



SCIENCE IN AUTISM TREATMENT

Vol. 11 No. 3

Newsletter of the Association for Science in Autism Treatment

Summer 2014

Dear Subscribers,

We hope you have had a great summer and made new happy memories to be cherished for years to come. We enjoyed the Summer preparing another issue of SIAT and trust that you will enjoy reading it as much as we have enjoyed making it.

Among other great articles, this issue brings an interview by Dr. David Celiberti with Dr. Paul McDonnell from New Brunswick, Canada, about that province's autism intervention program for underserved populations. It is a great initiative that has so far reached over 600 children with evidence-based practices.

We are also delighted to be running the NYC Marathon again and present the this year's runners: Bobby Newman, Alex and Jamie Schneider, the , Leif Albright, Kaseedee Jermain, and Laurie Wennerholm. We still have a spot if you are interested! See page 26 for details. One special section this issue is *Forum*, written by Preeti Chojar, one of our parent board members, about her son's Spelling Bee success. And we doubled up on the Focus on Science, with one article by Dr. Daniela Mruzek and another by Dr. Eric Larsson, both ASAT board members.

Please enjoy! And send us feedback at newsletter@asatonline.org.



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ASAT

Providing Accurate, Science-Based Information - Promoting Access to Effective Treatment

International Interview: Paul McDonnell, PhD

Autism Intervention for Underserved Populations: An Example from the Province of New Brunswick

By David Celiberti, PhD, BCBA-D, ASAT Executive Director

I recently had the good fortune of interviewing Dr. Paul McDonnell, Professor Emeritus from the University of New Brunswick in Fredericton, Canada. This interview focuses on the provision of autism intervention services in a low population Canadian province with limited resources, and highlights efforts to reach segments of the provincial population that have traditionally been underserved.

Dr. McDonnell, in order to put your journey in context, I would like to share with our readers how intervention services evolved in your province. As you know, there are many sections of the United States that are rural. Please share with our readers some details about your province and its demographics.

In terms of population, the Province of New Brunswick is one of Canada's smaller provinces (population of about 750,000). Therefore, when it came to offering evidence-based intensive intervention for children with autism, there were financial constraints imposed by the relatively small tax base. Furthermore, 50% of our population lives outside of urban areas much like many of the more rural states in the United States.

We also have a significant population of children of First Nations families to serve. There are about 15 nations of Mi'kmaq and Maliseet Indians in this province. Lastly, we faced the extra challenge of offering intervention services in both French and English, as we are an officially bilingual province. The goal, of course, is to en-

sure an equally high quality of services in both languages and we were constantly challenged by the fact that the vast majority of educational materials and assessment tools were available only in English. Fortunately, that situation has slowly improved over the past 10 years.

Please share some details about your career path and how you became involved in autism treatment.

For many years, I was a professor in psychology at the University of New Brunswick specializing in developmental and child psychology. However, earlier in my career (1964-65), I provided psychological services at a child and adolescent psychiatric clinic in Toronto where I was often working with children with autism spectrum disorder. My time in the Toronto clinic made me aware of the enormous lack of services available for this population despite the very real potential for help through applied behavior analysis (ABA). An early retirement package from the university afforded me the opportunity to change directions and I decided to set up a private practice and focus a lot of my energy supporting parents of children with autism in their quest for better services.

What was autism treatment like twenty years ago? What led to the development of the programme at UNB?

20 years ago in New Brunswick, there were no treatment services for preschoolers, but we did

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Interview with Dr. Paul McDonnell Cont'd

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have Early Intervention workers who visited families weekly or bi-weekly and made recommendations largely based on developmental approaches. At that time, school aged-children were being included in the schools but the province's Department of Education was committed to a policy of full inclusion for all children with special needs. This mostly meant that children were in class with their peers (regardless of their abilities) and while they may have had an educational assistant, they had little in the way of a meaningful curriculum. While this approach to full inclusion was not ideal from our point of view, it was dramatically better than what had existed previously. I do recall that in the 1970s, children with autism spectrum disorders were largely excluded from school, and parents had to provide their own education. In some centres, this was facilitated by schools operated by the association known at that time as the "Canadian Association for the Mentally Retarded." Today that association has morphed into the "Association for Community Living." Although parents and professionals began advocating, actively, for evidence-based services early in the 1990s, it took until 2003 for the government to commit to funding preschool services for all children on the spectrum. We are now entering our 10th year with funded intervention services for preschoolers with autism and our 8th year with ABA-based services within the schools.

What were some of the values and core tenets of the initial group of parents and providers that spearheaded this effort?

The group of parents and professionals that advocated for services was committed to several core principles:

1. We wanted to be sure that adequate training



Dr. Paul McDonnell

was provided to front-line therapists and their supervisors so that treatments offered would, in fact, be evidence-based and that standards for service would be put in place.

2. We recognized the need to provide as many hours of treatment as possible and certainly, based on the research,

we knew that the minimum was 30 hours for most children.

3. We saw the need to have standards set for diagnostic assessments and some way for assessments to be expedited so that families were not kept waiting unduly. A timely and accurate diagnosis is essential for families to be fully informed and for the intervention teams to have a benchmark and a set of initial target behaviors.
4. We saw the need to extend treatment through the school system in some manner and that transition to the schools from the preschool services should be as seamless as possible.
5. We recognized that we had to ensure that the quality of services was equitable across Anglophone and Francophone populations as well as across rural and urban families. As a result, we advocated that a province-wide system be established that would provide training and ultimately, intervention.
6. We were committed to the idea that parents also need training and need to be as well educated as possible in order for them to support and participate in intervention programmes for their children.
7. A final principle was that we wanted to en-

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Interview with Dr. Paul McDonnell Cont'd

(Continued from page 3)

sure that we had a multi-disciplinary approach so that we would have the support of all professions that are involved in interventions with children with autism while still maintaining our commitment to evidence-based interventions.

I understand that the programme was launched in 2003. What did it involve?

In December 2003, the provincial government's Department of Family and Community Services announced that funding would be provided for intensive behavioral interventions for preschool children with autism spectrum disorders including children from the First Nations whose funding generally is provided by Federal sources. They also agreed to fund a comprehensive province-wide training programme. The University of New Brunswick's College of Extended Learning won a contract from the province to offer training to front line therapists, which we called Autism Support Workers (or ASWs) as well as Clinical Supervisors (CSs) who were to be drawn from the ranks of health and educational professionals (viz., Occupational Therapists, Psychologists, Speech Language Pathologists, etc.). The Clinical Supervisors are responsible for writing individualized programme plans for children with autism and for supervising the implementation of the therapy plan by the Autism Support Workers.

The contract was awarded to the university in February 2004 and we were to be up and running by June. Thus, we had about four months to implement this comprehensive training programme and needed to find a way to provide trained staff to over 200 children. The reality of life at that point in time was that there were almost no professionals within our province that specialized in applied behavior analysis or had developed expertise in clinical supervision. Further, there were only a handful of front-line therapists with any experience. With this in mind, our biggest challenge initially was to find qualified instructors. In the end we were fortunate to be able to hire two complete teams of about six instructors each to serve

our two language populations. The teams each were staffed with Psychologists, Occupational Therapists, Speech Pathologists, and Educators all of whom had experience with behavioural interventions. Two professionals flew in from Montreal and the rest either lived in the province or moved here. While none of these people had BACB certification, all had had extensive experience with autism interventions and most were skilled in behavioral theory and techniques. Today in New Brunswick, there are 13 professionals with BCBA certification and several more will become certified in the next year. Since 2004, the Autism Intervention Training Program at the University of New Brunswick has trained over 1000 people in evidence-based intervention methods, especially applied behaviour analysis. The Province now funds 20 treatment hours per week of intensive behavioural intervention for all children diagnosed with any level of ASD and services are available throughout the province with waiting times under a year.

Please tell our readers more about what the training involved.

For the past 10 years, most of the people trained in autism intervention services were trained through the Autism Spectrum Disorder Intervention Training Programme at the university. The province provided free instruction for students accepted into the training programme for both preschool and school based staff. Courses were 50% lecture and 50% practicum. The number of hours of instruction was 168 for Autism Support Workers and 299 for our Clinical Supervisors and the training was spread out over seven to eight months. The curriculum incorporated face-to-face teaching with web-based training and a hands-on practicum. The use of web-based technologies allows students in more rural areas to remain at home at least for some of the course work. The guiding design principle of this blended model is to provide an instructionally sound, flexible, user-friendly teaching and learning solution. The curriculum was compiled initially by team members in a series of educational sessions

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Interview with Dr. Paul McDonnell Cont'd

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and has been overseen by a curriculum advisory committee at the university. In the past two years, the administration of funding for both preschool and school-based services has been taken over by the Department of Education. In addition to taking over the funding, the Department of Education has developed its own curriculum, which in many ways parallels the curriculum developed by the university. The department plans to provide core training for all preschool workers and educational assis-

tants. In addition, there will be advanced training for clinical supervisors and resource teachers. Meanwhile, the University of New Brunswick has re-configured into an open access programme and has developed a Bachelor's level option in applied behaviour analysis.

Given the mandate to serve both French speaking and English speaking individuals, please share the path that your group undertook to adequately

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Long Island Behavior Analysis Conference:
December 4th, 5th & 6th
Featuring Top Autism Professionals

ELIJA
The ELIJA School & Foundation for Children with Autism
Championing Hope, One Child at a Time

- 12 Month ABA Program
- ABA Home Services
- Diagnostic Evaluations
- Parent/ Professional Workshops
- Annual Behavior Analysis Conference LIBAC
- Approved Type 2 CE provider by the Behavior Analyst Certification Board (BACB ©)
- Advocacy
- Autism Lending Library

THE ELIJA SCHOOL
The ELIJA School provides an individualized 12-month educational and treatment program for school-aged children. We serve the needs of our students with science-based treatments, utilizing the principles of Applied Behavior Analysis (ABA). Our program provides an intensive, one-to-one student to teacher ratio in a comprehensive instructional setting within a classroom environment. The ELIJA School focuses on the development of functional communication, academic, social and life skills. To substantiate our progress, the school conducts external evaluations to monitor the quality and effectiveness of our educational and treatment program. The ELIJA School is now accepting applications.

