DIRECTIONS

NRRTS PRACTICE GUIDELINES FOR CRT SERVICE, PREVENTATIVE MAINTENANCE AND REPAIR

Page 44

THE OFFICIAL PUBLICATION OF THE NATIONAL REGISTRY OF REHABILITATION TECHNOLOGY SUPPLIERS | ISSUE 5 OF 2023 | $5.00 USD

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FROM THE EDITOR-IN-CHIEF

October of 2023 is here! We're excited to present another jam-packed issue of DIRECTIONS. NRRTS is pleased to present "NRRTS Practice Guidelines for CRT Service, Preventative Maintenance, and Repair." Thanks to Mark R. Schmeler, PhD, OTR/L, ATP; Jack Fried, MRT; Richard M. Schein, PhD, MPH; Gede Pramana, PhD; Madelyn Betz, MRT, ATP; Weesie Walker, ATP/SMS; Mark Sullivan, and Rita Stanley for their efforts in carrying out this important document. We encourage you to review and implement these guidelines into your practice.

Amy Odom, BS

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NRRTS REGISTRANT – RENEWAL FAQS

Renewing your NRRTS Registrant status
requires action each year.

I'M A NRRTS REGISTRANT, WHAT NOW?

NRRTS Registration is annual – meaning you will need to complete 1.0 CEU (10 hours) annually, pay the renewal fee and submit a completed renewal form.

IS MY NRRTS REGISTRATION AUTOMATICALLY RENEWED?

No, you will need to complete 1.0 CEU, pay the annual renewal fee and submit a completed renewal form.

HOW CAN I DETERMINE WHEN MY NRRTS REGISTRATION EXPIRES?

You can check the NRRTS website, or you can review your hard copy NRRTS certificate.

WHERE DO I OBTAIN CEUs?

CEUs are readily available for FREE from the NRRTS Learning Portal. We suggest Registrants complete a course each month so when annual renewal comes, all the Registrant must do is let NRRTS know.

CAN I USE THE SAME CEUs EACH YEAR?

No, you must complete new CEUs each year. Once education has been used, it cannot be used again.

WILL NRRTS NOTIFY ME WHEN MY RENEWAL IS DUE?

Yes, NRRTS will advise you 30 days before your renewal expires via email.

DOES NRRTS HAVE ACCESS TO EDUCATION I'VE COMPLETED WITH OTHER ORGANIZATIONS?

No, you will need to submit any education completed outside of NRRTS.

WILL NRRTS ACCEPT CECs FOR RENEWAL BECAUSE RESNA DOES?

While RESNA does allow up to 10 hours of continuing education credits (CECs) for a biannual renewal, the NRRTS board recognizes that continuing education units (CEUs) are a higher standard for education. To be awarded CEUs, the course must meet certain criteria that ensures the material is relevant, learning outcomes are clearly defined, references are current, and content is not product specific. The presenter must also meet a certain criterion as a subject matter expert.

There is no standard for a CEC. It can be an in-service, an activity or other event. Because ATP certification covers many different areas of assistive technology, RESNA recognizes that that not all certificate holders have access to CEUs.

Renewal FAQS Continued on Page 59

NRRTS TO THE RESCUE

Written by: **CAREY BRITTON, ATP/SMS, CRTS®**

> I WAS REMINDED RECENTLY TO "LEAD WITH LISTENING AND LOVE," AND WHEN WE SEE THERE IS AN ISSUE, TO GET INVOLVED AND ARGUE FOR A BETTER OUTCOME. YOUR VOICE, COMMITMENT AND PASSION ARE THE ONLY WAY TO IMPACT CHANGE.

As we move out of summer and into the fourth quarter of 2023, I have a confession to make. This year has passed by quickly, and I received a notice from my company that I am 90 days away from re-certification and found I am a few CEUs short. I hear this from a lot of my peers, and the good news is I have 90 days, with unlimited access to NRRTS On-Demand CEUs. I am looking forward to the upcoming live webinars being offered over the next few months.

Thank you to all who voted in the slate of new NRRTS board members. We appreciate those serving and the registry members who help keep NRRTS the best and only organization that advocates and supports the registered technology supplier (RTS). We welcome three former board members, Anne L Kieschnik, ATP, CRTS®, Denise Harmon, ATP, CRTS® and Kathy Fallon, ATP, CRTS®, and two new members, Parker Fadler, ATP, CRTS® and Chad Filer, CAPS, ATP/SMS, CRTS®, to the incoming board. We are excited about the diversity of knowledge and interest allowing NRRTS to grow.

Thank you to Tim Robinson, ATP/SMS, CRTS® and Doug Crana, ATP, CRTS® for all they contributed during their service, as they are leaving the board at this time.

Also leaving NRRTS board is Gerry Dickerson ATP, CRTS®, past president. Dickerson's larger than life personality will be missed at our regular board meetings, however he will remain on the past president committee. I smile when I hear someone say, "What would Gerry do?" Dickerson is appreciated for his dedicated commitment to helping steer our industry and mentoring many of us on how to get involved, lobby and help make a difference in our small by wonderful industry.

There is a commonality of the members involved in committees and on the NRRTS board, to raise people up, increase the awareness of NRRTS and to advocate for a better industry for the RTS and the consumer.

There continue to be many challenges that affect our ability to provide high quality equipment and service provision. I am pleased and proud to be involved and where I can help make a difference.

I challenge each of you reading this to increase your awareness of where you can improve the industry. I was reminded recently to "lead with listening and love," and when we see there is an issue, to get involved and argue for a better outcome. Your voice, commitment and passion are the only way to impact change.

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Carey Britton, ATP/SMS, CRTS®, is the branch manager and seating and mobility specialist for National Seating & Mobility in Pompano Beach, Florida. He has worked in the Complex Rehab Technology industry for 30 years and previously owned Active Mobility Center. A longtime NRRTS Registrant, Britton is the current president of NRRTS.

DO WHAT YOU LOVE AND CALL IT WORK

Written by: **ROSA WALSTON LATIMER**

With a background as a licensed orthotist, Patrick Shaner and his son, Tim Shaner, established Rehab Support Systems (RSS) in Pomona, California, in 1996 and began providing wheelchairs to patients in long-term care facilities throughout the state of California. "Dad and I began building wheelchairs in his garage when we began RSS and handled all facets of the business – evaluations, funding and billing," Tim Shaner, ATP, RRTS®, said. "Dad left in 2016 for another venture so I purchased his shares and elected Dave Namehas, ATP, RRTS®, as a partner and C-level employee to aide in running and growing the organization. As with any business, we've had our challenges, but we've also had many successes in a field that I love. COVID-19 had a drastic impact on RSS, resulting in the unemployment of 15 of the 18 employees for only 60 days ... but we all know how that story goes. Today Rehab Support Systems is climbing back up the ladder with eight employees, and we are steadily growing as leaders in the long-term care arena."

Trevor Shaner, RRTS®, ISWP, and Tim Shaner, ATP, RRTS®.

Tim's son, Trevor, joined RSS as a part-time employee, working after school when he was 15 and is now part of the full-time staff of RSS, making it a third-generation family business. "Trevor was born a couple of months before Dad and I started the company so he's been exposed to this environment his entire life," Tim said. "When he was in high school, he would come to the office almost every day after school and help wherever he could."

TIM, AT ANY TIME DID YOU CONSIDER A DIFFERENT CAREER?

I originally went through all the required schooling to become a police officer. I had moved to Aspen, Colorado, when I received the letter of acceptance to the San Bernardino County Sheriff's Department in California. I was proceeding with that when my family expressed their concern about my working in what could be a dangerous profession. They didn't feel comfortable with me pursuing that career. I took their concerns to heart and began to look at other options, attending programs through the University of Chicago to specialize in orthotics/prosthetics. I worked with my dad in that field, and together, we transitioned into providing wheelchairs while employed by HealthSource. The transition to this work was seamless, and I've never regretted my decision.

TREVOR, WHEN DID YOU REALIZE THIS WAS THE CAREER YOU WANTED TO PURSUE?

During my sophomore year, I worked part time with my dad, and during my final year of high school, I began to look at my career options seriously. At that time, I was working more in the field with Dad, and I remember vividly when I knew this was the work I wanted to do. We delivered a chair to a lady who had been bed-bound for a couple of months. She was so happy to have a wheelchair and be out of bed; she gave me a big hug and a kiss on the cheek. It only took one sweet lady with a big hug and a kiss for me to realize how much I liked helping others. I knew then this was the work for me. After high school, I worked full time and shadowed my dad and anyone else I

Carlos Roca, Dave Namehas, Tim Shaner and Trevor Shaner.

> IT ONLY TOOK ONE SWEET LADY WITH A BIG HUG AND A KISS FOR ME TO REALIZE HOW MUCH I LIKED HELPING OTHERS. I KNEW THEN THIS WAS THE WORK FOR ME.

could until I had enough clinical hours to apply for the ATP. I'm working on that, and, fingers crossed, I should have the designation soon. I am registered with NRRTS as a RRTS® and am certified with the International Society of Wheelchair Providers. I'm committed to continuing within the family business and wear about 15 different hats! I build wheelchairs, repair chairs in the field, collect assessment data, assist with positioning and make deliveries. Recently, I have been focusing on clinical hours.

TIM, WHAT IS UNIQUE ABOUT A FAMILY BUSINESS?

Absolutely, a family business is unique in many ways. For example, my daughter, Baylee, did not choose this business for her career and is now attending a university in Texas. But she comes to the office when she is in town, and my mother often stops in as we have an open-door policy for all families of the RSS team. This approach to business creates a family environment for everyone. The entire staff feels like a family, and because of that atmosphere, we can look at certain situations and make decisions on our own without considering constraints such as corporate protocol. As a small family business, we can handle any problems we encounter more quickly. We've certainly had denials when we realize we have proposed precisely what the client needs. We consider these situations part of the cost of doing business, and we will give the client our proposed equipment anyway. We get to make those decisions. Everyone is involved, and our staff knows their input in these situations will always be considered. All staff members are involved in our round table discussions, including technicians. Even if we are discussing billing codes, technicians are in the meetings. This inclusion helps us understand what the whole organization is dealing with.

TREVOR, IN ADDITION TO YOUR DAD, IS THERE SOMEONE WHO IS A VALUED MENTOR OR POSITIVE INFLUENCE ON YOUR WORK?

Our general manager and CFO, Dave Namehas, ATP, RRTS®, has positively influenced me. He's been with RSS since 1999, so he's watched me grow up and is like a big brother. Also, our Sunrise Medical representative, Stacy Trotter, ATP, has taught me a great deal and provides ongoing support.

TIM, WHAT POSITIVE CHANGE IN THIS BUSINESS HAVE YOU OBSERVED?

