental health therapist. She earned a bachelor’s in psychology and a master’s in counselor education. She has previous experience working at Community Mental Health Services of Livingston County as a home-based therapist.

Interested in a career with Rainbow?
We welcome applications from qualified candidates for a variety of positions.
To learn more, visit: rainbowrehab.com/employment
Employees of the Season  Summer 2015

Rehabilitation Assistants
Ann Arbor Apts: Jeannette Judge, Michael Lee
Arbor: Riad Alhakim
Belleville: Nyiesha Cole
Bell Creek: Stephanie Parker
Bell Creek 2: Diamond Fanning
Bemis: Melissa Bowman, Janifer Eddins
Birchwood: Tori Cunningham
Brookside: Anthony Snyder
Carpenter: Paige Cicchini, Marianne Kendrick
Crane: April Tubbs
Elwell: Nathaniel Ponder
Garden City Apts: Marocca Davis
Highmeadow: Kaisha Lane
Maple: Arlita Shaw
NRC: Amber Watson, Angelic McCullers, Jessica Adams, Ashleigh Harkness
Parkview: Terri Schweim, Carrie Farmer, Brittnee Fairchild
RIPCO: Kevin Kalis, Cynthia Forbing, Claire Jenkins
Shady Lane 1: Courtney Broner
Southbrook: Sherita Garland, Shawnte Simmons
Talladay: Rose Ann Cray, Kelli Pinder
Textile: Josephine Agbaeze
Whittaker: Kayla Taylor
Woodside 1: Sarah Middleton
Woodside 2: Mariah Harper
YTC: Tuesday Crites

Residential Program Managers
Heidi Aldridge
Ron Cleveland
Cynthia Treharne
Debbie May
Joann Arpino

Rehab Transportation
Jennifer Daniels

Rehab Tech
Katherine Jester

Maintenance Staff
Perry Keith
Dennis Dauphinais
Bob Adams
Dan Milbrath
Jason Rosentreter
Ryan Kovacs

Please join us in congratulating these outstanding staff members!

Outpatient and Day Treatment Programs

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Rainbow provides outpatient and day treatment services to clients living in their own homes who wish to participate in rehabilitation programs at one of our state-of-the-art treatment centers. Our in-house staff of highly trained and experienced professionals provide individual and group therapies at all of our centers. Programs feature individualized care plans and treatment, regularly scheduled progress meetings and peer grouping to promote socialization and skill building.

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structure base for knowledge crucial to effective brain injury rehabilitation across the spectrum as well as versatility to utilize different supportive learning activities based upon the needs and desires of the audience. Figure 6 shows a slide from the Chapter 1 PowerPoint presentation. As numbers of applications and certificants began to rise steadily, the AACBIS board recognized that more and more individuals applying and expressing interest in certification were coming from afar. With this recognition, the board voted to rename AACBIS to reflect a more inclusive academy that encouraged more international participants. In 2008, the name formally changed from the American Academy for the Certification of Brain Injury Specialists, to the Academy of Certified Brain Injury Specialists or ACBIS. Over the course of time, many international applicants have become certified. As of January 1, 2016, there are 222 current certificants (including both CBIS and CBIST) from outside the United States (Table 2). These numbers reflect a clear desire for training and certification in brain injury internationally. It was inevitable that at some point international participants would prefer materials and training specific to their country and culture. The first to make this a reality was a group from Ireland, led by the tireless Barbara O’Connell.

In 2009, ACBIS sent a contingent to Ireland to begin dialogue about developing a program on the Emerald Isle. In an effort to expand ACBIS training to an international level, Board members Tom Hall and Erika Mountz were invited to train 13 staff from Acquired Brain Injury-Ireland (ABI-I), which operates community-based residential and day treatment programs across Ireland. As a result of this successful venture, ACBIS established an international subcommittee to address certification processes and protocols.

With international efforts underway, energies turned toward improvements in the testing process. In 2010, ACBIS rolled out the first online testing program. This considerably improved test security and provided instant results to the applicant. As described earlier, prior to this online process, tests were shipped from the ACBIS office in Virginia to the test proctor. The applicants completed the examination, after which the test proctor immediately overnighted the exams back to the ACBIS office in Virginia. After the ACBIS staff graded the exam(s), they then contacted either the applicant directly or the group administrator with the results. As anyone who has ever taken a test of this magnitude, waiting for results can be stressful, harrowing, and for some, traumatic. For applicants and proctors alike, online examinations, with instant results, were an enhancement for certain!

The year 2010 also saw the addition of a new type of certification—the Provisional Certified Brain Injury Specialist or PCBIS. Prior to this certification, all other ACBIS certifications had a vocational requirement of working in the field for a specified time, depending on the certification type. The PCBIS marked the first time that ACBIS had opened certification to graduate students.
who were enrolled in an accredited university degree program. The PCBIS was started to provide training for pre-professionals who intend to work with individuals who are living with a brain injury. It was designed for students enrolled in an allied health, psychology, pre-medical, or special education program.