OUTREACH PROGRAM
For those learners not enrolled in the school, The ELIJA School Outreach Program provides support, education and training to parents, family members, caregivers, and professionals—as well as conducting private consultations—within and outside of the school's community.

THE ELIJA FOUNDATION
The ELIJA Foundation is a not-for-profit, 501c (3) organization serving parents, educators, professionals, and caregivers of children with Autism Spectrum Disorders (ASD) on Long Island, New York. Since 2002, The ELIJA Foundation has provided the community with educational opportunities that focus on improving the quality of programs and services available to children with Autism. The Foundation's focus is to empower families and improve the competency levels of professionals, by providing training on the most advanced treatment and educational strategies that maximize the potential of those affected by Autism. The Foundation hosts workshops that give the community access to local and nationally recognized Autism professionals who present topics which will allow those with Autism to more fully participate in their families, communities and educational settings. The ELIJA Foundation is committed to offering the most comprehensive information that is geared toward improving the lives of persons with Autism and their families.

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meet the needs of Francophones.

Francophone and Anglophone instructors worked jointly to prepare details of lecture topics and practicum sessions. We specifically selected most of the topics from the BACB Task List but also included some topics and strategies specific to autism interventions not included on that list (e.g., ethics, developmental theory, Picture Exchange Communication System, visual schedules, etc.). We quickly discovered that there were very few resources with which to teach ABA available in the French language. While we had journal articles, texts, and video productions available in English almost none of this material was available in French. This posed a major problem for us in our attempt to provide the same quality of programme for both language groups. We could not assign a common textbook so we put together a course pack of key articles under a license agreement with a Canadian copyright licensing agency, which included translation of some key materials. Fortunately, well-known books by Maurice, Green, and Luce and Leaf and McEachin have been translated into French. In addition, Dr. Barbara D'Entremont and I applied for and received a grant in 2006 from Ronald McDonald House Charities to produce a set of five teaching videos in both languages. These videos were intended to give the very basic, core principles of some key intervention strategies (e.g., reinforcement, generalization) and were intended to provide some useful visual supports for our training programme.

Today, these teaching videos are freely available online for anyone to view ("Autism Intervention Training" video series: <https://vimeo.com/41718685>). Clearly, the lack of literature and media materials in French and in many other languages significantly limits the spread of knowledge about behavioral interventions. Another important part of the curriculum was to bring in at least two internationally known speakers each year to address a critical topic within our curriculum or one in which our local teachers did not have adequate expertise. In addition, the visit-

ing speakers became part of our continuing education programme.

What were some other lessons learned?

We wanted to attract students who were already experienced working with children either as a health professional or as an educator. The amount of time required for an educational leave of absence is one of the main considerations in attracting professionals who already have heavy time and financial commitments. If you want to attract mature students to a programme, even a free programme, it has to be possible for them to arrange for time off, and, not be too burdensome in terms of lost income. Therefore, while more hours of instruction would be desirable, we realized we had to strike a balance in order to develop a bank of trained therapists within the province in a reasonable time frame.

In order to reach out to potential students in the more remote regions, we opted to make use of audio and video conferencing and the instructional web-based tools, Web CT and Blackboard. PowerPoint lectures were set up on Web CT as PDF files which students could download in advance of videoconference lectures. Assignments, tests, and resource materials were also provided on Web CT. For example, students in the clinical supervisor course do on-line assignments in small groups that are monitored by our faculty. Practica were offered in various locations around the province to reduce travel time for students as much as possible. The combination of free tuition, web-based training, different venues for practica, and a bilingual delivery has resulted in successful training of over 900 professionals in a 10-year period.

Tell me a bit more about the present state of autism interventions in the province.

One of the nice features of the programme was that all children are provided with a thorough developmental assessment at the start of therapy. In addition, the province has 6 private agencies

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Interview with Dr. Paul McDonnell Cont'd

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that are approved by the government and are responsible for delivering preschool treatment services around the province in whichever language is required. All regions are covered and one of the agencies was designated responsibility for any children who for some reason could not be included by the agency that was physically closest. At the present time there are no significant waiting lists (e.g., not more than four to six months after diagnosis) and all preschool-aged children are accepted so long as there is a diagnosis that places them on the spectrum. Children in the preschool programme can continue with therapy (if needed) until they enter the school system. Transition to the elementary schools is done with collaboration between the preschool therapists and the school staff. Preschool therapists attend school with the child for the first month or so and in some cases, longer if needed. In some cases, children can remain for some additional time in the preschool programme if that is deemed the best placement. Perhaps the greatest weakness of the programme from our point of view is that the number of hours currently funded is 20 hours per week and we would like to see that increased to 30 hours per week. We would also like greater flexibility in determining the number of hours allocated based on clinical factors.

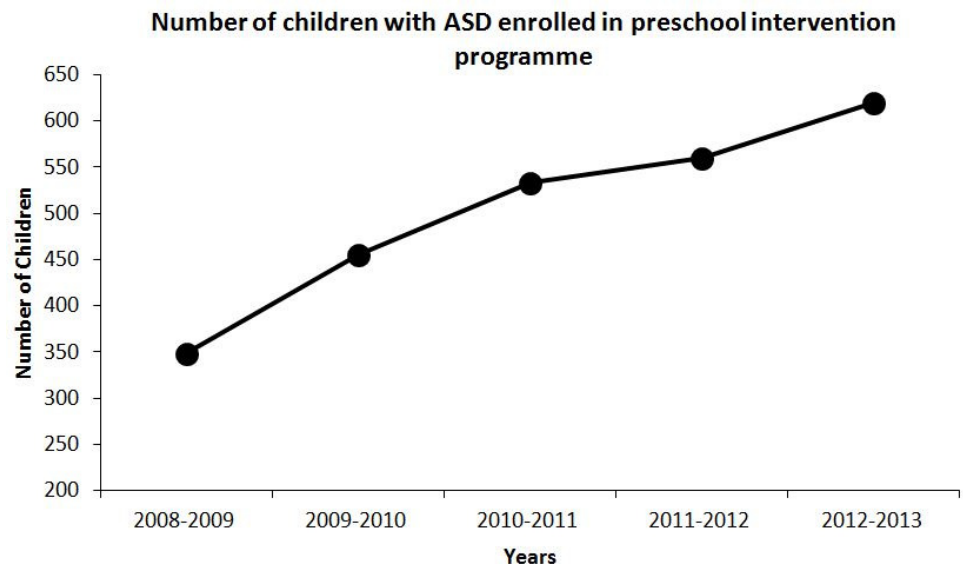
It should also be mentioned that the Department of Health in New Brunswick has provided base funding for a network of eight resource centres across the province. These centres provide material and social support to families in each region. Among their services, they offer workshops, provide support groups for teens and adults, parent support groups, organize recreational activities, and a drop-in centre. They also provide books, videos, and many other teaching materials.

What were some of your outcomes?

The programme currently serves about 620 preschool children (approximately 425 are Anglophone and 195 are francophone) plus about 1780 students in Anglophone K-12 and 560 in the Francophone K-12 streams.

In the past 10 years the College of Extended Learning at the University of New Brunswick has trained about 380 autism support workers (front line therapist) plus 75 clinical supervisors for the preschool intervention programmes. In the last 8 years we have also trained about 430 educational assistants and about 125 resource teachers on a contract with the Province's Department of Education. In addition, workshops and programmes have been offered to about 300 parents. Further, the College of Extended Learning has been offering similar training in the province of Saskatchewan.

The figure below shows the steady increase in enrollment in our preschool intervention programme. This represents approximately a 45% increase. It is always interesting to speculate on the causes of this dramatic increase.



We do know that a number of factors are involved including a greater willingness among professionals to diagnose ASD when treatment services are available and accessible. Similarly, more families seek a diagnosis when they know there are services are available. In addition, there has been

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Interview with Dr. Paul McDonnell Cont'd

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some immigration into the province and retention of families because of the accessible services.

What is next?

As is true in most other jurisdictions, we have a long way to go to provide the quality and level of service that is needed. The following is a short list of goals that we have now:

- To provide a range of residential and vocational services staffed with behaviorally trained supervisors and therapists
- To increase the hours of intervention for children in pre-school intervention programmes;
- To provide comprehensive parent training for Anglophone, Francophone, and First Nations families
- To follow up initial developmental assessments with periodic re-assessments and provide an ongoing evaluation of outcomes
- To provide funding for after-school hours and summer intervention programmes for those who need this service
- To increase the number of opportunities for continuing education for graduates from our autism intervention-training programme

How can readers learn more about the UNB programme?

For more information on our training programmes, please visit "Autism Support Training Programmes:" www.unb.ca/cel/programs/alphabetical-listing.html

Finally, I understand that an Association for Behavior Analysis International (ABAI) affiliate chapter was created. What was that process like and have you had the opportunity to meet other behavior analysts outside of the field of autism treatment?

During the past two years, a group of us who are ardent supporters of ABA have seen the need to create a chapter of ABAI within the Canadian Atlantic Provinces. This perceived need was galvanized into action by Sheila Bulmer who, at the time, was an Autism Project Coordinator with the Atlantic Provinces Special Education Authority or APSEA. The move towards an Atlantic Provinces Association was seen as a way to bring a high standard of training and expertise to the whole region. Efforts were made to form an association and complete the application to ABAI to form a chapter. This was brought to a successful conclusion in February of this year with ABAI extending approval to our association to become a chapter. Your question is well taken, as one of the first benefits for me personally was the opportunity I have had to meet with behaviour analysts who work in fields other than autism. These include OB consultants and professors involved in research at regional universities. We had our first business meeting at ABAI in Chicago and attended the Expo and a leadership seminar. Our membership currently stands at about 18 but we think that our potential will be about 60 members. At this point we are working to develop our web site and we have already developed a Facebook page. There is also a link on the ABAI web site to our Facebook page as well as our membership application form. We even have developed a logo that represents the four Atlantic Provinces:



Thank you Dr. McDonnell for a wonderfully informative interview! Please see page 29 for a review of the training videos.