I've seen a different attitude toward wheelchair suppliers and toward those who use wheelchairs. This more favorable viewpoint is in the community, whether in a long-term care facility or the public and also with our funding sources. We reached a point with Medi-Cal, the California Medical Assistance Program, for almost 10 years beginning in 2003 when they were basically rubber stamping everyone with the phrase "facility to provide a variety of types and styles of wheelchairs to meet their needs." It was a time when almost all funding stopped.

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DO WHAT YOU LOVE …

(CONTINUED FROM PAGE 7)

It didn't matter if you submitted for a power chair or a K-4 lightweight wheelchair; everyone got the same response. Now, our partnership with the Medi-Cal Managed Care program is very positive. They are taking a closer look at each case and often using third-party resources to assess our proposals. There has been a significant, positive shift in attitude in the authorization process.

TREVOR, YOU PROBABLY ENCOUNTER MANY NEW EXPERIENCES DAILY, BUT THIS IS DEMANDING WORK. WHAT KEEPS YOU CONSISTENTLY "IN THE GAME?"

RSS certainly feels like family, so I don't dread coming to work. We are fortunate we can do work that we love — trying to better the lives of others. That's very satisfying. And it doesn't hurt to have an espresso machine in the office. That helps with energy!

TIM, GIVE US AN EXAMPLE OF HOW YOU ENCOURAGE YOUR STAFF AND KEEP THEM ENGAGED IN THEIR WORK.

Through the downsizing of staff because of the COVID-19 situation and finding opportunities to try to serve our clients during that time, we've overcome some challenges together. Each of us is involved in every aspect of our business. As a small family business, we all sense the urgency of each department, and together, we focus on the

Tim Shaner (center) with his son, Trevor Shaner, and daughter, Baylee.

needs of our clients. This, combined with an open-door policy that Dave and I have established, enables less of a hierarchy approach, and encourages staff involvement in the success of RSS.

For example, we provided a young patient with a lightweight wheelchair five years ago, and recently, we delivered his first power chair. I asked his permission to take a photo to share the experience with our staff. The photograph is a way for everyone in the organization to see what the result looks like and the impact of our work on the end user and their lives. This helps keep us all motivated and positive about each step of the process of serving our clients and the importance of a good reputation with timeliness and attention to detail.

My next plan for Trevor is for him to be involved in the internal workings of the business — the codes, the data entry, billing and collections, as well as working with manufacturers. All of this comes together so we can survive with the funding we get and continue to serve our clients.

Trevor Shaner (left) and Tim Shaner of Rehab Support Systems are proof that good guys don't always wear white hats.

> KNOWING THAT THE END RESULT FOR OUR CLIENTS BENEFITS THE OVERALL QUALITY OF THEIR LIVES KEEPS ME GOING.

After 27 years in this business, Tim Shaner is still obsessed with his work and enthused about the future of Rehab Support Systems. "Knowing the end result for our clients benefits the overall quality of their lives keeps me going," Tim said. "I don't necessarily have to solve only mobility issues. Providing the appropriate equipment, accommodating individual needs, listening to our client's concerns, and putting that into one, effective package is exhilarating to me. We can also, in some circumstances, ease the burden of the facility staff and family members. It just doesn't get any better!"

CONTACT

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Tim Shaner, ATP, RRTS®, is the owner of Rehab Support Systems in Pomona, California, with his partner, Dave Namehas, ATP, RRTS®. Tim's son, Trevor Shaner, RRTS®, ISWP, is the third generation to work in the family business. He is currently a wheelchair technician but plans a future that includes all facets of the company and the certification as an ATP and CRTS®. The Shaner family not only works together but they also enjoy leisure time together, participating in water sports, skiing and snowboarding.

INDUSTRY LEADER

PRESTON HELPS LEAD MOTION FROM A PLACE OF PURPOSE AND PASSION

Written by: **DOUG HENSLEY**

For Jeff Preston, everything begins and ends with purpose.

"I think the number one thing in our company and our industry is we have a real purpose," he said. "We accomplish things that help individuals live their most vibrant life regardless of ability."

Preston serves as vice president, brand and product for Motion LP, which is Canada's leading provider of mobility and accessibility solutions for seniors and persons with disabilities.

"To me that is a rewarding thing, and as a company and a group, we share that commonality, and we rally around that," he said. "We emphasize it and use the knowledge we have to assist others in helping them live the best life possible."

Preston brought a rich and varied professional background to Motion LP when he joined the team more than 10 years ago. He has more than 30 years of health care experience in assistive devices, having worked in both the private and public sectors as well as retail and manufacturing. All of his previous work now informs both his leadership philosophy and his management approach.

"At the end of the day in this industry, we make such a difference," he said. "We help make the lives of people fulfilling, and that is something that motivates me and keeps me going as a leader in this industry as far as thriving and passing my passion on to others. If you work hard and do everything you can for your clients, the business will become a successful one."

Motion is Canadian-owned and operated and has hundreds of employees who have been serving clients across Alberta, British Columbia, Manitoba, Ontario and Saskatchewan for more than 35 years. The company's recent history has seen a relentless focus on putting the client at the center of everything it does.

"Our company has gone through a cultural transformation over the last five years," Preston said. "We made a concerted effort to put the client front and center in all we do. The client experience we provide people is unique. What a client expects the first time we talk to them.

> I THINK THE NUMBER ONE THING IN OUR COMPANY AND OUR INDUSTRY IS WE HAVE A REAL PURPOSE. WE ACCOMPLISH THINGS THAT HELP INDIVIDUALS LIVE THEIR MOST VIBRANT LIFE REGARDLESS OF ABILITY.

Jeff Preston (right) pictured with Sue Gilpin, CEO of Motion (middle) and Joe Perry, regional director (left) at the 2022 Motion Rehab Expo in Winnipeg, Manitoba, Canada.

Jeff Preston delivers opening remarks at the 2022 Motion Rehab Expo in Toronto, Ontario, Canada.

Jeff Preston (third from left) pictured with (from left) Mike Rathwell, senior operations director, Sue Gilpin, CEO, both with Motion, and representatives from Amylior at the Amylior corporate office in Vaudreuil-Dorion, Quebec, Canada.

Jeff Preston delivers opening remarks at the 2019 Motion Rehab Expo in London, Ontario, Canada.

What they expect when they talk to our employees. We have face time with our clients, and we are in front of them talking to them during a vulnerable time in their life. We have built a brand around that."

With the persistent focus on service, Motion has separated itself from competitors, selling clients on the personal touch and then delivering on the promise.

"I look forward to going to work," Preston said. "I believe in servant leadership, and that's a principle a lot of us practice in our lives, part of our work ethic. We embrace those opportunities, and when those things happen the right way, the company basically runs itself."

Preston's career has been focused on marketing and product roles at a variety of health care companies, and every stop has given him the chance to grow his portfolio of skills and hone his leadership style. Preston's efforts have not gone unnoticed. In 2021, he was appointed to the Accessibility Standards Advisory Council by Ontario's minister of seniors and accessibility.

"I work in an organization that thrives with purpose," he said. "When we go home at the end of the day, we know we've made a difference. Since I joined the company in 2012, we've expanded to 51 locations, and we're the largest and leading mobility and home accessibility company in Canada."

Motion now serves more than 200 markets, including a number of remote areas where it provides important access to products that people might otherwise not be able to obtain.

"From that perspective, I feel good about it," he said. "One of the things we focus on is selling what the client needs, not what we want to sell them. If you always put the client's needs first, you will always be extremely successful."

In his current role, Preston leads the company's brand, product, marketing and clinical education initiatives. During his time with Motion, he has watched the company's devoted employees tackle and overcome challenge after challenge.

"COVID-19 was a challenging time," he said. "There were a lot of challenges with supply chain during the pandemic. Right now, the biggest challenge we're dealing with is a high inflationary period."

Canada, like many other nations, is in a fixed-funding environment, which amplifies the pressures of inflation. The company's costs have increased across the board and working to hold costs down for clients has required a deft and creative touch.

CONTINUED ON PAGE 12

PRESTON HELPS LEAD …

(CONTINUED FROM PAGE 11)

"It hasn't just been supply chain," he said. "It's product acquisition. It's fuel for your vehicles. It's real estate. It's all the costs. There is a lot of pressure there, but at the same time we've done a good job managing that pressure by growing revenues, protecting margins and making sure our people are efficient and have the tools to do their jobs."

At this stage of his career, another primary focus is on helping train, teach and mentor other employees, developing future leaders for the company.

"I am a huge believer in coaching and mentorship," he said. "The relationship between a manager and employees is crucial. It's critical to have open lines of communication and open conversation. It's amazing what those sessions can do for people as far as confidence. They respond to that support, which is integral to their growth and to our retention efforts."

> WHEN WE SAY WE WANT TO BE THOUGHT LEADERS IN THIS INDUSTRY, WE GO OUT AND PROVE IT. WHAT WE'VE DONE HAS BEEN VERY SUCCESSFUL FOR US, AND THERE IS A DIRECT CORRELATION BETWEEN THE CULTURE AND THE FINANCIAL PERFORMANCE OF AN ORGANIZATION.

Jeff Preston (left) pictured with Sue Gilpin, CEO, and David Perry, CFO, both with Motion. All three are wearing pink in support of anti-bullying awareness on the annual Pink Shirt Day in February 2023.

Jeff Preston (right) pictured with Yvonne Paulson, regional manager, Vernon, during a visit to Motion Vernon in the British Columbia Interior in Canada.

Those efforts help create more productive and engaged employees, and Preston said the company has ramped up its efforts to ensure everyone has a voice and is seen.

"We have listening committees throughout the company, and one of the big things we have embraced is an IDEA committee," he said. "They focus on inclusivity, diversity, equity and accessibility. We have voices throughout the company talking about the important issues we need to pay attention to. It gives them a forum and leads to action.

"When we say we want to be thought leaders in this industry, we go out and prove it. What we've done has been very successful for us, and there is a direct correlation between the culture and the financial performance of an organization."

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Jeff Preston is vice president, brand and product for Motion LP, Canada's leading provider of mobility and accessibility solutions for seniors and persons with disabilities. Preston joined Motion in 2012 and leads Motion's brand, product, marketing and clinical education initiatives. He has over 30 years of extensive health care experience in assistive devices across private and public, retail and manufacturing sectors. Prior to joining Motion, Preston spent 20-plus years in a variety of marketing and product roles at health care companies including Centric Health, VGM Group, Drive Medical, Invacare Corporation and Shoppers Home Health Care. An established leader in government relations and advocacy activities within the health care sector, Preston was appointed in 2021 by Ontario's minister of seniors and accessibility to the Accessibility Standards Advisory Council.

FOR KOULOURAS, THERE IS NO RETREAT, NO SURRENDER IN FACE OF ALS DIAGNOSIS

Written by: **DOUG HENSLEY**

Initially, the changes were subtle, slowly creeping into his life, but Spero Koulouras knew something was going on with his body.