The requirements for a provisional certification include:
1. Enrollment in an accredited University
2. Training by a CBIST or self-study
3. Passing the CBIS examination to obtain provisional certification
4. Completion of 500 hours of verified clinical employment or a supervised academic internship (in a setting with individuals who have a brain injury) to obtain certification as a CBIS.

Starting in 2011, 142 individuals have attained their provisional certification. From the perspective of a potential employer, that represents 142 professionals who are trained and ready to provide services and treatment to individuals living with a brain injury! The PCBIS is a model program for preparing future professionals in a niche profession like brain injury rehabilitation.

In 2011, ACBIS introduced the Alliance Program. The ACBIS Alliance recognizes and honors providers of brain injury services that support and encourage national certification for their staff. It shows their commitment to providing high-quality services to persons with brain injury. Membership in the Alliance communicates that the organization is committed to excellence in care through the training and certification process. To qualify, the organization must achieve and maintain certification of at least 20 percent of eligible staff as CBIS or CBIST.

The years 2012 and 2013 brought continued success in the international arena. The International Committee led by Tom Hall worked diligently with the ABI–Ireland group and developed an Irish centric manual and training materials. The EBIG–Irish edition was finalized and distributed in 2013. It is a beautiful edition in which the ABI-Ireland group and the ACBIS Board hold great pride (Figure 7). It was an excellent learning experience for the ACBIS board, as we learned the trials and tribulations of going “international.” The experiences in working with this group were invaluable, and each successive international effort will be all the wiser for having developed the EBIG–Irish Edition. Efforts are now underway in the United Kingdom with an expected rollout of the EBIG–UK Edition expected in 2016. The next significant area in the international arena would be the development of the first non-English version of the EBIG. We certainly look forward to this challenge!

The last three years have been dominated by the development of the EBIG 5.0. These efforts are documented in the article titled Introducing The Essential Brain Injury Guide 5.0, on page 6.

Overall, the last 10 years of ACBIS have certainly been productive! With 20 years of ACBIS behind us, two questions come to mind: Where are we now, and where are we going?

WHERE ARE WE NOW?

Current Data

Currently, ACBIS has 6,512 total certificants, including 126 PCBIS, 209 CBIST, and 6,177 CBIS (Figure 8). Since 1996, over 18,000 applications have been processed. During that same time, more than 13,000 certificates have been awarded. In 2006, renewal data began to be tracked, with over 25,000 completed over the last 10 years.

Since 2010, when tracking of this data began, of 11,394 applicants, 9,285 have been certified. This accounts for 81 percent of applicants achieving certification, with 19 percent not having achieved certification. Because this includes 2015 YTD data, the majority of applicants who...
applied in 2015 still have time to complete their certification process. It is likely this percentage will rise by 81 percent.

Trending Data

ACBIS continues to grow at an upward pace. The application data shows a tale of two eras (Figure 9). When looking at the number of applications by year, from 1996 to 2007, the average number of applications was 395. For the years of 2008 to 2105 year to date, the average number of applications was 1,798. That is an average increase of over 450 percent. Two major events coincided to create this significant difference in the number of applications over time. The first included efforts of the ACBIS Board and CAC to improve processes and intensely market ACBIS in 2005 and 2006. The second is the publishing of the EBIG 4.0 in 2007. Together, these events substantially impacted the visibility and accessibility of ACBIS for years to come.

Looking at five-year increments from 1996 to 2015 for both applications and certificates awarded, the pace of growth has been excellent. Looking at applications (Figure 10), from the first five-year span (1996-2000) to the second five year span (2001-2005) application growth exceeded 350 percent; from the second (2001-2005) to third (2006-2010) growth exceeded 350 percent; and from the third (2006-2010) to fourth (2011-2015) growth exceeded 120 percent.

When looking at certificates awarded in the same time frame (Figure 11), from the first five-year span (1996-2000) to the second five year span (2001-2005) certificate growth exceeded 650 percent; from the second (2001-2005) to third
WHERE ARE WE GOING?

This is truly an exciting time at ACBIS. The EBIG 5.0 is in print. Training materials are in process, and the test is being reviewed and revised. We look forward to yet another record-breaking year in terms of CBIS applicants and cannot wait to share the 25 outstanding chapters of the EBIG 5.0 with everyone.

Moving forward, we are working on two exciting initiatives. The first initiative in the works is the development of an Advanced Practice in Neurorehabilitation. This initiative is aimed at professionals in the field who wish to work toward a certification in Neurorehabilitation with a strong cognitive training component. The Advanced Practice in Neurorehabilitation is in its infancy, with much to work on before we have solid news to report.