Fundraising Updates

By Ruth Donlin, MS, ASAT Board Member

The **Arizona Redhawks** are a Junior A Tier III Ice Hockey Team located in Peoria, Arizona that is making a commitment to the autism community. They are a branch of the Western States Hockey League (WSHL) and are a part of a growing league that reaches from Kansas to the West Coast. The organization is dedicated to providing a superior team-oriented environment that supports the highest level of development for each player.

John Guy, who is the Director of Operations and Marketing of the AZ Redhawks, has collaborated with ASAT in the past. He became inspired by ASAT's mission and website after learning that his grandson had been diagnosed with autism. ASAT is grateful to John Guy for his continued support and to this great team and league for raising funds and for promoting autism science-based treatments throughout their upcoming season. John has been instrumental in working to promote ASAT as a resource, broaden autism awareness, and develop future ideas to support ASAT and the autism community. The 2014-2015 junior hockey season will begin early September 2014 with games in numerous cities including, Dallas, Boulder, Long Beach, and Las Vegas.



To learn more about the Arizona Redhawks, check out their website at www.arizonaredhawks.com/

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Kettlebells 4 Autism Continues to Stand Up for Science

By Christina Danos, Founder of Kettlebells 4 Autism

I am pleased to share with *Science in Autism Treatment* readers that Kettlebells 4 Autism has chosen the Association for Science in Autism Treatment (ASAT) to be the recipient of funds raised at the upcoming 2014 One Hour Long Cycle Event. I take this opportunity to offer some details about this exciting event.

Why support ASAT?

Who would *not* want to support ASAT's vital mission of helping families affected by autism? As subscribers you all are aware that ASAT is a not-for-profit organization committed to improving access to sound, science-based information regarding the broad aspects of living with, and effectively treating, autism. Through the ASAT website, newsletter, and other resources, ASAT aims to assist families of individuals with autism, including those of children newly diagnosed, in their search for accurate information regarding autism and its treatment. This commitment to dissemination and support also applies to the providers who serve individuals with autism.



Jason Dolby, founder of the One Hour Long Cycle

What is the 2014 One hour Long Cycle Event?

Kettlebells are large, cast iron, ball-shaped weights used for exercise, weight training, and sport. The One Hour Long Cycle (1HLC) is an annual kettlebell lifting charity event that allows people from around the world to come together for 60 minutes and lift together to raise funds and bring awareness to a different charitable organization each year. Founded by Jason Dolby, a Kettlebell Sport coach and competitor, previous years have included participants in Japan, Canada, Kazakhstan, the United States, and Singapore, and fundraising for the Tuberous Sclerosis Alliance, Children's Hospital Los Angeles, and the V Foundation for Cancer Research. This year, the 1HLC is collaborating with Kettlebells 4 Autism to raise funds for Association for Science in Autism Treatment.

When is the event?

Join us on Saturday, October 18, 2014. This date coincides with the 5-year anniversary of the 1HLC.

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Kettlebells 4 Autism Cont'd

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What will the event involve?

The long cycle movement is comprised of a kettlebell clean, followed by a kettlebell jerk, and for the purposes of this event, participants are not to set the kettlebell down for the duration of the hour. The event will start promptly at 11:00 a.m. (PDT). All participants will begin their 60 minutes of long cycle movement at the same time, no matter where in the world they live, alone or with a group! Satellite locations are welcome anywhere and can include a single lifter or many lifters. We all do this together to pay tribute to those affected by autism and to raise funds and awareness for their family members seeking a path to effective treatment.

Why take part in the 2014 One Hour Long Cycle Event?

Recent CDC statistics suggest that 1 in 68 children in the United States have been identified with an autism diagnosis. This means it is likely that you know someone who has, in some way, been touched by the disorder. Those who participate in a rigorous form of exercise, such as kettlebells, may have a special appreciation for the intense stamina, perseverance, and dedication of all those involved in helping individuals with autism realize their fullest potential. In particular, the demands on families are intense.

How will funds be used?

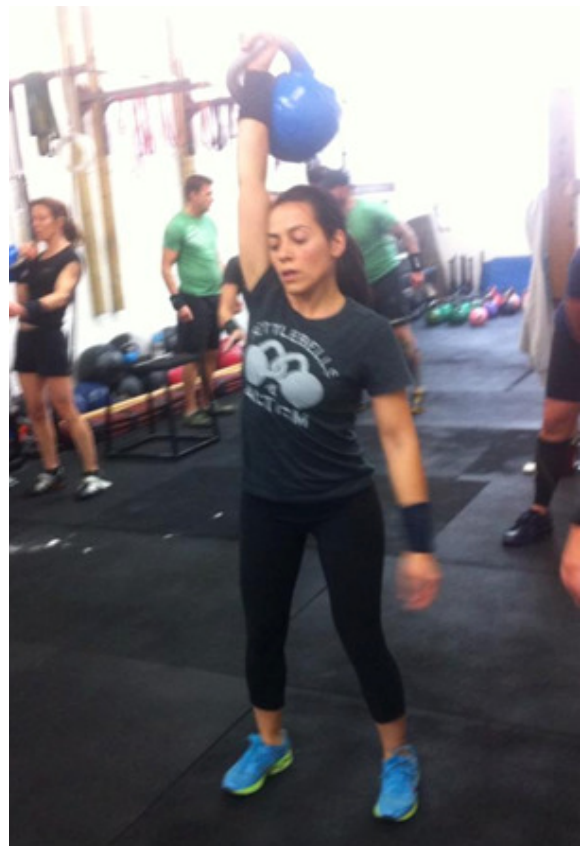
All funds raised will be *directly* donated to the Association for Science in Autism Treatment (ASAT). ASAT will provide receipts for tax purposes. Funds raised from this event will contribute to ASAT's goal of creating and disseminating a resource booklet for parents and other caregivers of newly diagnosed children.

Families are overwhelmed by the decisions that they need to make in light of the 400+ treatments for autism that can be found in an online search, only a handful of which possess scientific support. As a result, families too often experience detrimental consequences of invalid, costly and even dangerous treatments. The resource booklet will support family members in becoming savvier consumers and advocates.

How can you learn more?

Please watch the following [video](#).

Further details about the 2014 One Hour Long Cycle Event will be available at www.kettlebells4autism.com and www.onehourlongcycle.com.



**Christina Danos, founder of
Kettlebells 4 Autism**

From the Archives

Clinical Corner: Teaching Safety Skills to Adolescents

Safety skills are important instructional objectives for individuals with autism at any age, and this makes them a great topic to re-invigorate our From the Archives feature. In this Clinical Corner from the Winter, 2012 issue, Shannon Wilkinson, MADS, BCaBA offers suggestions for clinicians and families teaching individuals with autism to keep themselves safe.

Amanda Guld Fisher, PhD, BCBA-D
From The Archives Coordinator

I am a Special Education Teacher at the high school level. A young man with autism is transitioning to my caseload from our middle school. Although there is much talk about "safety skills" amongst my colleagues, I would like to target this skill area effectively and comprehensively. Any suggestions?

Answered by: Shannon Wilkinson, MADS, BCaBA, New Haven Learning Centre, Toronto, Ontario

Safety skills are critical for learners with autism and should be addressed early and continue across the lifespan. The topics and comprehensiveness of safety skills curricula will vary, depending on the learner's age and developmental level. For example, younger learners should be taught to walk appropriately with an adult in busy settings (e.g., sidewalks, parking lots). Older learners might be taught to cross a busy street independently. Regardless of age, safety skills should be included in the learner's school curriculum (e.g., specified in his or her Individualized Education Plan [IEP]) and reflect the goals and concerns of the individual and their families. Ongoing review of data on the targeted skills is essential to ensure the learner is acquiring the skill at an acceptable rate and that the skill maintains over time.

There are an array of behavior analytic techniques that can be used to target safety skills

and one such method is Behavioral Skills Training (BST). BST is a comprehensive teaching method that includes: (1) delivering instructions to the learner, (2) modeling the correct response, (3) rehearsing the correct response in both pretend and more naturalistic environments, and (4) delivering feedback to the participant regarding their actions. If the learner is having difficulty acquiring the skill, an additional teaching component known as "In Situ Training" (IST) can be added. In IST, the trainer provides immediate and direct training in the learner's environment and allows for additional practice of the skill. BST and IST have been shown to be effective for teaching a wide range of safety skills such as abduction prevention skills and how to seek assistance when lost (Beck & Miltenberger, 2009; Gunby, Carr, & LeBlanc, 2010; Johnson et al., 2006; Pan-Skadden et al., 2009).

There are a number of safety skills that that can be targeted with an adolescent with autism; however, those skills that increase day-to-day independence should be a priority. I will provide details about two such skills to serve as examples. Teaching him to use a cell phone is one such skill, as it is a skill that may improve safety and overall independence (Hoch, Taylor, & Rodriguez, 2009; Taber, Alberto, Seltzer, & Hughes, 2003). First, you will want to ensure the learner has the basic skills associated with cell phone use including: answering the phone, following directions given by the other person on the line,

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Clinical Corner: Teaching Safety Skills Cont'd

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answering questions on the phone and initiating a call. Once these basic skills are mastered, specific safety skills involving the phone can be taught. For example, a learner can be taught to answer his cell phone and provide a description of his location in the event he is separated from his caregiver or group. He could also be taught to follow instructions to seek assistance from a community member if lost (Hoch, Taylor, & Rodriguez, 2009; Taylor, Hughes, Richard, Hoch, & Coello, 2004) or to call a trusted adult.

A major safety concern for most parents is abduction. Although abduction may be more likely with a young child, adolescents with autism should still be taught to identify “safe people” in the community, such as police officers, fire fighters and security guards,. Many learners with autism have difficulty distinguishing safe or familiar people from unsafe or unfamiliar people (i.e., “strangers”). As a result, they cannot determine whom they can speak to or make a request for help. Learners can first learn to identify safe people in pictures. Once they have acquired this skill, they should be taught what to do if a stranger approaches them. Multiple scenarios should be practiced so the learner becomes familiar with potential lures such as a stranger offering candy to get in a car, or telling the student that his mom told the stranger to pick him up. Behavioral skills training and in situ training may be beneficial in teaching these skills (Beck & Miltenberger, 2009; Gunby, Carr & Leblanc, 2010; Mechling, 2008). In this scenario, the learner would first be provided instructions on what to do in each situation. The learner should then model the correct response. If he does so successfully, a mock scenario can then be set up whereby a confederate approaches the learner, and the learner has the opportunity to demonstrate the skills he has learned (e.g., move away quickly and tell an adult). If the learner performs the correct actions, he receives praise and/or other types of reinforcement. If the learner does not demonstrate the correct response, the instructor immediately provides him with additional training. In addition, the instruction should include appropriate methods for ensuring that the skills

taught will generalize to all likely situations (Please see the following Clinical Corner article regarding programming for generalization: http://asatonline.org/resources/clinician/masters_skills.htm).