"I was coaching softball, hitting balls to players," he recalled. "These 16- and 17-year-olds were very competitive young ladies. They kept asking me to hit the ball harder, and I was thinking to myself, 'Something's wrong; that's all I've got.' I was losing pop off the bat and zip on my throws. Those were the earliest indicators."

As it turned out, those were only the first of many abilities that would be taken away from Koulouras, a former Silicon Valley engineering executive. Four years ago, his worst suspicions were confirmed when he was diagnosed with amyotrophic lateral sclerosis (ALS), more commonly known as Lou Gehrig's disease. ALS attacks the nervous system and gets progressively worse over time. There is no cure.

"The type of ALS I have starts in the hands and works its way through the arms," he explained. "It is documented as a slow-progressing variant. The diagnosing physician had done a study and written a paper about this particular variant in 1999. His prognosis of five to seven years made me reevaluate my priorities."

In 1982, during his senior year of computer engineering at Michigan, Koulouras developed hardware and software allowing users with disabilities to type on an Apple II computer. Unfortunately, this effort was abandoned when he embarked on a successful professional career that started with a 14-year stint at Hewlett-Packard, the one-time sprawling information technology company headquartered in Palo Alto, California.

He rose through the engineering ranks earning an international assignment, helped develop global telecom standards and led the advanced research and development team in the company's Telecom Business Unit. After leaving Hewlett-Packard, he continued to enjoy success working with a variety of start-ups and other business ventures over the next 20 years, including deploying millions of custom wireless phones, developing a smart home patent, solar energy modeling, running a vineyard property in Sonoma and developing artificial intelligence--driven camera systems for sports events.

"It has been a varied career, but I always loved leading technology teams," he said.

During the past four years, ALS has attacked his motor skills, but the disease has not eroded his zest for life or his wonder for discovery. He has simple advice for anyone who might find themselves in a situation like his.

"Go watch 'Thelma and Louise,'" he says, referring to the 1991 movie featuring two women determined to set out for adventure. "My time left is too short for bureaucracy and waiting on hold. I'll go off the cliff at 100 mph, not gently into the good night."

Koulouras meets ALS on his own terms, meaning he stays active and engaged in life as fully as he is able.

"It has an impact on my day-to-day life," he said matter of factly. "I don't run around like I used to, but my brain still works, and I am trying as hard as I can every day. I don't really have the need to motivate myself. I have a lot of projects in the works, and there are a lot of things I want to do."

It is those projects that keep Koulouras on the move, regardless of physical limitations.

Several of the projects he is involved with are intended to help improve the lives of ALS patients. He has started a company, Autonomous Living Technologies (www.auli.tech), that is working to

Spero Koulouras in his power wheelchair testing ceiling track/lifter using the AULITECH "Cato" device clipped to glasses. The same device lets him operate design software on his giant 85-inch display as well as sports and movies, all without hands or help.

develop assistive devices at an affordable price point. He founded the company about a year ago with University of California San Diego physics and math students Finn Biggs and Michael Fierro.

"In my world now, where I don't have the use of my hands, I need a new way to control things like a computer mouse, a television or other things that people with the use of their hands take for granted," he said. "When I was first diagnosed, I looked around at the different technologies available, like eye-gaze, I was dissatisfied. They were expensive or not very elegant."

With a robust technological background in AI and robotics, Koulouras went to work with the team and quickly developed a small device that allowed him a greater degree of freedom. The product, named Cato, was first publicly demonstrated in New Orleans at the RESNA Conference and is now in beta testing. It is available at no cost to occupational therapists working with patients with hand and upper limb disorders by e-mailing info@auli.tech.

"Now, with very simple movements of my head, Cato can read my gestures, and I have the ability to control my world," he said.

Putting the effort into coming up with new solutions keeps Koulouras' attention focused and gives him personal satisfaction in other ways.

"I have always thought of myself as someone who is interested in giving back," he said. "That has always been a personal value, but this is a chance to make it real, and to finish the job I started 40 years ago. It has become a real chance to take everything I have learned and actually do something that can make a difference."

There are still other ALS-driven everyday realities Koulouras is seeking to address.

"My biggest daily challenges are transfers and feeding," he said. "My wife dresses, moves and feeds me every meal. She is great, and I couldn't live without her, but she needs a break from time to time."

He is testing an overhead track system controllable by Cato. For now, feeding-assistance devices are few, costly and not always effective.

"The existing devices are a great first step, but they don't have cameras, and they have a small range of motion," he said. "We're working on a device that uses cameras and sensors to do a better job of locating food and locating your mouth, both of which are important."

Koulouras said his focus is on devices, research and lobbying that will have an immediate positive impact on those dealing with ALS.

"Anything I can do to raise awareness or help in any way to fight this disease, that's what I'm going to do," he said. "The ALS Association, especially my local Sacramento chapter, has been an amazing support resource. I hope adding my voice to their advocacy efforts can help. Another key player in the ALS struggle is Team Gleason. Their slogan 'No White Flags' is stenciled in my doorway."

That is how he makes every day great.

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Spero Koulouras is the founder and chairman of Autonomous Living Technologies. He resides in California.

CRT UPDATE — FALL 2023

Written by: **WAYNE GRAU, EXECUTIVE DIRECTOR OF NCART**

NRRTS/NCART VIRTUAL LEGISLATIVE FLY IN AND PRODUCT EXPO

The NRRTS/NCART virtual fly-in was a huge success. We had over 200 advocates who held 200-plus meetings with congressional offices. Our focus was on three topics: Moving forward in the process of establishing Medicare Coverage for Power Standing systems, HR 5371- the consumer choice Titanium and Carbon Fiber Upgrade bill (see below), and Reimbursement and Repair Reform (included the NRRTS repair guidelines with each member). The reports back from the attendees were excellent with the majority reporting that the offices they met with were very engaged.

The following day, we held a Congressional Complex Rehab Technology (CRT) Product Expo on Capitol Hill. CRT equipment was displayed and advocates engaged with congressional attendees to answer questions about the people, products and processes involved in CRT. A group of incredible individuals were there to share their own personal experiences with CRT and explain why access to the right CRT equipment remains critically important. A big shout out to all our sponsors of both of these events. Without your support, this advocacy work could not have happened. THANK YOU.

POWER SEAT ELEVATION – THE NEXT STEPS

The industry and especially the individuals we serve were delighted the Centers for Medicare and Medicaid Services (CMS) recognized that seat elevation is medically necessary. The coverage effective date was May 16, 2023, and Medicare and the MA plans will cover seat elevation, but there are a few more steps in the process to ensure there is full access for individuals who qualify for this incredible product.

NCART worked with manufacturers and our providers to gather and submit the information necessary for CMS to make an informed coding and pricing decision. We cannot emphasize enough that coverage without proper coding or pricing will hurt consumers.

Next Steps: The information has been submitted, and we all eagerly await the preliminary decision from CMS. Once we have this preliminary decision, the ITEM Coalition and NCART will have the opportunity to testify at a hearing that will be scheduled for November. We will keep the industry informed as we receive new information.

UPDATE ON COVERAGE FOR POWER STANDING SYSTEMS

The ITEM Coalition along with NCART and NRRTS have questioned CMS about when we could expect the 30-day comment period for power standing to open. CMS has been unable to provide information on a potential release date.

We are now simply waiting for a response, and our recent congressional advocacy outreach includes a position paper asking Congress to request CMS open the National Coverage Determination public comment period for power standing.

CONSUMER CHOICE BILL FOR TITANIUM AND COMPOSITE WHEELCHAIRS INTRODUCED – HR 5371

Rep. John Joyce, R-Penn., has introduced HR 5371, a bill to rectify a past misinterpretation of Medicare policy. HR 5371 will offer consumers a choice to decide on the proper manual wheelchair to fit their lifestyle and medical needs. If passed, this bill would offer individuals the right to choose either a titanium or composite manual wheelchair frame and would be allowed to pay for this upgrade using their own funds. Presently the Medicare program covers complex rehab manual wheelchairs under a fixed fee schedule that pays a specific amount for this equipment. While annual funding adjustments have been made over time, they still do not cover the cost of upgrading to titanium and carbon fiber for enrollees who would benefit. Unfortunately, providers cannot afford to offer these upgrades at no charge and currently, the only way to provide a custom manual wheelchair with these upgraded materials is to bill the equipment as "unassigned." This means that the CRT user must pay out-of-pocket for the entire wheelchair and then wait for partial reimbursement from Medicare. This system limits clinicians and providers, reduces patient choice, and creates inequity for those who would medically benefit from titanium or carbon fiber but do not have the financial means to pay out-of-pocket.

NCART REQUESTS A MEETING WITH UNITED HEALTHCARE TO DISCUSS THE ELIMINATION OF PRIOR AUTHORIZATION

The NCART regulatory committee sent a letter to United Healthcare requesting a meeting to discuss the recent decision by United Healthcare to eliminate prior authorization for complex rehab equipment from some of their plans. The letter detailed the process and why prior authorization for complex rehab wheelchairs is an essential part of the process. The prior authorization is not a guarantee of payment but does provide some confidence that the claim will be adjudicated properly. NCART will continue to push for the necessary change to ensure that our members are protected, and consumers will receive the equipment they need.

THANK YOU

I would like to take this opportunity to thank the people who made the NRRTS/NCART legislative virtual fly-in and the CRT Product Expo day possible. First, I would like to thank all the sponsors for their financial support. Without them, we could not have made this possible. I would like to thank our planning committee: Weesie Walker, Amy Odom, Bill Noelting, Gerry Dickerson, Seth Johnson, Tom Simon and Mickae Lee. This group has been amazing to work with, and I am very honored to work with each of them.

BECOME AN NCART MEMBER

NCART is the national advocacy association of leading CRT providers and manufacturers dedicated to protecting access to CRT. To continue our work, we depend on membership support to take on important federal and state initiatives. If you are a CRT provider or manufacturer and not yet an NCART member, please consider joining. Add your support to that of other industry leaders. For information visit the membership area at www.ncart.us or email wgrau@ncart.us to set up a conversation.

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Wayne Grau is the executive director of NCART. His career in the Complex Rehab Technology (CRT) industry spans more than 30 years and includes working in rehab industry affairs and exclusively with complex rehab companies. Grau graduated from Baylor University with an MBA in health care. He's excited to be working exclusively with CRT manufacturers, providers and the individuals we serve who use CRT equipment.

CLINICIAN TASK FORCE: SUPPORTING CLINICIANS AND THE CRT PROCESS

Written by: **TAMARA KITTELSON, MS, OTR/L, ATP/SMS**

An old adage states if you want something to get done, then ask a busy person — and Clinician Task Force (CTF) members often fit the bill. We advocate and educate about important topics and issues in the seating and wheeled mobility (SWM) industry, and frequently work on projects with immediate and visible results and long-term impacts. In the last year, CTF members have helped with power feature coverage, CPT codes and formulating guidelines. CTF members are currently working on RESNA position papers regarding power assist devices, 24-hour posture care management, updated benefits of tilt, recline and power elevating leg rests, and a myriad other efforts at local, state and federal levels.