PERFORMANCE-BASED ASSESSMENT

The PBA was designed to have the candidate demonstrate that they could perform skills and competencies outlined in the AACBIS Training Manual. The Clinical Examiner’s role was to guide the candidate through a series of tasks to determine their understanding and ability to practice fundamental skills in working with individuals with brain injuries. To do this, the candidate was instructed to select an individual with a brain injury with whom they currently worked to help the Clinical Examiner assess their skills. By way of example, below is an excerpt from the PBA manual from the Overview of Brain Injury Rehabilitation and the Brain and Behavior Relationships sections of the AACBIS manual.

Using your skills and knowledge of the individual you have selected, DEMONSTRATE your ability to:

1. Identify the primary funding source and talk about the strength and weaknesses of this kind of funding:

   a. Pre-morbid history
   b. Prior substance abuse, emotional, or learning problems
   c. Age at onset of injury
   d. Coma depth and duration
   e. Time elapsed since injury
   f. Socio-economic status
   g. Level of education
   h. Motivation to achieve goals
   i. Amount of awareness, self-control, coping skills
   j. Employment and/or educational history

Using your skills and knowledge of the individual you have selected, DEMONSTRATE your ability to:

1. Explain the areas of the brain that were injured in this individual and the common patterns of resulting problems, such as:

   a. Injury to the left or right hemisphere
   b. Injury to the frontal, temporal, parietal, occipital lobes
   c. Injury to the limbic system, brain stem, cerebellum

The Clinical Examiner may ask questions at any time during the PBA to determine that the applicant has mastered the competencies required to pass. Through intensive probing and testing of limits, the Clinical Examiner should select questions that will ensure that the candidate can demonstrate similar competencies to any other Clinical Examiner and also be passed by a totally objective and independent reviewer. Ultimately, the Clinical Examiner must be satisfied that the candidate can deliver brain injury services at this basic level of competency in a proficient manner so that a higher quality of care is clearly achievable for the people served.

The Clinical Examiner uses the information gathered from the assessment to provide a determination of whether the candidate’s demonstration was Satisfactory, Needs Improvement, or was Not Applicable (candidates who did not work with children were opted out of the Pediatric and Adolescent section).
Another initiative that has been discussed is the formation of a more active, vibrant Academy for our certificants. Currently CBIS and CBIST certificants interact through trainings, webinars and other venues supported by ACBIS. We are looking for new and innovative ideas to find additional ways for our members to learn, interact and otherwise find community as brain injury specialists. The goal of the broader academy is to foster greater interaction, sharing and inclusion amongst our ACBIS family, and to continue to grow over the next 20 years as we have over the last 20 years.

I, for one, can’t wait!

The Academy of Certified Brain Injury Specialists (ACBIS) offers a national certification program for experienced professionals working in the field of brain injury. ACBIS provides an opportunity to learn about brain injury, to demonstrate learning with a written examination, and to earn a nationally recognized credential.

As a service to our brain injury community, Rainbow is offering a free 10-week training course to prepare for the CBIS exam. Participants will also receive a discounted exam fee when the exam is taken with Rainbow’s group.

Nurses, case managers and other professionals who partner with Rainbow and have at least one year of experience working in the field of traumatic brain injury rehabilitation are invited to attend.

**Mondays, March 21 – May 23, 2016 • 3:30–5 p.m.**
Geneese Treatment Center
5402 Gateway Centre Dr., Suite B, Flint, Michigan 48507

**Thursdays, March 24 – May 26, 2016 • 8–9:30 a.m.**
Farmington Hills Treatment Center
28511 Orchard Lake Rd., Farmington Hills, MI 48334

To participate in CBIS training, contact: Lynn Brouwers at Lynn.Brouwers@rainbowrehab.com

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**BRAIN INJURY AWARENESS MONTH**

March 2016

Every year, March is designated Brain Injury Awareness Month. The Brain Injury Association of America (BIAA) leads the nation in observing Brain Injury Awareness Month by conducting an awareness campaign in March each year. The theme for the 2015–2017 campaign is: **Not Alone.**

The **Not Alone** campaign provides a platform for educating the general public about the incidence of brain injury and the needs of people with brain injuries and their families. The campaign also lends itself to outreach within the brain injury community to de-stigmatize the injury, empower those who have survived, and promote the many types of support that are available.

Further, the Congressional Brain Injury Task Force (CBITF), co-chaired by Rep. Bill Pascrell, Jr. (D-N.J.) and Rep. Tom Rooney (R-Fla.), has designated March 16, 2016 as Brain Injury Awareness Day on Capitol Hill.
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References

Rainbow Client Karen Osborne discharged late last year from our NeuroRehab Campus® in Farmington Hills, MI. When she initially admitted, she was reluctant to engage with us but she quickly became more comfortable and developed some nice relationships with Rainbow employees and other clients. The photo above is of the white board in her room where she wrote some nice, heartfelt sentiments about her stay with us before she left. She continues her treatment at our Farmington Hills Treatment Center.
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A therapeutic approach to day treatment programming for residential and outpatient clients

Rainbow U is adding more options than ever in more places than ever! Rainbow U has expanded to more treatment centers than ever before. Programs are now offered in Washtenaw, Oakland and Genesee Counties.

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