Additional safety skills to target could include:

- discriminating strangers from family, friends, and uniformed community helpers
- navigating and using community resources appropriately and independently;
- exiting a car and crossing a parking lot or busy street safely;
- responding appropriately in emergency situations such as a fire, school lock down or earthquake;
- addressing potential household hazards such as responding safely to cleaning chemicals,
- using appliances properly,
- answering the doorbell when it rings;
- identifying a need to dial 911 and delivering the appropriate information to responders;
- using basic first aid procedures;
- interacting appropriately with pets and other animals;
- practicing safety skills at swimming pools and beaches;
- using the internet safely; and managing teasing and bullying

There are many others that can be addressed based on the learner, his individualized goals and his future educational, vocational and residential placements. Involving the learner’s parents in the planning process will help you to identify which safety skills are most important and relevant for the individual to learn, particularly if the parents have specific concerns or if there has been a history of unsafe behavior. Finally, as you go through the program planning process, it’s helpful to keep in mind that the essential goal in teaching these skills is to promote greater independence by ensuring the learner has the tools he needs to be

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Clinical Corner: Teaching Safety Skills Cont'd

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safe and to protect himself in his environment.

You may also be interested in reading another recent Clinical Corner response related to your question that addresses several safety issues including wandering and making sure the home environment is safe. Please see <http://asatonline.org/resources/clinician/bolting.htm>.

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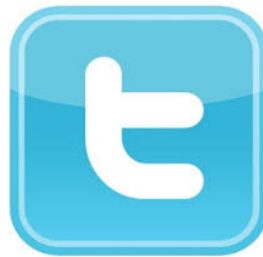


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Spelling Bee Victory

By Preeti Chojar, ASAT Board Member

In the spelling bee, when the first word my son was asked to spell was "girls", which happens to be his all time favorite word, we knew we were off to a good start. The second word was "slow". At first he didn't hear it. He was standing around when everyone was waiting. I told everyone within hearing distance that he was demonstrating the word. Sometimes humor can lighten an awkward situation.

I still remember the first year when the school was questioning whether Ravi could participate in the spelling bee. He could spell very well but couldn't pronounce the letters clearly. I asked them if they would allow him to write the words. The vice-principal agreed and they allowed him and all other students to write the words. Fortunately, that simple accommodation led to several other students' participation.

In the second year, helping him remain on stage was very difficult. After spelling his word he would come down from the stage and attempt to go to his math class, despite my telling him that the entire school was attending the spelling bee: teachers, aides and classmates. I would remind him to get back to the stage and spell more words. This continued for every round. Everyone must have been staring at us but it didn't matter as he eventually learned our expectations. He won third place that year.

This year was his fifth year participating and he no longer needed to write the words out. He could now say the letters. When he was given the word "extinguisher", even the judges encouraged



Ravi during the competition

him to write it but he refused and spelled it correctly vocally. In fact, he refused to write any words with one exception: He was stumped on the word "muscles".

He spelled it "musles" then immediately corrected himself, with no prompting from anyone to say "muscles." They didn't accept it. He repeated it and they didn't accept it. He then even wrote it, but still they wouldn't accept it. He did try. Persistence usually pays off.

Ravi came in second place this year. On a basic level, I celebrate my son for being able to sit on stage with no hands over his ears; being flexible about his schedule; being aware when his name was called, going up to the microphone, spelling the word and then repeating it if asked, without assistance. On a higher level, I celebrate him for being aware that it was a competition and for wanting to win. He is a winner in my mind and an inspiration for all.

Preeti is the mom of Ravi, an 11th grade student at Rock Terrace, Rockville, MD



Ravi and Preeti celebrating

Research Review

We have summarized two studies comparing and evaluating several approaches to reduce various characteristics of autism. This first summary is a comparison across three interventions, Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), Learning Experiences and Alternative Program for Preschoolers and their Parents (LEAP), and a traditional special education program. The second summary is an evaluation of the Joint Attention Symbolic Play Engagement and Regulation (JASPER) program, which is a development approach to increase expressive language. We hope you enjoy reading these summaries!

Sharon A. Reeve, PhD, BCBA-D
Research Corner Coordinator

Preschool Based JASPER Intervention in Minimally Verbal Children with Autism: Pilot RCT.

Reviewed by: Kathleen Moran, Caldwell University

Goods, K. S., Ishijima, E., Chang, Y. C., & Kasari, C. (2013). Preschool based JASPER intervention in minimally verbal children with autism: Pilot RCT. *Journal of Autism and Developmental Disorders*, 43(5), 1050-1056.

Why research this topic?

One major area of focus in intervention for children with autism is to increase the use of expressive language, which is often limited and restricted. Although language is continuously taught in most interventions, there is still a need to identify and develop effective language treatments. One method for teaching language is known as JASPER (Joint Attention Symbolic Play Engagement and Regulation). It is based on a developmental social-pragmatic approach, in which interventionists aim to increase children's expressive language by systematically responding to and expanding on communication initiated by the child during play activities. It focuses on areas of joint engagement, joint attention and play. This is one

of the first studies to evaluate whether JASPER is effective in improving social communication and play in a school-based setting with minimally verbal children with autism.

What did the researchers do?

Fifteen children with autism participated and were separated into two groups. One group received the JASPER treatment and the other did not. Pre-treatment assessments were conducted on play and initiating and responding to bids for joint attention for both groups. Children were also observed in a classroom setting. Next, the treatment group received twelve hours of JASPER intervention over a twelve week period. Preferred toys were identified to create play routines that would promote the interaction between teacher and child. Opportunities were embedded within the play routines to target communication skills. Children in both groups attended an applied behavior analytic school for thirty hours per week, with children in the JASPER group leaving their classrooms when they took part in JASPER sessions. Pre-treatment assessments were repeated at the end of treatment.

What did the researchers find?

Prior to starting treatment, there were no statistically significant differences between the groups on any measure. After treatment was implemented, children in the treatment group increased

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their types of play, amount of spontaneous play, time engaged in interaction, and initiation of communicative gestures. These effects also generalized from the teaching setting to the classroom, where participants in the treatment group initiated more communicative gestures and spent more time engaged. The children, however, showed little change in initiating and responding to bids for joint attention. This study provides support that a brief intervention that targets joint attention and play skills can improve areas of expressive language skills of children with autism.

What are the strengths and limitations of the study? What do the results mean?

The results of this study suggest that the JASPER intervention resulted in significant increases in expressive language, play skills, and engagement and these skills generalized to different settings and staff. In contrast, children who did not receive treatment, no improvement on any measure was observed. Although this is the second study to evaluate JASPER, these studies only provide preliminary support for the intervention. In addition, long-term effects of this treatment were not evaluated. To further assess its effectiveness, future studies should replicate the findings with more children, include follow-up evaluations, and compare the treatment to other intervention programs.

Comparative Efficacy of LEAP, TEACCH and Non-Model-Specific Special Education Programs for Preschoolers with Autism Spectrum Disorders

Reviewed by: Antonia R. Giannakos, Caldwell University

Boyd, B., Hume, K., McBee, M., Alessandri, M., Gutierrez, A., Johnson, L., Odom, S. (2014). *Comparative Efficacy of LEAP, TEACCH and Non-Model-Specific Special Education Programs for Pre-*

schoolers with Autism Spectrum Disorders. Journal of Autism and Developmental Disorders, 44, 366-380.

Why research this topic?

The Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH) and Learning Experiences and Alternative Program for Preschoolers and their Parents (LEAP) are two commonly used educational models for teaching learners with ASDs. To date little research has been done to compare these specific teaching models to each other or to the non-model specific approach used in most special education classrooms. The TEACCH method emphasizes the use of structured teaching with accommodations (e.g., visual schedules) made to the environment to promote learning and engagement. In common practice TEACCH is often used with learners with ASD who are being educated together in a classroom that is separate from that of their peers of typical development. The LEAP method bases its approach on a blend of Applied Behavior Analysis (ABA) and research on the development of communication in early childhood. It includes children with ASD in classrooms with their peers of typical development, who model the behaviors targeted for intervention. The purpose of this study was to compare LEAP and TEACCH to each other and to non-model specific special education programs.

What did the researchers do?

The researchers in this study compared three groups of preschool classrooms that were already in operation and that met the researchers' criteria for providing high-quality services: 22 classrooms using LEAP, 25 classrooms using TEACCH, and 28 non-model specific special education classrooms. A total of 198 child participants completed a wide variety of assessments at the start of the school year, before they received instruction in any of the classrooms, and again at the end of the school year. These assessments measured the child participants' functioning in the areas of communication, social skills, and skill acquisition in other ar-

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Research Reviews Cont'd

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eas. The researchers then used statistical procedures to combine the measures into seven domains: Autism characteristics and severity, communication, parent-rated sensory and repetitive behaviors, teacher-rated sensory and repetitive behaviors, parent-rated reciprocal social interactions, teacher-rated reciprocal social interactions, and fine-motor skills. They then compared the results in these domains at the beginning of the school year to those conducted at the end, and the researchers compared outcomes across the three kinds of classrooms.

What did the researchers find?

The researchers found that the children in all classrooms that participated in the study made gains in the areas of social, communication, and fine-motor skills regardless of the teaching model used. Gains were not observed in the area of reciprocal social interaction (via parent reports) for classrooms using a non-model specific approach. Parent and teacher reports of sensory and repetitive behaviors indicated that they did observe a perceptible change in their children regardless of whether they were receiving education in a classroom that used TEACCH, LEAP or a non-model specific approach. Overall, no differences were found between the models in regard to student gains over time.