Most of us are experienced practitioners who did not gain SWM experience through occupational or physical therapy school. In fact, we typically graduated with only a narrow understanding of this domain. With limited academic exposure, most clinicians are tasked with learning through mentoring, experience and continuing education including attendance at conferences like the International Seating Symposium (ISS) and RESNA. Additionally, some clinicians who hold occupational or physical therapist or speech-language pathology licenses who also hold certifications like the ATP and SMS, need extra CEUs due to non-overlapping requirements.

Expenses have risen across the board, and employer aid for conference attendance has dwindled. With the cost and the rise of virtual education options, employers contend that virtual education is more cost-effective and results in fewer workdays lost, as compared to in-person events. However, experience in the SWM industry, the value of networking, informal learning and hands-on product experiences at conferences does not equate to a virtual webinar. While both methods have merit, virtual is often not a direct substitute for in-person learning. In lieu of, or to complement employer and other support, the CTF recently implemented a policy enabling members to seek scholarships for conference participation. Through the kind support of numerous industry manufacturers and fundraising endeavors, we can now sustain our efforts and help with conference attendance. In 2023, several CTF members took advantage of this novel scholarship opportunity. Scholarship recipient Tamara Kittelson noted:

"This made a world of difference in funding my attendance at ISS, where I not only was able to help teach in three presentations, but also took an extended shift at the CTF table and enjoyed all the networking opportunities the conference offered. I feel grateful for the scholarship opportunity and for all the industry sponsors of CTF work that made it possible."

Scholarship recipient Amber Ward noted: "After years of virtual attendance, being able to be hands-on was amazing and gave me a renewed energy for learning and discovery."

Having a skilled work force in a specialized area of practice like seating and mobility is vital for several reasons:

- Quality of Care: Individuals with SWM needs are complex at baseline and require knowledgeable specialists to address their unique needs and provide tailored solutions.

Trish Toole, Jenny Hutson, Tamara Kittelson, and Lee Ann Hoffman after presenting together at ISS.

Jenny Siegle and Tamara Kittelson while presenting together at ISS.

Several CTF members at ISS.

- Optimal Outcomes: A skilled workforce ensures individuals receive appropriate interventions that enhance independence, mobility and quality of life.
- Safety: Specialized practitioners ensure SWM assistive devices are optimized for individualized disease management and configured to decrease risk of injury.
- Innovation and Advancement: A skilled workforce drives innovation in the field; practitioners are informed on the latest technologies, materials and techniques that improve the effectiveness and efficacy of SWM solutions.
- Collaboration: With the client at the center, a cross-functional team extends to practitioners, providers, researchers, manufacturers and policymakers who work together to achieve comprehensive and quality care.
- Continuity of Care: As specialized practitioners retire or move on, having a skilled workforce creates competent and trusted professionals who can step in while maintaining a consistent level of expertise.
- Ethical Considerations: Individuals with SWM needs trust their health care providers to have the necessary skills and knowledge to meet their needs. Providing care without the required expertise can lead to ethical dilemmas and compromised care.
- Regulatory Compliance: Specialized areas of practice like SWM have specific regulatory and certification requirements; maintaining a skilled workforce helps organizations and practitioners comply with standards of practice while providing safe, effective service delivery.
- Professional Recognition: A skilled SWM secures the reputation of the practice and fosters professional recognition, which can attract more individuals to pursue a specialized area of practice and contributes to the growth and sustainability of the workforce.
- Connection: By engaging in best practices and in-person learning opportunities, stakeholders in the field of SWM establish strong connections. These connections span across personal and professional networks at local, state and federal levels fostering evidence-based practices and partnerships that drive meaningful change.

When clinicians who are or aim to specialize in the advanced area of SWM practice cannot access educational resources, hands-on learning experience, in-person relationships with mentors and mentees or exposure to technology, quality of care is compromised. Practitioners and providers with a lack of expertise can create unsafe SWM devices

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CLINICIAN TASK FORCE ...
(CONTINUED FROM PAGE 19)

and practices, which hinder innovation, personalized solutions and payer understanding. Scarcity of education discourages professionals from advancing, creates a static workforce and fails to attract new talent as well as contributions to evidence-based practice through investments in clinical research. To address this lack, most experienced clinicians work hard to foster SWM competence in other clinicians; they teach at universities, offer CEU and webinars, present at local, state, regional, national and international conferences, and create student and clinician learning opportunities. When stakeholders across the industry partner and allow for quality learning, all will benefit.

In the most recent edition of DIRECTIONS (Vol 4, 2023), https://issuu.com/nrrts/docs/directions_2023v4_issuu, the CTF introduced an overhauled website, featuring resources tailored for advocacy and education for the mentor and the mentee. This user-friendly platform benefits all consumers and industry stakeholders, and we hope to also continue to participate in and foster high quality in-person opportunities. So, at your next NRRTS webinar, ISS, RESNA, state or organizational conference, say hi to your participating CTF members, as they are doing work behind the scenes and in visible roles to advance the industry, thanks to sponsors who support their continued commitment to practice.

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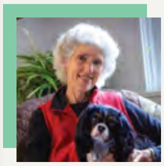

Tamara Kittelson is an occupational therapist and RESNA certified ATP/SMS. She founded Posture 24-7 and Eleanore's Project, promoting 24-hour posture care management and appropriate seating and wheeled mobility provision in low resource settings. She is founding chair of the RESNA 24-7 PCM special interest group, and a member of AOTA, RESNA and CTF. She is also a Friend of NRRTS (FON). Kittelson has presented and written on these topics nationally and internationally. Kittelson served children and adults with complex neurodisabilities in Montana, 1983-2022. She credits her daughter Eleanore, born with cerebral palsy and profound deafness, as her best teacher.

2023 NRRTS
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TUESDAY, OCTOBER 17, 2023
4:00 PM EASTERN

Supporting Childrens' Use of Powered Wheelchair Standing Devices

Speakers: Lisa K. Kenyon, PT, DPT, PhD, PCS

Learning Level: Beginner/Intermediate

The integrated standing feature of a powered wheelchair standing device (PWSD) provides children with the ability to stand when and where they desire, thereby potentially increasing their independence and participation. Our recent work strongly suggests that both children and families need specific education and support to fully realize the potential benefits of PWSD use. This webinar will introduce specific strategies to track clinical outcomes and support integration of PWSD use into daily life activities. Case studies and examples from our work will be used to illustrate application of these strategies.

For more information, visit the website www.nrrts.org

NRRTS WEBINARS

THURSDAY, OCTOBER 19, 2023
12:00 PM EASTERN

Clinical Decision Making for Head Positioning Challenges With Clients With Muscle Weakness

Speakers: Bart Van Der Heyden, PT, Filipe Monforte Correia

Learning Level: Intermediate/Advanced

When head stability is compromised, the correct positioning of the wheelchair user's head and cervical spine is essential for social interaction, access drive controls, upper extremity function and critical functions like breathing, eating and swallowing. Head support systems are often needed for clients with progressive neuro muscular disorders such as amyotrophic lateral sclerosis, muscle dystrophy, multiple sclerosis and wheelchair users with cerebral palsy or spinal cord injury. Besides a compromised head control, these users often experience limitations stabilizing the trunk. Head support interventions should be used in conjunction with a seating assessment and seating intervention.

TUESDAY, NOVEMBER 7, 2023
4:00 PM EASTERN

Evidence-Based Approach to the Assessment and Training of Wheelchair Skills

Speakers: Lee Kirby, MD, FRCPC

Learning Level: Intermediate

In this presentation, the speaker will describe the ongoing evolution of the Wheelchair Skills Program (www.wheelchairskillsprogram.ca), a free online set of low-tech, high-impact resources that are widely used around the world, as well as the research evidence that supports the use of its assessment and training protocols in clinical practice.

THURSDAY NOVEMBER 9, 2023
4:00 PM EASTERN

The Wheel Story — The Impact of Wheels and Tires on Manual Wheelchair Propulsion Efficiency

Speakers: Curt Prewitt, MS, PT, ATP

Learning Level: Intermediate

Imagine a meticulously configured ultralightweight rigid manual wheelchair, set-up for the user's measurements, postural needs and skill level. The wheelchair has an optimal configuration and is free of unnecessary components. The end user is expecting an efficient wheelchair. Now, imagine the chair being issued with mag wheels and pneumatic tires with flat-free inserts. This presentation will address the science of wheels and tires and review current research on the impact of selection and setup on wheelchair performance and propulsion efficiency. Attendees will be provided practical considerations to equip them to make appropriate wheel and tire selections for manual wheelchairs.

For more information, visit the website www.nrrts.org

2023

THURSDAY, DECEMBER 7, 2023
7:00 PM EASTERN

Person-Centered Care in a Payer-Centered World

Speakers: Becky Breaux, MS, OTR/L, ATP; PhD Candidate

Learning Level: Beginner

While person-centered care (PCC) is the gold standard approach to care in the provision of Complex Rehab Technologies (CRT), payer rules and requirements often dictate how health care teams make decisions and implement services, standing as potential barriers to best practice implementation. This session will highlight ethnographic research investigating factors that serve as barriers and facilitators to person-centered care during CRT provision and provide recommendations for improving PCC practices.

THURSDAY, DECEMBER 14, 2023
4:00 PM EASTERN

What is Sitting Down? Comorbidities and Medical Complexities of Mobility Device Users

Speakers: Ashley Detterbeck, DPT, ATP/SMS Nicole LaBerge, PT, ATP

Learning Level: Intermediate

Prolonged sedentary behaviors such as sitting have long been toted as "bad for your health." Studies have shown that there is an increase in diabetes, obesity and cardiopulmonary issues among many others in those that live a sedentary existence. Weight bearing activities such as standing and walking are often promoted to help curb this ongoing list of comorbidities, but how does this apply to our patients/clients who don't have access to such technology? In this webinar, we will discuss what we know about comorbidities and medical complexities in relation to our patients/clients and how we can work to promote changes in their everyday lives.

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CLINICAL PERSPECTIVE - CEU ARTICLE

EMPOWERED-TO-STAND: POWERED WHEELCHAIR STANDING DEVICE USE IN CHILDREN

Written by: **LISA K. KENYON, PT, DPT, PHD, PCS**

NRRTS is pleased to offer another CEU article. This article is approved by NRRTS, as an accredited provider, for .1 CEU. After reading the article, please visit http://bit.ly/CEUARTICLE to order the article. Upon passing the exam, you will be sent a CEU certificate.

OVERVIEW

For children who have mobility limitations, powered wheelchairs can provide numerous functional, social and participation benefits.[1,2] For some children who use a powered wheelchair, a pediatric powered wheelchair standing device (PWSD) also may be considered.[3,4] Defined as a powered wheelchair that electronically transitions between sitting and standing and that can be driven in either sitting or standing, PWSDs uniquely offer children the ability to stand whenever and wherever they want.[5] But what are the potential benefits of pediatric PWSD use? What factors should be considered when deciding if a PWSD is appropriate for a specific child? How can we measure outcomes of PWSD use? What interventions can support children in learning how to use the standing feature in their daily lives? This article addresses these questions and more by exploring existing evidence regarding pediatric PWSD use, highlighting various outcome measures to assess outcomes of PWSD use, and providing an evidence-based overview of PWSD intervention/training techniques.

INTRODUCTION

Standing, defined as an upright position supported by one's feet, enables us to perform a wide range of functional activities throughout our day.[3] We stand to reach objects on a high shelf. We stand in front of a mirror to put on make-up or shave. Yet in our society, the act of standing is more than simply a way to function. When we "stand on our own two feet," we show our independence. When we "stand tall" we exemplify our self-confidence and pride. And when we "stand out in a crowd" we distinguish ourselves from others. As such, standing is a societal norm symbolizing independence, dignity and autonomy.[6,7]

An evolution of a standing manual wheelchair for adults developed in Switzerland in 1975,[8] pediatric PWSDs were manufactured as early as 2003.[8] Recent improvements in design and function have led to a gradual uptake in their use.[9] Standing in a PWSD is designed to meet the unique needs of each user, and, as such, may vary to include either full or partial extension of the hips and knees leading to either fully upright or partially crouched standing positions.[3,10] How standing is accomplished also varies amongst the specific PWSD models currently manufactured and, depending on the manufacturer, may involve use of other power positioning options, such as a seat elevator or an anterior tilt mechanism, to electronically transition between sitting and standing.

POTENTIAL BENEFITS OF PWSD USE

Clinical research exploring the benefits of pediatric PWSD use is in its infancy. Only a few studies providing lower levels of evidence have been conducted. It is not yet known, for example, if standing in a pediatric PWSD results in the same physical benefits as standing in a stationary stander.[11] Although work by Masselink et al[12] suggests that standing in an adult PWSD may have the same or similar benefits as stationary supported standing programs for adults, we must be cautious when making such leaps about pediatric PWSDs. Supported standing studies in adults often focus on adults who have acquired a condition or injury after achieving maximal BMD levels (at 20.5 to 23.6

FIGURE 1 A 5-year-old girl engages in chalk drawing fun with her twin sister.

years[13] of age in men and 18.7 to 20.1 years[13] of age in women).[14] Furthermore, work by Kecskemethy et al[15] found that weight-bearing loads in two different stationary standers (a Rifton® supine stander and an Easy Stand®) ranged from 37% to 101% of body weight with the difference in weight-bearing loads between the two stander types varying by as much as 29% of a child's full body weight. It is therefore possible that the amount of weight children bear during supported standing programs will vary depending on the type of stander used. As such, and as noted throughout this article, we suggest caution when extrapolating findings obtained from research involving stationary standing programs for children to children's standing in a PWSD.

With this caution in mind, at a basic level, the main difference between a standard power wheelchair and a PWSD is the user's ability to access the vertical plane whenever and wherever they desire. By allowing children to 'stand-on-demand,'[5] PWSDs enable a variety of daily tasks such as reaching for objects in kitchen cabinets or on refrigerator shelves and washing their hands in the sink. Some boys can urinate either independently or with minimal or less assistance when standing in their PWSD.[5,16] Children, parents/caregivers and clinicians have identified a wide range of participation activities that children are able to be part of because of their ability to stand using a PWSD. These include: singing in a school or church choir, performing in a school play, playing with other children, partaking in a high school chemistry lab, working after school as a bagger at a grocery store, completing chores within the home and in the yard, and eating at a high-top table in a restaurant.[5] Standing at museums, sporting events, parades and other crowded venues whenever they desire may allow children to see or watch things that they might miss if they were only able to sit in their wheelchair.[5] Furthermore, the ability to independently transition into standing at church as part of the service, during the pledge of allegiance or when the national anthem is playing, may increase children's sense of involvement and engagement within their communities. Figures 1-5 provide pictures of children using their PWSDs.

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FIGURE 2

A 13-year-old boy helps with grocery shopping.

FIGURE 3

A 10-year-old boy stands alongside his family and friends.

FIGURE 4 A 12-year-old boy strolls side-by-side through the park with his great grandmother.

FIGURE 5

A 12-year-old boy stands to give and receive a hug from his father.

> THE ABILITY TO INDEPENDENTLY TRANSITION INTO STANDING ... MAY INCREASE CHILDREN'S SENSE OF INVOLVEMENT AND ENGAGEMENT WITHIN THEIR COMMUNITIES.

EMPOWERED-TO-STAND ...

(CONTINUED FROM PAGE 25)

In a recent exploratory study involving four children ages 5 to 13 years (two with cerebral palsy (CP), one with an incomplete C4 spinal cord injury sustained during infancy, and one with Pelizaeus-Merzbacher Disease),[17] 12-weeks of PWSD use resulted in both statistically and clinically significant improvements in children's performance of all parent-identified, child-specific activity and participation goals. These goals varied greatly amongst participants and included getting a glass of water, reaching objects in high cupboards or on high shelves, participating in gym class and standing at the kitchen counter to cook, bake or wash dishes. The two children in the study who, based on their age and communication abilities, were able to partake in goal setting and assessment activities, reported clinically significant improvements in their performance of self-identified, individualized goals. Goals also varied between these two children and included turning on a television on a high shelf, standing to look out the kitchen window and giving/receiving hugs in a standing position. Both parents and children in this study reported improved satisfaction in children's performance of their goal activities. Similarly, work by Field et al[18] involving six children ages 7 to 18 years (four with CP and two with spina bifida), also reported positive changes in children's satisfaction with their participation goals after three months of PWSD use.

Children, parents/caregivers and clinicians also indicate that children's PWSD use provides many psychosocial benefits.[5,16] Increased confidence, increased happiness, improved self-esteem, viewing oneself as able to stand, increased independence and literally being able to stand-up for oneself are all associated with children's PWSD use.[5,16] Standing face-to-face with others, looking at others eye-to-eye and making direct eye-contact with others during social interactions are all enabled through use of a PWSD.[5] Standing in a PWSD also may eliminate or reduce the height differences inherently imposed by sitting in a wheelchair, possibly further enhancing a child's self-concept.[5,16]

Standing in a PWSD may improve or help to maintain lower extremity range of motion.[10,19] Townsend et al[10] found improved hip or knee flexor muscle length in three of their four participants with Duchenne muscular dystrophy (DMD) after six to 12 months of PWSD use. Bayley et al[20] reported maintenance of musculoskeletal status (hip, knee and ankle joint angles) in standing over 20 weeks of PWSD use in 14 adolescents with DMD. The three child participants in a case series by Gohlke & Kenyon[19] demonstrated improvements in some lower extremity passive range of motion measurements. Although not a stated aim of an ongoing longitudinal case series involving pediatric PWSD use (Kenyon et al; unpublished data, 2023), a 13-year-old boy with CP was slated to undergo bilateral hamstring muscle lengthening procedures at the onset of the project. After 12 weeks of PWSD use, his orthopedist noted sufficient improvements in hamstring length and canceled the surgery. This child is now 15-years-old and has continued to sufficiently maintain his hamstring length without surgical intervention during his first 16 months of PWSD use.

Although some parents, clinicians and older children report improvements in bone mineral density (BMD) as a benefit of PWSD use,[5] clinical research exploring the influence of PWSD use on BMD is limited.[10] In the PWSD study by Townsend et al,[10] a significant decrease in lumbar spine BMD was observed between the baseline and early to mid-intervention period in three of the four participants in the study. This decrease in BMD was transient in two of the participants and sustained in one.[10] Stable lumbar spine BMD across study phases was observed in the fourth participant. Increases in lumbar spine BMD were not observed in any of the participants.[10] However, the minimum threshold needed to positively affect BMD in children who are non-ambulatory is 60 to 90 minutes of supported standing, five times per week for a total of 300 to 450 minutes (5 to 7.5 hours) per week.[11] The boys in the Townsend et al[10] study demonstrated mean weekly stand times ranging from 1.3 to 3.3 hours, far below this minimum threshold.

DETERMINING IF A PWSD IS APPROPRIATE FOR A SPECIFIC CHILD

Safety should, of course, always be our first concern when considering any mobility device for a child. But what if we thought about standing first and approached every child who met the qualifications for a standard powered wheelchair as also possibly being appropriate for a PWSD, until or unless proven otherwise? Families may or may not be aware of PWSDs and in many instances, wheelchairs are expected to meet the needs of a growing child for five to seven years. While we should not just blindly provide every child with a PWSD, we can educate and inform children and families about PWSDs as a possible option.

As with the prescription of any Complex Rehab Technology (CRT),[21] a complete evaluation is indicated to determine the child's individual needs and the child's and family's desired outcomes of technology use. Determinations regarding the use of CRT should match the equipment with the child's needs, environments

SAMPLE QUESTIONS: CHILD'S CURRENT STANDING STATUS	SAMPLE QUESTIONS: PERTINENT MEDICAL/ REHABILITATION HISTORY
• **Does the child currently stand (with or without equipment/assist)?** • **What, if any, standing equipment does the child currently use?** • **If applicable, how frequently is the child standing (with or without equipment/assist)?** • **If applicable, when they stand, how long does the child stand?** • **When was the last time the child stood?** • **What is the child's current transfer status? Do they bear any weight on their feet during any of their transfers?**	• **Does the child have any range of motion limitations? If so, describe these.** • **Does the child currently have or have a history of any known concerns about their bone mineral density, including a diagnosis of osteopenia or osteoporosis? If so, describe these.** • **Does the child currently have any injuries or fractures? Any recent fractures? A history of any fractures? If so, describe the fracture(s) and the mechanism of injury.** • **Has the child had any surgeries in the past 6-12 months? If so, describe these and how they occurred.** • **Does child experience orthostatic/postural hypotension or have any issues related to low blood pressure? Has the child ever fainted? If so, describe these.** • **Are there any additional relevant medical history or safety concerns?**

TABLE 1 Sample Questions Regarding a Child's Current Standing Status and Pertinent Medical History

of use and the desired outcomes.[21] Such evaluations and determinations are ideally conducted within a multidisciplinary collaborative team that includes the child and their family, clinicians and suppliers/ manufacturers.[22] If the child attends school, school personnel, including school-based physical and occupational therapists, should also be included in the discussions regarding CRT.