What are the strengths and limitations of the study?

An important strength of this study is that it enrolled a large sample of children with ASD who received services in “real life” educational settings and who completed a comprehensive evaluation before and after these services. However, there are also several limitations to the study. The researchers used inclusionary/exclusionary criteria when selecting classrooms and children to participate in this study but only three of 78 classrooms were excluded from the study, which may suggest that the criteria may have been lax. However, if they did succeed in identifying top-quality classrooms, a limitation is that the non-model specific special education classrooms may not be representative of all real-world special education class-

rooms. This would be problematic in terms generalizing the results of this study, as the outcomes observed may not reflect what would be observed in typical special education settings. Additionally, participants were not randomly assigned to groups (i.e., LEAP, TEACCH, non-model specific). If readers access the actual data from the study, there are several large differences in the functioning of the children across groups before the start of the study and large differences in the amount of services provided to the different groups. It is difficult to accurately assess the outcomes of the study when the skills of the participants in each group are not similar to each other prior to intervention and if they received varying amounts of services. Data provided by the researchers do not show clear difference in the types of teaching practices and strategies used in each classroom. This similarity in the teaching procedures may suggest that any differences in the outcomes of the groups may have been an effect of other variables, such as the preexisting differences in the skills of the children in each group, or the amount of services and not in the teaching model used. The similarity in the gains across all teaching methods also suggests some of the gains observed may be a result of natural child development over the course of the school year and not an effect of the teaching method used.

What do the results mean?

Overall, children made gains regardless of the teaching method used, this may suggest that it was the commonalities of these models and not their differences that impacted student progress. Currently, there is still not enough evidence to recommend the efficacy of one of these teaching models over the other. As with all interventions for children with ASD, it is recommended that when weighing the value of one teaching methodology over another, parents and treatment providers consider the effectiveness of the model as demonstrated in peer reviewed research and the accuracy with which it is implemented .

Focus on Science

ASD Intervention: How Do We Measure Effectiveness?

By Daniel W. Mruzek, PhD, BCBA-D

ASAT Board Member

Marketers of purported interventions for autism spectrum disorder (ASD), whether they are pills, devices, or exercises, claim that their products are effective. As proof, they point to any number of measures—some valid, some questionable, and some potentially misleading. Given that many of these "treatments" may be costly, ineffective and even dangerous, it is good to consider what constitutes legitimate measures of therapeutic benefit. How will we know if the intervention actually works?

A first step when presented with a potential treatment option is to investigate its scientific record. One can certainly ask the marketer (or therapist, interventionist, clinician, etc.) for examples of peer-reviewed studies examining the effectiveness of their recommended intervention. Indeed, this can be a great first step. An honest marketer will be glad to give you what they have in this regard or freely disclose that none exist. A good second step is to consult with a trusted professional (e.g., physician, psychologist, or behavior analyst who knows your family member), in order to get an objective appraisal of the intervention. If, after this first level of investigation is completed, a decision is made to pursue a particular intervention for a family member there are additional questions that one can ask the marketer *prior to implementation* that may prove very helpful in determining effectiveness after the intervention has been employed. These include the following:

Question 1: "What behaviors should change as a result of the intervention?"

Virtually any ASD intervention that is truly effective will result in observable change in behavior. For example, a speech intervention may very well result in increased spoken language (e.g., novel words, greater rate of utterances). An academic intervention should result in specific new academic skills (e.g., greater independent proficiency with particular math operations). An exercise purported to decrease the occurrence of challenging behavior will, if effective, result in a lower rate of specific challenging behaviors (e.g., tantrums, self-injury). As "consumers" of ASD interventions, you and your family member have every right to expect that the marketer will identify specific, objective, and measurable changes in behaviors that indicate treatment efficacy. Scientists refer to such definitions as "operational definitions" – these are definitions that are written using observable and measurable terms. If the marketer insists on using ill-defined, "fuzzy" descriptions of treatment benefit (e.g., "increased sense of well-being", "greater focus and intentionality", an increased "inner balance" or "regulation"), then "Buyer Beware!" These kinds of outcome goals will leave you guessing about treatment effect. Insist that operational definitions of target behaviors be agreed upon prior to start of intervention.

Question 2: "How will these behavior changes be measured?"

Behavior change is often gradual and variable. Behavior change often occurs in "fits and starts" (i.e., the change is variable). Also, our

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perception of behavior change can be impacted by any number of events (e.g., the co-occurrence of other therapies, our expectations for change). Therefore, it is the marketer's responsibility to offer up a plan for collecting data regarding any change in the identified "target" behaviors. Usually, it is best to record numerical data (e.g., number of new words spoken by the individual, duration [in minutes] of tantrums, etc.) The use of numerical data to measure the change of operationally defined target behaviors is one of the best ways for a treatment team to elevate their discussion above opinion, conjecture and misrepresentation. If a pill, therapy or gadget is helpful, there is almost assuredly a change in behavior. And, that change is almost always quantifiable. Setting up a system to collect these numerical data prior to the initiation of the new intervention is a key to objective evaluation of intervention. Don't do intervention without it.

Question 3: "When will we look at these intervention data and how will they be presented?"

Of course, it is not enough to collect data; these data need to be regularly reviewed by the team! One of the best ways to organize data is "graphically", such as plotting points on a graph, so that they can be inspected visually. This gives the team a chance to monitor overall rates or levels of target behaviors, as well as identify possible trends (i.e., the "direction" of the data over time, such as decreasing or increasing rates) and look for change that may occur after the start of the new intervention. Note that the review of treatment data is generally a team process, meaning that relevant members of the team, including the clinicians (or educators), parents, the individual with ASD (as appropriate) often should look at these data together. Science is a communal process, and this is one of the things that makes it a powerful agent of change.

An interventionist with background in behavior analysis can set up strategies for evaluating a possible treatment effect. For example, in order to gauge the effectiveness of a new intervention, a team may elect to use a "reversal design", in

which the target behaviors are monitored with and without the intervention in place. If, for example, a team wishes to assess the helpfulness of a weighted blanket in promoting a child's healthful sleep through the night, data regarding duration of sleep and number of times out of bed might be looked at during a week with the blanket available at bedtime and week without the blanket available. Another strategy is to use the intervention on "odd" days and not use it on "even" days. Data from both "odd" and "even" days can be graphed for visual inspection, and, if the intervention is helpful, a "gap" will appear between the data sets representing the two conditions. These strategies are not complex, but they give the team an opportunity to objectively appraise whether or not a specific intervention is helpful that is much better than informal observation. Few things are as clarifying in a team discussion as plotted data placed on the table of a team meeting.

If the marketer does not answer these questions directly and satisfactorily, consider turning to a trusted professional (e.g., psychologist, physician or behavior analyst) for help. Families have a right to know whether their hard-earned money, as well as their time and energy, are being spent wisely. Asking these questions "up front" when confronted with a new intervention idea will help. Marketers have a responsibility to present their evidence - both the "state-of-the-science" as reflected in peer-reviewed research, as well as their plans to measure the potential effectiveness of their intervention for the individual whom they are serving.

Speaking of measuring treatment effectiveness, fellow ASAT board member Eric Larsson offers his considerations regarding the use of standardized measures (e.g., IQ) as outcome measures in treatment research (next article; page 20). Though this might be a little out of context for some of our readers, for those of us who rely on direct interpretations of peer-reviewed studies in our work (e.g., researchers, clinicians), Dr. Larsson describes the limitations of sole reliance on change in standardized measures is assessing the scientific validation of an intervention.

Focus on Science

Some Cautions on the Exclusive Use of Standardized Assessments in Recovery-Oriented Treatment

By Eric Larsson, PhD, LP, BCBA-D

A common practice in clinical research is to obtain norm-referenced, standardized assessments for pre- and post-testing. This practice should be employed only very cautiously for a variety of reasons. These reasons include basic experimental design concerns and the theoretical assumptions underlying the construction of such tests. Traditional tests provide standard scores that are merely hypothetical constructs. The actual standard score is based upon a number of questionable theoretical assumptions and decisions made when the test was constructed. The theoretical problems are further exacerbated by sample sizes that in practice are much smaller than might be perceived in a cursory examination of the test manual. If valid behavioral results are being called into question by the results of the standardized assessment, then the competent behavioral researcher is a victim of a straw-man argument.

A simple reason for caution with standardized test results is that pre-post comparisons do not allow for an experimental analysis of the effects of an intervention upon that change (Baer, Wolf, & Riskey, 1968). Although this caution might be taken as obvious in research in Applied Behavior Analysis, a quick sample of academic interventions being reported in the *Journal of Applied Behavior Analysis*, the most rigorous journal in the field, shows the practice of simple pre- and post-testing to be included in 27 percent of the studies reviewed. Of course, the common rationale for the inclusion of pre-post standardized assessments is to provide some evidence of social validity. However, as will be discussed below, such data are often very difficult to interpret.

Standardized tests have one purpose, and that is to provide a norm-referenced score for the assessed performance of a child: to compare their performance to that of normal peers. The typical standard scores are Intelligence Quotients, age-equivalents, and grade-equivalents. The value of the standard scores is that they allow a single child's score to be compared to that of a group of peers who were tested under similar conditions (Anastasi, 1982). This comparison is the only meaning of the standard scores.

However, a standard score should be understood as a hypothetical construct (MacCorquodale & Meehl, 1948; Morris, Higgins & Bickel, 1982) and to apply this construct to a child's performance is to commit the logical fallacy of affirming the consequent by assuming an undistributed middle term (Algozzine, 1980). In other words, the norm group is judged to possess a certain property: a given age-level of development, for example. The norm group is then found to receive a certain score on the test. Finally, the child of interest is found to receive the same score on the test. Therefore, the child of interest is concluded to possess the same age-level development as the norm group. However, this conclusion can only be logically applied if the middle term is undistributed: only children with the given age-level development receive that score on the test. Unfortunately, those same scores are typically distributed across a wide variety of children with actually differing age-level development (Baer, 1970). Children with very different skills receive the same test scores; this is particularly true for children who have disabilities. When this wide distribution

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Focus on Science: Standardized Assessments Cont'd

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of scores occurs, the application of the hypothetical construct to experimental results is rendered tenuous. Thus the meaning of the standard score becomes difficult to understand.