As part of this evaluation, many factors must be considered when determining if a PWSD is appropriate for a specific child. Family, therapist and other support for a child's potential PWSD use should be assessed. A child's size, including their height, may be a factor in determining if a PWSD is appropriate.[5] Families should also be aware that the base for a PWSD might be a little larger than a standard powered wheelchair as the PWSD base must be larger to ensure safety, especially when driving in a standing position.[5] This increased base size and subsequent footprint of the device may impact transportation and environmental access in home, school and community settings and should be discussed as part of the larger determination and decision-making processes.

The evaluation should also include the child trialing a specific PWSD. Some clinicians and families, as well as work by Schofield et al[23] in individuals with DMD, suggest an extended trial of a PWSD in the environments where the device will be used.[5] As with any mobility or standing device, there is a slight risk that a child could be injured when using, or trialing, a PWSD. To minimize this risk, it is strongly recommended that a child's current standing status and pertinent medical/rehabilitation history are gathered and scrutinized for any potential issues. Table 1 provides select sample questions that may facilitate gathering these details. It is important to remember that this process helps to decrease risk and that not all potential issues will preclude a child from trialing or using a PWSD. For example, a fracture sustained three years ago during an automobile accident may not present any potential issues for trialing or using a PWSD. However, a pathological fracture caused by osteoporosis will require additional consideration and consultation with the child's medical

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MID-WHEEL DRIVE	FRONT-WHEEL DRIVE
Smaller turning circumference and tighter turning radius.	Medium turning circumference; can be difficult to turn in small spaces; manages tight corners well due to short front end; takes less space to complete a 90-degree turn
May be more stable going up and down slopes and inclines.	Does well on most inclines. On very steep inclines, may lose traction or feel unsteady going up or down.
May be more intuitive to drive as the child is centered over the drive wheel.	Must clear a doorway or other opening before starting to turn (i.e., "turn late"). This may be challenging for some children but can be learned through directed intervention.
May have difficulties or even lose traction on uneven terrain, sand, soft ground or curbs.	Drive wheels in the front permit device to go over obstacles and terrain more easily.
Rotating front casters may constrain use of some lower extremity positioning options and possibly interfere with stand-pivot transfers.	No rotating casters at the front lower extremity, positioning options are not constrained.
Can be challenging to drive via an attendant control unit as this unit is often mounted at the back of the seat, away from the drive wheel.	Can be challenging to drive via an attendant control unit as this unit is often mounted at the back of the seat, away from the drive wheel.
Typically has smaller casters, which may create the sensation of a "harder ride." (May be offset by the suspension system and the softness of the wheels.)	Typically has larger casters creating a smoother ride, especially outdoors.
Six wheels on the ground may transfer more energy and forces to the child, potentially causing changes in tone, fatigue or discomfort. (May be offset by the suspension system and the softness of the wheels.)	Four wheels on the ground may minimize the amount of energy and forces transferred to the child.

TABLE 2 Overview of Mid-Wheel Drive and Front-Wheel Drive Wheel Configurations[24]

EMPOWERED-TO-STAND ...
(CONTINUED FROM PAGE 27)

team. In addition, signed medical clearance to trial standing in a PWSD should ideally be obtained prior to trialing device and in fact is required by some PWSD manufacturers.

Wheel drive configuration is another consideration that must be taken into account when making determinations about PWSD use. PWSDs are available with either a mid-wheel drive or front-wheel drive configuration. To my knowledge, a rear-wheel drive configuration is not available on a PWSD. As with a standard powered wheelchair, there are both pros and cons to the different available drive wheel configurations that must be considered when matching a specific PWSD to a child's individual needs. Although an in-depth discussion of available drive configurations is beyond the scope of this article, Table 2 provides an overview of general differences between mid-wheel and front-wheel drive configurations.[24]

MEASURING OUTCOMES OF PWSD USE

Measuring the outcomes of CRT use is an increasingly important aspect of technology provision. There are several outcome measures that may be helpful in assessing outcomes of PWSD use. Using a combination of child/family reported outcome measures and direct observation outcome measures is often helpful. Both the Canadian Occupational Performance Measure (COPM)[25] and the Wheelchair Outcomes Measure – Young People version (WhOM-YP)[26] have been used to measure individualized outcomes in studies investigating pediatric PWSD use.[17-19] Through a COPM-based interview, both parents/caregivers and children 8 years of age and older who can communicate either orally or through augmented means (such as an augmented and alternative communication device) identify and prioritize occupational performance issues related to PWSD use that are meaningful to them in their various environmental settings. The COPM rating scales are then used to measure performance and satisfaction for each of prioritized occupational performance issues. Clinical significance values are available for the COPM, thereby allowing clinicians to determine if PWSD use is providing meaningful, child/family-reported change in the children's lives and function.[27] The WhOM-YP is based on the COPM

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	THE COPM	THE WHOM-YP
TYPE OF OUTCOME MEASURE	• Child/family reported outcome measure. • Child-specific (i.e., individualized) • Generic (i.e., not specific to wheelchair use)	• Child/family reported outcome measure. • Child-specific (i.e., individualized) • Specific to wheelchair use
INITIAL ADMINISTRATION	• A semi-structured interview to identify occupational performance (OP) issues. • The child/family member prioritizes up to five identified OP issues. • Each prioritized OP issue is rated for both performance and satisfaction on a scale from 1 (low) – 10 (high) using visual aids.	• Part 1: A semi-structured interview regarding participation in home and community settings. • The child/family member identifies activities the child participates in or would like to participate in while using a wheelchair. • For each identified activity, importance and satisfaction with the child's performance are rated on a scale from 0 (low) to 10 (high) using visual aids. • Part 2: Structured questions regarding the child's posture, comfort and skin issues when using the wheelchair. • These items are rated on a scale from 0 (low) to 10 (high) using visual aids.
ADMINISTRATION TIME	20-40 minutes	30 minutes
CLINICAL SIGNIFICANCE VALUES	• Evaluated for each prioritized OP issue. • ≥2 point increase in performance of a specific OP issue.	• Not available • The minimal detectable difference for mean satisfaction scores: 3.45 in mean satisfaction (participation at home) and 2.46 (participation in the community)
LANGUAGES	Available in over 35 languages	Available in English, French, and Hebrew
LINK TO THE MEASURE	Available for purchase at: https://www.thecopm.ca/	Available to download at no cost at: https://millerresearch.osot.ubc.ca/tools/mobility-outcome-tools-2/the-wheelchair-outcome-measure-whom/

TABLE 3 Descriptions of the Canadian Occupational Performance Measure (COPM)[25] and the Wheelchair Outcomes Measure – Young People Version (WhOM-YP)[26]

FLAT-TO-LOAD SUPINE TO 20 DEGREES PRONE IN ONE MOTION

The Zing MPS is the only multi-position stander that pivots two directions, allowing the unit to go from flat-to-load supine to 20 degrees prone in one motion. There is no need to transfer the user in and out, flip pads, foot plates and trays. This ability provides a therapeutic opportunity not possible with other standing frames. It also features anatomically-correct leg abduction, up to 30 degrees per side, using a single knob.

EMPOWERED-TO-STAND ...
(CONTINUED FROM PAGE 28)

and was specifically developed to assess satisfaction with outcomes of wheelchair and seating system interventions. It allows parents/caregivers and children as young as 5 years of age who can communicate either orally or through augmented means to identify existing or desired participation outcomes influenced by seating or wheeled mobility use within home and community settings. When either the COPM or the WhOM-YP are completed by someone other than the child, it is important to remember that these outcome measures will assess the other person's perceptions, not the child's perceptions. Table 3 provides additional details regarding these two outcome measures.

The Universal Assessment of the Learning Process (ALP)[28] instrument, an extension of the Assessment of Learning Powered mobility use,[29] is a process-based, direct observation measure that has been used to measure PWSD outcomes.[17] As a process-based measure, the ALP instrument assesses a person's growing understanding of how to use any tool and is appropriate for use with any person in any kind of tool-use learning situation. The ALP instrument consists of eight phases of learning (Phase 1: Novice to Phase 8: Expert) nested within three progressive stages of exploration: functions, sequencing and performance. Detailed descriptors of the performance within each ALP phase are provided within five specific observational categories: attention, activity and movement, understanding of tool use, expressions and emotions, and interaction and communication. Clinical significance on the ALP instrument is assumed to be the same as for the Assessment of Learning Powered Mobility Use, i.e., an increase of one phase is clinically significant.[30] As detailed below in the Interventions sections, knowing a child's specific phase of learning allows us to tailor our interventions and optimally support their learning to use the PWSD's standing feature in daily life. Table 4 provides an overview of the structure of the phases and stages of the ALP instrument. The complete ALP instrument, as well as a guideline for its application and use, can be downloaded at no cost at: https://www.lisbethnilsson.se/en/alp-tool/.

Depending on the manufacturer, some PWSDs have built-in digital technology tools that provide objective information about a person's PWSD (battery charge, etc.) and PWSD use (frequency of standing, duration of standing episodes, angle of standing, etc.). Such information often can be viewed by children and families via a smartphone application and shared, with child/family permission, with clinicians. These digital technology tools have been used as an end-of-study outcome measure in studies investigating pediatric PWSD use.[17,19] It is possible, however, that regularly reviewing information about the frequency of and duration of standing on the smartphone application may be motivating for some children. Regularly reviewing this information with the child and the family may also help clinicians to encourage children's use of the standing feature and set frequency or time-based goals for children's PWSD use based on the desired outcomes of use. Please refer to the Standing Dosage section below for additional details.

ALP STAGE	ALP PHASES WITH THE STAGE
STAGE 1 Explore Functions Stage focused on exploring the functions of the specific tool.	1 - Novice 2 – Curious Novice 3 – Beginner
STAGE 2 Explore Sequencing Stage focused on sequencing the operations involved in using the specific tool as intended.	4 – Advanced Beginner 5 – Sophisticated Beginner
STAGE 3 Explore Performance focused on using the specific tool in daily life.	6 – Competent 7 – Proficient 8 – Expert

TABLE 4 Overview of the Structure of the Phases and Stages of the Assessment of the Learning Process (ALP)[28]

INTERVENTIONS: SUPPORTING CHILDREN IN LEARNING HOW TO USE THE STANDING FEATURE IN THEIR DAILY LIVES

Some children with CP, spina bifida or other neurodevelopmental conditions may have limited to no experience with self-initiated, functional use of standing. As such, the ability to stand whenever and wherever they choose may represent a paradigm shift.[5] For these children, learning to independently use the standing feature of a PWSD uniquely requires them to orient to and function in the vertical plane for what might be the first time in their lives. Other children who have conditions such as DMD or who have an acquired injury may have experiences with self-initiated, functional use of standing. Either way, learning to use the standing feature of a PWSD in daily life is a complex tool-use activity.