The application of norm references to experimental results through the use of standardized assessments is further complicated by the questionable validity of the assessments (Kamin, 1974; Sternberg, Grigorenko, & Bundy, 2001). Each test is organized around a theoretical decision-making process for assigning the original standardized scores to given raw performances. For example in the case of grade-equivalents, the test construction requires a process of deciding which performances or groups of children qualify as the reference standard for a given grade level. Given the variety of curriculums and student performances currently found, this decision-making process is open to question.

This problem is one major reason for the wide distribution of scores. The usual means of judging grade-level performance is to find students who are in a given grade according to the criteria of the participating school district. These criteria vary widely across schools, administrators, and teachers. The advocacy of individual parents, the social skills of individual students, and the age of the students also are factors that determine grade-level. Remember also that the standard scores reflect grade-level at one-month intervals. The variability of this assignment process is then multiplied by the variability of the performances of the given students in the norm group on the day that they sat for the test. Age-equivalents have similar difficulties, given the wide variability in development across children at any given month of age. When Intelligence Quotients are examined, the meaning is much less clear. There is no outside standard for an Intelligence Quotient, save the results of another I.Q. test.

It might be argued that, if not understandable, at least the standardized testing procedure yields some replicable score that is understandable by the reader of a research report, at least in terms of within-subject comparisons. Another factor that might give the scores some utility is the large sam-

ple size of the norm group, thus averaging out the kinds of discrepancies described above. However, even these assumptions may be misleading, as will be discussed below.

To begin with, the norm group is typically not large enough to provide a full set of empirically-derived standard scores (Horst, 1976). Typically, the norm group is composed of either one or two samples per grade, age, or mental-age stratum. All other gradations within the stratum are arrived at by interpolation. For example, a grade equivalent is often based upon testing only those children who are theoretically judged to be at even-grade-level and grade-level-plus-nine-months. All other equivalents within that grade level are arrived at by interpolation. The interpolation process typically assumes regular growth across the grade level. This process, however, is more likely to be uneven, in particular, showing a loss of performance during the last three months of the school year (summer recess). As such, a given raw score performance could be typical of three different grade equivalents within each grade level, but this awkward relationship is smoothed out by the graduated interpolation of scores to create a one-to-one relationship of raw and standard scores. This procedure, then, can result in an unwarranted apparent growth when no growth is more likely to be the case. In an experimental study, this procedure can show a control condition to result in an unwarranted growth of performance that may mask the relative growth of an experimental intervention. Such an effect may be a possible source of the poor data seen in the Follow-through experiments (Bushell, 1978), and may routinely restrict the apparent effects of experimental interventions (Greenwood et al., 1984).

A related problem occurs when the standardization norm groups are not large enough to provide a full distribution of possible standard scores. Typically, 67 percent of the standard sample receive scores within a single stratum, 28 percent receive scores within the neighboring strata, and 5 percent receive scores within the other strata. In a typical case, where an apparently large sample of 1000 subjects is tested across 10 grade levels,

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Focus on Science: Standardized Assessments Cont'd

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this might amount to a sample of 67 subjects serving as the norm group for a given grade equivalent, 10 serving as the norm group for the grade-equivalent-minus-one-year, 18 serving as the norm group for the grade-equivalent-plus-one-year, and 5 subjects serving as the norm group for all other grade equivalents. The 10 versus 18 discrepancy would be the result of random variation in subject performance. The five extreme scores would then be thrown out as unreliable and all other grade equivalents be based upon a theoretical extrapolation of the scores of the three groups of only 67, 18, and 10 subjects to all of the other strata. This is a particular problem for research in developmental disabilities, where the majority of scores are likely to be below grade level, and thus primarily based upon theoretical extrapolation from a small test sample.

Another theoretical process determines comparisons between differing scores. At each stratum of a test, a child's standard score is based upon a different set of assessment items and peers. Here, two children, who are tested at different levels of the test, have performances which are based on different items and norm referenced against different samples of peers. Therefore, a score derived from one stratum cannot be directly compared to those from a different stratum. If a child's experimental progress is across two strata, then the pre-post comparison is of two different performances which are only comparable in terms of the theoretical premises of the construction of that test.

Similarly, standardized intelligence tests are actually designed to eliminate change by continually renormalizing test results across each stratum of the standardization sample. Therefore, if a child's achievement spans two or more strata, the resulting scores are to be expected to be the same, rather than improved. Not only are such comparisons (across strata) of standardized scores inappropriate, but they may yield data which suggests a loss of gains due to the planned regression of the scores through the normalization procedure.

The standard scores of most tests are also not standardized for the common practice of averag-

ing a diverse experimental group's performance in any meaningful way. Further, the standard scores are not standardized cross-sectionally to show change in a single child's behavior. Finally, when experimental groups are matched on standardized scores, these matches are inappropriate when the children were tested at different strata, as is common (Thurston, 1977). In order to avoid the logical problems discussed above, experimental group averages should actually only be referenced to normal groups who received the same test items and who had the same characteristics of age, grade etc as did the experimental subjects. Given the problems with the norm-referenced tests, the use of criterion-referenced standardized assessments has much to offer. Comparisons of subject performance to the criteria alone will yield results which are much more easily understood by the reader of the report.

Now the use of standardized IQ and adaptive behavior scores are very helpful in communicating the impact of an intervention to broad audiences. In fact, if a child who previously had scored in the developmentally delayed range, is now testing within the normal range, that is a substantial measure of typical performance. However, as discussed, it is by no means the only measure of effective progress. In practice, that is why we use all of these forms, as well as a broad battery of behavioral measures, and consider the most valid predictor to be the multi-modal assessment.

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Focus on Science: Standardized Assessments Cont'd

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ASAT

Providing Accurate, Science-Based Information - Promoting Access to Effective Treatment

Team ASAT: Racing to the Finish Line!

By Ruth Donlin, MS, ASAT Board Member



The Association for Science in Autism Treatment (ASAT) is excited to be participating again this year in the NYC marathon. Team ASAT has been busy training and preparing for this marathon, which is on November 2, 2014.

The goal and mission of (ASAT) is to educate consumers by disseminating information about evidence-based treatments for the Autism Spectrum Disorders. There are hundreds of treatments offered leaving consumers overwhelmed from not knowing the difference between unproven interventions versus science-based research that guides effective intervention.

Team ASAT currently needs two more runners to complete our team. If you are interested, please contact Ruth Donlin at asatevents@aol.com or send this information to those you think may be interested!

Team ASAT consists of Bobby Newman as the returning team captain, and new runners, Leif Albright, Kaseedee Jermain, and Laurie Wennerholm. In addition, we have Alex and Jamie Schneider, diagnosed with autism, who ran for ASAT in last year's NYC Marathon. ASAT is proud

of our team and hope you will consider supporting our runners by reviewing their biographies and Crowdrise links, where individual donations can be made.

Bobby Newman serves as Team ASAT's honorary captain and has been working in the field of Applied Behavior Analysis for over 25 years. His books are

popular introductions to ABA and the Autism Spectrum Disorders.

This is Bobby's 15th marathon and third NYC marathon, following in the footsteps of his marathoner father, Leo Newman.

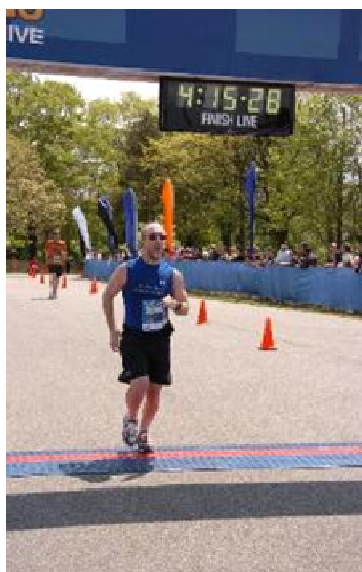
Leif Albright, MA, BCBA has been working with



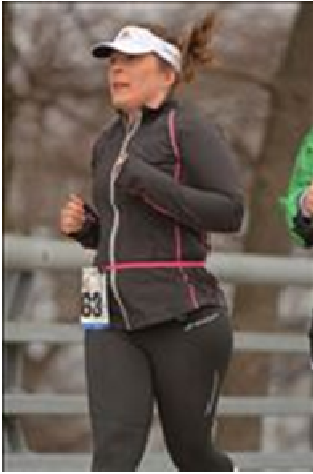
an array of learners using the principles of applied behavior analysis since 1995. Mr. Albright began working with individuals with autism while at Douglass Develop-

mental Disabilities Center where his professional experience included classroom instructor, home-school consultant, and program coordinator. Since 2004 Mr. Albright has worked as an independent consultant to numerous public and private school-based programs across the tri-state area to learners with a variety of developmental and intellectual disabilities. He is currently working towards a PhD in Applied Behavior Analysis at Caldwell University. The only other area to rival his passion in ABA is running. The 2014 New York Marathon will mark Leif's third marathon, as well as the completion of one more item from his bucket list. The Association for Science in Autism Treatment is an organization that Leif's entire family has supported for years. There is no greater honor than to be able to run for this organization. You can support Leif and contribute to his Crowdrise page at www.crowdrise.com/ASAT2014NYCMarathon/fundraiser/leifalbright.

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NYC Marathon Cont'd

(Continued from page 26)

Kaseedee Jermain is a mom, runner, athlete and more. She is a Certified Personal Trainer/Pilates Instructor who specializes in weight loss and fitness nutrition. After losing over 130 lbs she decided to see what her body was capable of. She began running and quickly fell in love. She has completed one marathon and multiple half marathons and

5K's. She is excited to run the NYC Marathon for such an amazing cause!! Kaseedee decided to run with Team ASAT with the inspiration of two amazing little boys, Brian and Krason, both of whom are diagnosed with an autism spectrum disorder and have amazing inspiring families! She is honored to be running for both boys and cannot wait to spread awareness and raise funds for ASAT! Help Kaseedee reach her goal at www.crowdrise.com/ASAT2014NYCMarathon/fundraiser/kaseedeejermain.

Alex and Jamie Schneider are 24 year old identical twins. Each is profoundly autistic with limited communication skills or understanding of safety in the community. However, both are accomplished runners and love to run! Both young men have completed seven marathons to date, including three Boston Marathons, two Hamptons Marathons, one Marine Corp Marathon and last year's New York City Marathon. This year's NYC Marathon will be their eighth; and once again, they will proudly be running to raise funds for ASAT. Alex in particular has an in-



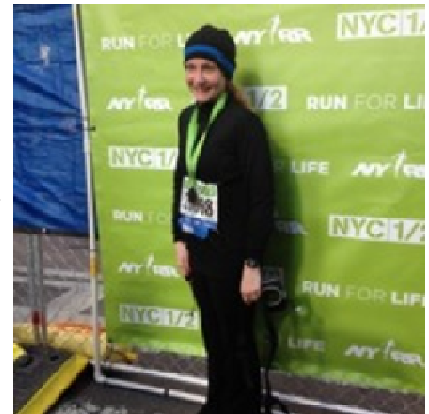
credible gift of speed when he races; his personal record was last year's NYC Marathon where he crossed the finish line in 3 hours, 14 minutes and 36 seconds. Alex and Jamie are not able to run alone. They will be running with guides whose sole responsibilities are to set the pace, help the boys navigate the course and hydrate when needed. If not for the altruism of the running guides, the Schneider twins would not be able to compete in these races.

Last November, ABC's "Good Morning America" was so inspired by the Schneider twins, that they interviewed the family, filmed the boys in training, and aired two exclusive video clips about them which can be viewed on ASAT's home webpage!

Help support these inspiring young men at www.crowdrise.com/ASAT2014NYCMarathon/fundraiser/alexandjamieschneider and contribute to their efforts for ASAT.

Laurie Wennerholm, MA, CCC-SLP, BCS-S has

been running for over 10 years and is a clinician/researcher who believes that the quality of research studies is critical. She has chosen to run for ASAT because of its commitment to quality research and for personal



reasons. She has a nephew, Nicholas Lombardo now age 19, who has autism and inspires her every day. He has battled each and every day of his life to deal with things that a person without autism is incapable of understanding. He, with the amazing support of his parents, grandparents, aunts and uncles as well as cousins and friends, has made great strides in his ability to communicate, care for himself and connect with those around him. You're your support for Laurie at www.crowdrise.com/ASAT2014NYCMarathon/fundraiser/lauriewennerholm.

Please consider joining us November 2nd to help cheer on and support our team!



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Consumer Corner: The Autism Intervention Training Video Series

A major obstacle for every parent who organizes, manages and maintains an autism therapy program is the constant training of new tutors. The process can be expensive, logistically problematic and potentially inefficient as it involves extensive education, considerable observation and hours of direct supervision. In this issue of Consumer Corner, we focus your attention on a free, online training video series that can be used to educate new therapists prior to them working with or observing your child and, thereby, shortening the time it takes to train a new team member.

Sabrina Freeman, PhD
Consumer Corner Coordinator

The Autism Intervention Training Video Series

Reviewed by: Sarah R. Jenkins, MA, University of Kansas

As stated eloquently by Queen Elizabeth II, “It’s all to do with the training; you can do a lot if you’re properly trained.” The Autism Intervention Services Program at the University of New Brunswick, who developed training videos as a way to teach their staff-in-training (and the public) how to implement common behavioral techniques, may also share this sentiment. The [video series](#) is intended for individuals who are unfamiliar with, or just starting to learn the principles and empirically-based procedures that are commonly used within Applied Behavior Analysis (commonly known as ABA). The videos are freely available for anyone to access and include short (less than 15 min each) training videos comprised of narration, on-screen text, and video clips depicting each component skill, and is intended to be paired with lecture-based materials. Although lecture content is not provided on the website, the videos can be incorporated into presentations or courses designed to teach learners these specific skills. Topics covered by the videos include discrete-trial training, reinforcement, prompting, incidental teaching, and generalization. Below is a review of the discrete-trial training, reinforcement and prompting videos.

Discrete-trial training is a highly structured teaching procedure that is made up of individual units or trials. Each trial consists of an instruction, the learner’s response, and a consequence (Green, 1996). Discrete-trial training is often implemented in a one-on-one setting and is individualized (e.g., use of stimuli, pace, prompting strategies) for each learner (Green, 1996). This teaching technique can be a successful method for teaching various skills such as language development (e.g., receptive, tacting, intraverbals), imitation, and conversational skills, among others (Smith, 2001). Depending on the setting, the person delivering the discrete-trial training may vary (e.g., teacher, paraprofessional, parent); however, it is important for teachers working with individuals with autism to be trained in how to implement empirically-supported techniques, such as those described within the video series. When paired with other training approaches, such as didactic instruction, practice, and performance feedback from a trained supervisor, these videos may be helpful tools to teach professionals-in-training how to implement behavior analytic techniques.

Component skills (i.e., implementing the discrete trials, providing reinforcement, using prompting) nec-

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Consumer Corner: The Autism Intervention Training Series Cont'd

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essary to teach using discrete-trial training are taught in three video segments available in English on the Autism Intervention Training Video website: <http://vimeo.com/channels/287691/41718685>. Each segment defines the target skill using technical language and also provides laymen's terms with on-screen text, which make it easy to follow along. The videos also consist of numerous models for how to implement the skill.

Chapter 1: The Discrete Trial:

- Introduces discrete-trial training and its component skills
- A graphical display depicts the component skills (i.e., discriminative stimulus, prompting/waiting for a response, reinforcement/correction) and each is briefly defined
- Provides guidelines for implementing each skill
- Individual video clips highlight teachers using the skill with a learner with autism

Chapter 2: Using Reinforcers:

- The topic of reinforcement is reviewed from the previous chapter and additional information is provided:
- Why reinforcers are used
- Types of reinforcers
- General guidelines for providing reinforcement
- The importance of and how to establish new reinforcers
- Includes numerous and varied exemplars of providing reinforcement within a one-on-one setting
- Reviews token systems and briefly mentions the use of informal preference assessments

Chapter 3: Prompts:

- Discusses the use of prompts during instructional time
- Describes the six most common types of prompts (i.e., physical, modeling, gestural, visual, positional, verbal)
- Step-by-step narration for implementing each prompt
- Video clips depict the use of each prompt with a learner with autism
- Introduces and models the concepts of prompt hierarchies and prompt fading

Overall, the format of the videos makes the topic easy to understand and accessible, even for those not yet familiar with behavior analytic procedures. If paired with other training approaches, such as practice and feedback, the instructions and models provided for how to implement the target skill may be an effective and efficient way to train individuals who are working with learners with autism.. We applaud The Autism Intervention Services Program at the University of New Brunswick for their efforts in helping to disseminate information about behavior analytic techniques to the public and Ronald McDonald's House Charities for funding the development of the video series.

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Consumer Corner: Big Red Safety Tool Kit

Those of us who are responsible for a person with autism must constantly monitor the environment due to the overwhelming number of safety concerns when it comes to the physical well-being of our children and adults. In this issue of Consumer Corner, we highlight the free, downloadable Safety Toolkit created by the National Autism Association to reduce the risk of wandering and promote safety measures in the lives of those with autism.

Sabrina Freeman, Ph.D.
Consumer Corner Coordinator

Big Red Safety Tool Kit

Reviewed by: Elizabeth Callahan, BCaBA, Caldwell University

Wandering, also referred to as “elopement,” bolting, or running (i.e., “the child is a runner”) is a serious behavioral concern among both parents and professionals working with children with autism spectrum disorders. Several high profile cases involving children with autism have highlighted the dangerous and potentially fatal outcomes of wandering. This has been a focus of many of our Media watch letters including [The Washington Times, January 29, 2014](http://www.asatonline.org/media_watches/120) (www.asatonline.org/media_watches/120), and [The New York Times, November 12, 2013](http://goo.gl/2BUh4J) (<http://goo.gl/2BUh4J>). A recent survey (Anderson, et al., 2012) found that approximately 49% of children with autism have attempted to elope from a safe environment at least once after four years of age.

The National Autism Association (NAA) has developed the “Big Red Safety Toolkit” aimed at helping the parents and caregivers of individuals with autism to mitigate the likelihood of wandering. The toolkit includes the following:

- Caregiver Checklist
- Family Wandering Emergency Plan (FWEP)
- First-responder profile form.
- Swimming Lessons Tool
- Root-cause Scenario & Strategies Tool
- Stop Sign Prompts
- Sample Social Stories
- Caregiver Log
- Sample IEP Letter
- How to Get Tracking Technology In Your Town
- General Awareness Letter
- Five Affordable Safety Tools



(Continued on page 32)

Consumer Corner: Big Red Safety Toolkit Cont'd

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- Caregiver Resources One-sheet resource

The Big Red Safety Toolkit can be obtained by simply searching the Internet, it can then be downloaded as a [PDF document](#). There are wonderful resources, links to tools and services for parents contained in this free down downloadable toolkit. Also, it provides families with a number of helpful documents that are ready to be printed and completed. One of the strengths of the Big Red Safety Toolkit is that it addresses wandering behavior both at home and in the school, and provides parents with ways to ensure that the community and emergency workers are alerted to the specific risks.

Many of the tools included are preventative in nature, that is to say that they decrease the likelihood of a child from wandering through the use of safety tools (e.g., alarms) and prompts that would (hopefully) prevent an individual from leaving, given adequate teaching, (e.g., “Stop” signs). The toolkit also included additional safety measures to protect children with autism who may still wander and find themselves in dangerous situations.

Given that drowning is the leading cause of fatal outcomes of instances of wandering, the inclusion of Swimming Lessons Tools is critical in the overall picture of keeping children with autism safe. This resource is a list of suggestions about swimming lessons, including important considerations and a step-by-step guide regarding how to find appropriate swimming lessons. It also identifies specific and affordable tracking-technologies available to families in the event that preventative measures fail; these devices will hasten search missions. In addition, this list will help cut back on the amount of overall time that a family may spend researching such technology and allow them to focus on other aspects of creating a safe environment for their child.