THE ASSESSMENT OF THE LEARNING PROCESS (ALP) FACILITATING STRATEGIES

Tool-use interventions provided within an atmosphere of mutual respect, collaboration and partnership may help the learner (in this case, the child) to feel safe and secure, thereby optimally supporting learning.[28] Incorporating developmentally appropriate play activities and a fun approach into individualized interventions designed to meet the needs, motivations and preferences of each child will also help to engage and motivate children at all learning levels.[28] Developing specific, client-centered, collaborative goals is one way to ensure that interventions are individualized. Prioritized occupational performance issues or activities identified through either the COPM or the WhOM-YP can be a great place to start when developing such goals.

APPLYING THE ASSESSMENT OF THE LEARNING PROCESS (ALP) FACILITATING STRATEGIES

Once the learner's ALP stage and phase are identified through use of the ALP instrument, the 13-page ALP facilitating strategies document,[28] available to download at no cost at https://www.lisbethnilsson.se/en/alp-tool/, is used to select specific facilitating strategies for the child's specific stage and phase in their process of tool-use learning (in this case, learning to use the standing feature of a PWSD). In this manner, clinicians can best support each child's growing understanding of how to use the standing feature of their PWSD. As a process-based measure, the ALP facilitating strategies focus on supporting the child's learning rather than on teaching the child specific tasks. It may be helpful to remember that the ALP stages denote progressive stages in the process of exploration. As such, facilitating strategies for each ALP phase focus on supporting the child's self-exploration of the standing feature of their PWSD. Sample aspects of the facilitating strategies for each stage are provided in Table 5.

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ALP STAGE 1 EXPLORE FUNCTIONS OF THE PWSD'S STANDING FEATURE	ALP STAGE 2 EXPLORE SEQUENCING OF THE PWSD'S STANDING FEATURE	ALP STAGE 3 EXPLORE PERFORMANCE OF THE PWSD'S STANDING FEATURE
• **Encourage exploration of the functions of the PWSD's standing feature.** • **The primary focus is on the child's own body and the PWSD's standing feature.** • **Give the child time to adapt to the movement and the effects of external forces resulting from the PWSD's standing feature.** • **Understand that the child may display anxiety, passivity, or frustration at this stage. This is normal!** • **Encourage 1:1 interaction.** • **Incorporate both physical (guided) and social (verbal) interactions.**	• **Encourage exploration and experimentation with pattern building.** • **Focus on the child's exploration without adult or other interference.** • **Utilize manual guidance and verbal cueing.** • **Provide external motivators to convey the idea of a goal for using the PWSD's stand feature.** • **Accept the child's specific expressions of frustration.** • **Comfort and calm the child to reduce their frustration to a level that does not interfere with learning.** • **Introduce simple, 1:1 interactive activities, and then gradually increase their complexity.**	• **Encourage exploration of using the PWSD's standing feature in everyday environments.** • **Help facilitate synchronization of your child's movements with the PWSD's standing feature to achieve precision use.** • **Encourage group interaction with other children or siblings.** • **Provide instructions for the child to carry out.**

TABLE 5 Sample Key Aspects of the Assessment of the Learning Process (ALP) Facilitating Strategies for Each ALP Stage[28]

EMPOWERED-TO-STAND ...
(CONTINUED FROM PAGE 33)

As is often the case with CRT, it is important to familiarize children and their parents/caregivers, including teachers and classroom aids, with all of the PWSD's functions and capabilities.[31] Allowing the parents, and other caregivers to move through the stages of the learning process (explore functions, explore sequencing and explore performance) using the ALP facilitating strategies may be helpful. Parents and caregivers also may find a simple one-page informational "cheat sheet" detailing the operations of the PWSD helpful. This can even be laminated and secured to the back of the child's PWSD so that it is available whenever it is needed. As children move into ALP Stage 2 in their process of learning to use the standing feature of their PWSD, videos of other children performing standing activities in their PWSD may be helpful. YouTube videos can be especially engaging for some children. Children and families/caregivers may also benefit from watching these videos and from specific education regarding the standing-related activities that may be possible for the child to perform independently, or more independently, when using their PWSD.

LEARNING TO DRIVE IN A STANDING POSITION

Driving in a standing position can be a very different experience than driving in a seated position. As stated in the following previously unpublished quote by a participant in our qualitative research study regarding stakeholder perspectives of pediatric PWSDs[5]:

> *… when the child is in the seated position, they tend to be more centered in the base itself, and their visual field is beyond where their thighs and their feet are when they are seated ... When you bring them up into the standing position, the environment that's directly underneath their feet is much more visible ... They (have) a different orientation to the ground (when driving in a standing position).*

This different orientation, as well as the different height, may result in different driving abilities in a standing versus a sitting position. Again, concepts within the ALP facilitating strategies help to support children who are learning to drive in a standing position. As noted within the ALP facilitating strategies,[28] it is important to recognize and understand that a child may be anxious or fearful about driving in a standing position. If allowed to explore driving in a standing position at their own pace, in their own way and within their own time frame, many children discover that driving in a standing position can be beneficial and enjoyable. Children who use PWSDs note that they feel other people can see them more easily when they are driving in a standing position than when they are driving in a seated position. Several children specifically stated that this is especially beneficial when they are driving in crowded areas.

INTERVENTIONS TO IMPROVE ACTIVITY AND PARTICIPATION PERFORMANCE

Research suggests that interventions focused on modifying and adapting the environment and the demands of a task/activity may help to improve activity and participation performance in children who have disabilities.[25, 32-34] We have found the Pathways and Resources for Engagement and Participation (PREP),[35] an evidence-based intervention approach that encourages and empowers people with disabilities to participate in activities they enjoy by addressing environmental barriers and building capacity through coaching, to be very helpful in structuring these modifications and adaptations. The PREP involves five implementation steps[35]:

1. Establish Meaningful Goals in Collaboration with the Child and Family
    a. The COPM and the WhOM-YP can help with this!
2. Map Out a Plan
    a. Work collaboratively with the child and parent and others to determine task components and environmental barriers/facilitators to participation in the identified goal activities.
    b. All potential environmental barriers/facilitators should be considered in this step, including those in the:
        i. Social environment (e.g., social support and peer support)
        ii. Attitudinal environment (e.g., perceptions towards disability or recreation)
        iii. Familial environment (e.g., family functioning)
        iv. Institutional environment (e.g., policies, availability of programs, openness to change)
3. Make It Happen
    a. Support the child and family to initiate the necessary environmental and activity changes/modifications. Provide coaching sessions to build the child's (and parent's) confidence and empower the child (and parent) to identify and solve obstacles to the child's participation.
4. Measure Outcomes Using the COMP or the WhOM-YP
    a. Outcomes should be measured on a regular basis.

5. Move Forward
    a. Assist the child and family in reflecting on the activity and the child's performance.
    b. Support and encourage the child and parent to identify additional facilitators and remaining barriers and to problem solve adaptations and modifications to help overcome these barriers.
    c. Collaboratively establish new goals as appropriate.

The PREP materials include planning and other forms to assist in implementation. The PREP is available as both an online module and a PDF version. Information about the PREP, including costs, can be found at: https://canchild.ca/en/shop/25-prep-intervention-protocol.

STANDING DOSAGES

There is little evidence to inform standing dosages involving standing using a PWSD.[23] Guidelines developed by Schofield et al[23] for PWSD use in individuals with DMD recommend a PWSD standing dosage of 60 minutes per day, four to five days per week. These authors further suggest that this standing dosage can be accumulated in multiple bouts of approximately 10 minutes each.[23] It is not known if these guidelines are applicable to children who have conditions other than DMD.

Although we must use caution when applying findings from stationary standing programs to standing in a pediatric PWSD, findings from reviews reflecting primarily stationary standing studies may provide a starting point for standing dosages in PWSDs. Recommendations for the frequency and duration of stationary standing programs vary based on the desired outcome of the program.[4] Based on work conducted by Paleg et al[4] in 2013, in a five-day per week standing program, the following dosages are recommended to achieve various positive effects:

- 45 to 60 minutes per day for range of motion of hip, knee and ankle.
- 30 to 45 minutes per day for spasticity.
- 60 minutes per day in 30° to 60° of total bilateral hip abduction for hip stability.
- 60 to 90 minutes per day for BMD.

A 2017 study by Han et al[36] further suggests a trend toward improved BMD in children with CP (Gross Motor Function Classification System[37] Level V) who participated in an assisted standing program for a combined two hours per day, five times per week. This same study noted a trend for declining BMD levels in children who participated in standing programs for 20 minutes, two to three times per week.[36] Similarly, for children with non-ambulant CP, McLean et al[11] suggest an association between longer weight-bearing times and improved BMD in children who weight-bear for two hours per day. These same authors suggest that children who weight-bear for 30 minutes, one to two times per week are simply maintaining their existing BMD.[11]

Of course, there is not a recommended standing dosage for improving children's activities and participation. Yet in our work with children who use PWSDs, some of the greatest benefits of PWSD use appear to stem from a child's ability to access the vertical plane and stand whenever and wherever they desire.

CONCLUSION

This article has explored the potential benefits of pediatric PWSD use and provided an evidence-based overview for assessing PWSD outcomes and providing intervention/training techniques for children. While not appropriate for every child or in every situation, with careful consideration regarding appropriate use, children who have mobility limitations may benefit from PWSD use.

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CLINICAL EDITORIAL

THE DEVICE NEEDS TO FIT THE LIFESTYLE – NOT JUST THE CHILD

Written by: **ROSLYN LIVINGSTONE, MSC(RS), OT**

Device abandonment is a problem in assistive technology. Getting the right equipment is only half the battle, but it doesn't do much good unless it's useful, and it's used.

I'm sure we can all think of examples from our own practice, where we thought we had done a thorough assessment, taking into consideration all the relevant child and environmental factors, but at the end of the day, the device was not used as planned!

Standers (or standing frames) support individuals who can't maintain an aligned, upright weight bearing position to stand and are widely accepted in clinical practice. However, they are probably the piece of equipment that I have most often seen in a corner with clothes or toys piled on top of them. I was recently involved in reviewing the evidence around use of standers with children and young people with non-ambulant cerebral palsy (CP). The messages that came out very strongly from the qualitative literature were:

- Children need choice in where and when to stand.
- The standing program needs to be incorporated into meaningful activities to increase function, participation and engagement. (McLean et al., 2023)

Holly's story illustrates how one family successfully integrated standing into their everyday routines. I first met Holly (who had been diagnosed with CP) and her twin brother, Hugh, when they were 12 months corrected age. Holly was able to change position by rolling onto her side and needed support from the trunk down to maintain a sitting position. We set up a recycled supine to upright standing frame from the loan cupboard and recommended using it for an hour each day. It wasn't fancy but it had a nice big tray for toys and play — see Figure 1.

FIGURE 1 Holly in the supine to upright stander playing with Hugh.