Among the wonderful resources contained in the Big Red Safety Toolkit are those that will help families to create social stories and others that seek to help parents identify the root-causes of their child’s wandering (i.e., Root-cause Scenario & Strategies Tool). While some parents may feel comfortable creating and using these tools on their own, it may be helpful to enlist a professional such as a behavior analyst to assist the family. For instance, the Root-Cause and Strategies tool may be challenging for some families and additional support and guidance may be required to correctly identify the conditions under which the individual is likely to wander.

The NAA also has a “Big Red Safety Shop” that families can access through their [website \(http://goo.gl/MdiHQ5\)](http://goo.gl/MdiHQ5) where additional items related to the Toolkit can be purchased, including alarms, visual aids, identification wristbands, and the Big Red Safety Box. The Big Red Safety Box costs \$35.00 and includes not only the same free printables available in the Big Red Safety Toolkit but many of the items suggested for purchase within it, such as 2-door/window alarms with batteries, one RoadID personalized, engraved Shoe IDTag, 5 laminated adhesive stop sign visual prompts, 2 safety alert window clings and 1 red safety alert wristband.

The NAA has created an excellent usable toolkit for the families of individuals with autism who are prone to wandering behavior. When combined with close supervision and safety skills training programs this toolkit has many meaningful resources that will help to ensure the safety of children and adults in the autism community.

Reference

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Does Your Agency Share ASAT's Values? ASAT believes that individuals with autism have the right to effective treatments that are scientifically-demonstrated to make meaningful, positive change in their lives. We believe that it should not be so challenging for families to find accurate information about the efficacy of various autism interventions. ASAT works toward a time when ...

- ⇒ All families will be empowered with skills in identifying and choosing the most effective, scientifically-validated interventions for their child.
- ⇒ The media will educate and not confuse parents by providing accurate information and asking the right questions.
- ⇒ All providers will be guided by science when selecting and implementing interventions and use data to demonstrate effectiveness.

What It Means to Be a 2014 Sponsor:

ASAT's 2014 Sponsors have indicated their support of the following tenets:

1. All treatments for individuals with autism should be guided by the best available scientific information.
2. Service providers have a responsibility to rely on science-based treatments.
3. Service providers should take steps necessary to help consumers differentiate between scientifically validated treatments and treatments that lack scientific validation.
4. Consumers should be informed that any treatment lacking scientific support should be pursued with great caution.
5. Objective data should be used when making clinical decisions.

Become a 2014 Sponsor Now!

These sponsorships not only provide financial support used specifically for our dissemination efforts, but also send a clear message that ASAT's vision is shared by others within the professional community. The tasks of educating the public about scientifically-validated intervention and countering pseudoscience are daunting ones, and ASAT appreciates the support of all of our sponsors.

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Media Watch

Media Watch is a subcommittee of the Public Relations Committee whose primary initiatives are: Educating the public about effective autism treatment through proactive contact with the media; Responding to inaccurate information or proposed treatments described by the media (as it relates to scientific findings about their effectiveness); and supporting accurate media depictions of empirically-sound interventions for individuals with autism spectrum disorders. We seek to increase awareness of the scientific underpinnings surrounding autism treatment that can lead to real hope for those touched by this disorder.



Barbara Jamison, BA

Media Watch Lead

○ **ASAT Responds to DisabilityScoop.com's "City Says No To Boy's Therapy Chickens"(January 27, 2014)** **face legal action for false claims about products to cure autism" (May 8, 2014)**

At a time when there are 400+ advertised treatments for autism, journalists must exercise care and caution about how they pitch their message to the public, particularly the potential to misuse the term "therapy." http://www.asatonline.org/media_watches/118

○ **ASAT Responds to HuffingtonPost.com's "Complementary And Alternative Medicine Use Common In Children With Autism, Study Says" (March 25, 2014)**

A recent study indicates that the use of complementary and alternative medicine (CAM) is common in families of young children with autism...but is it beneficial?

http://www.asatonline.org/media_watches/119

○ **ASAT Responds to WashingtonTimes.com's "Autistic NYC boy's death prompts tracking plan" (April 25, 2014)**

Sadly, since 2011, 41 American children with autism have died after straying from their caregivers.

http://www.asatonline.org/media_watches/120

○ **ASAT Responds to Upi.com's "Companies may**

The FDA has taken a stance concerning products and therapies claiming to treat or cure autism: false and misleading claims should result in legal action to protect the consumers. http://www.asatonline.org/media_watches/122

○ **ASAT Responds to HealthDay.com's "FDA Warns Against Bogus Autism Treatments" (May 12, 2014)**

Many treatments for autism have been prematurely adopted by professionals and hastily embraced by consumers, often helped along by inaccurate reports in the media.

ASAT's response: http://asatonline.org/media_watches/123

○ **ASAT Responds to BangorDailyNews.com's "Old Town athlete, honor student shares story of overcoming 'bleak diagnosis' of autism" (May 17, 2014)**

There is a dearth of services available today to young adults with autism so it must remain our collective responsibility as a society to ensure that treatment decisions are grounded in science, responsible, individualized, and informed by data to assess progress. http://asatonline.org/media_watches/124

(Continued on page 35)

Media Watch Cont'd

(Continued from page 34)

○ ASAT Responds to AutismSpeaks.org's "Shakespeare Therapy for Autism" (June 11, 2014)

William Shakespeare may well have been astonished to know that his writings would provide the basis for a "therapy" 400 years later. http://asatonline.org/media_watches/125

○ ASAT Responds to The ColbertReport.cc.com's "Preventable Diseases on the Rise - Paul Offit" (June 25, 2014)

Autism spectrum disorder (ASD) and its causes and treatments have been frequent topics in the mass media for a long time; however, unfortunately, sensationalist presentations still make up the majority of the news. http://asatonline.org/media_watches/126



Our heartfelt gratitude to **Larry and Kathy Hannon** of Old Town, Maine, for many years of support! Larry and Kathy have raised thousands of dollars for ASAT through their fund raising jars placed in their Old Town, Bangor, and Freeport, Maine Dairy Queen stores.



ASAT

Providing Accurate, Science-Based Information - Promoting Access to Effective Treatment

Do You Believe in Science-Based Autism Treatment? So Do We. How About a Volunteer Opportunity with ASAT?

Lauren Schnell, MEd, BCBA, ASAT Externship Coordinator

The great work that ASAT does in promoting science-based treatment for individuals with autism could not happen without our volunteers. Currently, ASAT has over 40 volunteers and externs who work tirelessly to fulfill their commitment to evidence-based autism treatment. Volunteers have the opportunity for professional growth and networking through collaboration with an array of knowledgeable, seasoned professionals who aim to promote the advancement of science-based treatments for autism.

There are many important roles that volunteers play within the organization. Some of these activities include, but are not limited to:

- Helping to improve upon and promote our website, www.asatonline.org;
- Helping to promote our newsletter, [Science in Autism Treatment](#);
- Writing journal article synopses and other content related to autism treatment;
- Monitoring and/or responding to misinformation from the media and promoting accurate information through our Media Watch efforts;
- Reviewing website content and monitoring website navigation;
- Helping to compile and update links and resources for visitors to our website;
- Creating databases; and
- Participating in and assisting with fundraising activities.

To learn more please see our [Volunteer Announcement](#). If you are interested in becoming a volunteer, please submit the [ASAT Volunteer Application](#). It is important that volunteers communicate their specific interests so that their service to ASAT can be a mutually satisfying experience.

"The Externship has been a valuable professional experience that has helped me to develop a variety of professional skills while also contributing in a meaningful way to the dissemination of quality information on science-based autism treatment. " ~ Elizabeth Callahan (Hoboken, New Jersey)

If you are interested in a more extensive and structured experience, please consider a 150 hour Externship with ASAT. We accept Externs with a wide arrange of backgrounds from high school through advanced graduate training. Externship activities revolve

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Externship Cont'd

around the following:

- Writing for our quarterly newsletter or for our website (e.g., Clinical Corner);
- Proofreading content of our quarterly newsletter;
- Learning how to critically evaluate published research;
- Learning about grant writing and participating in all aspects of the process starting with grant research and selection, and culminating in actual submission;
- Learning how to evaluate and critique media representations of autism treatment;
- Learning about fundraising conceptualization, development, and execution both at the community and national levels;
- Actively participating in social media and learning about its use to convey information to the autism community;
- Learning about autism services in other parts of the world and engaging in efforts to promote dissemination and awareness of science-based treatments;
- Working alongside Board Members in an array of writing, editing and fundraising activities; and
- Participating in monthly Extern conference calls to share ideas, update on externship activities, and discuss seminal articles.
- Working toward the completion of three individualized goals (mutually agreed upon by the Extern and ASAT).

“Working with ASAT has been a great experience. I’ve had the opportunity to use my strengths and build upon them by writing in the newsletter, learning about the grant application process, and collaborating with other team members. Most of all, my experience has enhanced my skepticism and ability to look for the facts.” ~ Alice Walkup (Los Angeles, California)

“I am honored to be involved with an organization that is committed to helping families and professionals draw the line between unsubstantiated treatment options and behavior analytic interventions, grounded in the best available scientific evidence. Working alongside knowledgeable board members has provided me with many valuable research, writing, and social media opportunities. Thank you ASAT!” ~ Leanne Tull (Toronto, Canada)

If you are interested in applying to the Externship Program, please submit the [ASAT Externship Application](#). We look forward to hearing from you. If you are interested in other ways you can support ASAT, please visit our [“How You Can Help Page”](#)

ASAT Coordinators, Externs, and Committee Members

In addition to our Advisory Board, a number of Coordinators, Externs, and other Volunteers lend their time and talents to support ASAT's mission and initiatives. These are our helping hands.

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Editing Coordinator

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Externship/Volunteer Coordinator

Lauren Schnell, MEd, BCBA

Externship Assistant. Coordinator

Victoria Mason

Event Co-Coordinator

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Grant Research Co-Coordinators

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Co-Coordinators

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ASAT's Newsletter,

Science in Autism Treatment

Justin DiScalfani, PhD, BCBA-D

Caroline Simard-Nicolas, MS, BCBA

Thank You!

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