Holly's parents found the best way to get in the hour of standing was to do it first thing in the morning. As soon as she was dressed, they put her into the stander for an hour to eat breakfast and then play with her twin. Hugh always loved Holly's equipment and would want to go in it. So, when she resisted going into the stander, Hugh would want to go first. That would make Holly say, "No, it's mine" and take her turn first! When Holly finished her hour, Hugh would go in for his "turn" of 5 minutes standing.

Now at age 8 years, Holly has a new upright stander, but it is still part of the morning routine. Hugh doesn't take his turn anymore, but Holly still goes in it for breakfast and now she reads a book and plays with her tablet for the rest of her hour of standing before she goes to school. The standing frame positions Holly at eye level with Hugh so it's great for playing video games and dancing — See Figures 2 and 3. The stander also positions her at the same height as the kitchen island and helps her take part in family activities — See Figure 4.

For other families, using the standing frame may be harder to work into the home routine, but may be easier at school. A ceiling track lift system or the extra adult assistance may make transfers easier. There may also be more regular and structured opportunities for motivating activities (e.g., gym, art, watching sports) or routines (e.g., taking attendance to the office). Being in the stander can increase visual and/or physical access

FIGURE 2

Baby brother Jamie hanging out with Holly and Hugh while they play video games.

FIGURE 3 Holly and Hugh dancing.

FIGURE 4

Holly in the upright stander carving pumpkins with Dad and Hugh.

and also facilitates communication, hand-function, participation and engagement with other children.

Assessment is not just choosing the equipment that best matches the physical and postural needs. Transfer type is a major consideration when selecting a stander. Then, you need to consider how standing will be integrated into the family or school routine. The evaluation needs to consider what the individual is going to do in standing. They can't just be standing for the sake of standing — the position change needs to enhance function and participation in age-appropriate and meaningful activities with others.

Like any of us, if something that is good for us fits into our regular routine, then it becomes a habit. If it doesn't fit into our routine then it rarely happens, no matter how good our intentions. When prescribing any assistive technology, make sure you also match the lifestyle — and don't just think about the physical or therapeutic needs!

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REFERENCE:
MCLEAN LJ, PALEG GS, LIVINGSTONE RS. SUPPORTED-STANDING INTERVENTIONS FOR CHILDREN AND YOUNG ADULTS WITH NON-AMBULANT CEREBRAL PALSY: A SCOPING REVIEW. DEV MED CHILD NEUROL. 2023, 65(6), 754-772. DOI:10.1111/DMCN.15435

Visit ://www.youtube.com/watch?v=gsPimYRF1NU to view the results of the systematic review.

Roslyn Livingstone is an occupational therapist with more than 30 years' clinical experience specializing in assistive technology, positioning and mobility assessment for children with multiple and complex disabilities. Her clinically based research has focused on the use and introduction of power mobility with young children. She has published extensively on the evidence related to use of power mobility, seating, standing and stepping devices, particularly for children with non-ambulant cerebral palsy, and has presented nationally and internationally on these topics. Livingstone lives in rural British Columbia with her husband and dogs and is a clinical assistant professor with University of British Columbia.

MEET BEAUTY: 5-YEAR-OLD GIRL WITH COMPLEX POWER WHEELCHAIR SET-UP

Written by: **BESTY HOWELL, PT, MS AND MATTHEW C. TRAYNOR, ATP/SMS, CRTS®**

We met Beauty when she was 5 and was struggling to do her favorite thing which was drawing and making crafts. She had lost all functional movement of her upper extremities but could get them to wiggle by moving her upper trunk side to side. She could still walk and had begun to teach herself how to draw with her feet, holding the marker between her toes. Beauty presented to PT with loss of use of her upper extremities termed an "Ultra rare neuromuscular disease of unknown genetic origin" — Axonal Neuropathy of Unknown Etiology. Even though she was still ambulatory, her core muscles were starting to show weakness and she was unable to protect herself if she fell. She was fatiguing quickly and often needed to be carried. The goal of the assessment was to determine the best equipment options to meet her needs. It was determined a power wheelchair would offer her the most appropriate form of independent and safe mobility. It was also important to consider independent transfers as it was becoming increasingly difficult to pick her up due to her lack of shoulder girdle strength. Independence was identified as a priority as she was going to be starting kindergarten.

Since Beauty was unable to use a traditional joystick, a foot joystick was trialed. This option was ruled out as she rapidly fatigued. Her legs and feet are her primary means of writing and drawing, so it was important for her to conserve the energy of lower extremities. Next, we trialed a mini proportional joystick mounted in midline on a full lap tray. Due to upper extremity weakness and lack of core strength she was not able to maintain control of the joystick. We still had the conventional joystick mounted on the chair, and while we were discussing other options, Beauty leaned over and with her chin started to drive the chair. Based on this demonstration of function, a Motion Concepts ROVI power chair with a chin mounted mini joystick was trialed which she was able to use immediately. The throw of the joystick required adjustment to accommodate her range of motion. When considering both her specialty joystick and her access to multiple power seating functions, an OMNI display was required allowing Beauty to see and change her multiple modes to allow her to access her functions through her driver control. This was mounted on a flip down mount so she could pull up to tables as close as possible without interference from the display box. The next electronic challenge was how to give Beauty access to independently turn the power wheelchair on and move the mini-proportional chin joystick into position. We mounted the joystick on a power swingaway boom from Motion Concepts with the access switch (minicup switch) located at her knee. Beauty used an additional mini cup switch to turn the chair on/off. Accessing the switch at her knee she could bring the joystick into her exact driving position. ON Traxx Enhanced Driving Module was added to assist the wheelchair in tracking straight when she was driving forward with her chin.


Beauty's first time driving, she to be in an elevated position and be taller than her siblings.

Power tilt facilitates Beauty's ability to independently reposition herself both during transfers and for consistent access to her driver control. She uses the tilt function to help scoot herself back in the wheelchair

Beauty poses in front of the Go Blue sign.

Getting ready to try the faster drives Beauty is set-up her up in a wide-open gym.

THIS WHEELCHAIR ALLOWED BEAUTY TO BE AS INDEPENDENT AS POSSIBLE DESPITE HER INABILITY TO MOVE HER UPPER EXTREMITIES AND HER PROGRESSIVE CORE WEAKNESS.

and to help manage her fatigue throughout the day. Seat elevation was added to the wheelchair, so Beauty could independently access multiple environments for function such as adjusting herself to at table height for meals and other ADLs.

We experienced issues with Beauty's transfers as she had difficulty stepping up onto the footrest. It had to be mounted at its lowest possible position due to weakness in her hips and trunk and inability to utilize her upper extremities for assistance.

Lastly, Beauty needed to be able to independently secure herself in the wheelchair for safety as she was not able to fasten a seatbelt. This was achieved by mounting a swing away chest pad on a power boom mounted off the left armrest, that she was able to move into place by using one of the modes programmed into her joystick controller.

Beauty required seating that provided pressure redistribution as well as support to maintain positioning. The Matrx PS cushion and Mini Back were chosen as they offered her stability without restricting her functional movement.

This wheelchair system has allowed Beauty to be as independent as possible despite her inability to move her upper extremities and her progressive core weakness. After the staff at her school was were educated by her parents as to how the wheelchair functions work, she was able to use it in her classroom without issues.

She has experienced some progression in weakness resulting in modifications to her positioning. She has had a custom TLSO made that was molded at maximal inspiration to facilitate her breathing. This allows her to sit more upright in her wheelchair without collapsing at her lower ribs. This additional support has given her the stability to continue driving using the chin joystick. Due to her decreased core strength, we also relocated the on/off and swing away boom switches to a lower position by her knee. We expect the need to move these to a multi-fuction head switch as her lower extremities are becoming to weak. Some other adjustments have also been required — reducing the travel on her power chest

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support to support her trunk weakness, adjusting the chin control closer for greater access and adjusting the chair suspension as she was losing contact with her joystick over bumpy sidewalks. Having the flexibility to to make ongoing changes to the chair components allows for Beauty's continued independence.

The medical team is still searching for a possible diagnosis and cause for her progressive weakening. In the meantime, she is generally a very happy, cognitively intact little girl that is able to drive her power wheelchair almost anywhere she wants to go. She continues to draw beautiful pictures for her family, friends and medical staff.

Scan the QR code to watch a video of Beauty in her power wheelchair.

An artist's work: Because Beauty doesn't have function of her upper extremities, she writes and draws with her feet.

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Betsy Howell is a pediatric physical therapist at Michigan Medicine, the University of Michigan, for 40 years. She has been working with children and power mobility since 1985. Her clinical practice includes equipment evaluation at Michigan Medicine Wheelchair Seating as well as treating children with disabilities at the Pediatric Rehabilitation Center. She has been the program director of Trail's Edge Camp for ventilator dependent children for over 30 years. She is an MNRI© Core Specialist.

Matthew C. Traynor, ATP/SMS, CRTS®, works for University of Michigan Health – Wheelchair Seating Service and has been a NRRTS Registrant since 1999.

Close-up posing in front of the Go Blue in the gymnasium.


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NRRTS PRACTICE GUIDELINES FOR CRT SERVICE, PREVENTATIVE MAINTENANCE AND REPAIR

Dear CRT Colleagues,

Difficulties in providing and receiving Complex Rehab Technology (CRT) service and repair has become challenging to all stakeholders. The various influences that challenge access to necessary service and repairs is the subject of much discussion, and it is difficult to reach understanding between those most impacted. Repair times, level of reimbursement for service and parts, in home service capacity and feasibility, hiring and securing qualified staff, and procedural complexity challenge suppliers. Considering the reported loss of revenue associated with repairs, increased complexity of power wheelchair designs and onerous policies regarding repairs, it is understandable that suppliers are under significant pressures and consumers are dissatisfied.

For people who depend on mobility devices, loss of the device, even when temporary, impacts consumers in devastating ways, such as loss of work/school, inability to perform daily tasks, inability to care for themselves or their families, and can lead to time in bed, decline in health, increase pain and create a decline in quality of life. Dissatisfaction and frustration with the state of repairs has escalated and has led some consumers to advocate for "Right to Repair" legislation in multiple states. Despite this current negative environment, the process can be improved if all the stakeholders cooperate to identify the problems and barriers to service and repair, work together to redefine processes and procedures, documentation requirements, and reimbursement methodologies. Tactical steps to consider are:

1. Suppliers should consider:
    a. Establishing best practices for repair.
    b. Investing in training.
    c. Establishing clear service expectations and communicate in writing with clients.
    d. Communicate with clients when delays occur.
    e. Work together to collect and share repair data in pursuit of defensible, publishable and usable information.

> **THE PROCESS CAN BE IMPROVED IF ALL THE STAKEHOLDERS COOPERATE TO IDENTIFY THE PROBLEMS AND BARRIERS TO SERVICE AND REPAIR, WORK TOGETHER TO REDEFINE PROCESSES AND PROCEDURES, DOCUMENTATION REQUIREMENTS, AND REIMBURSEMENT METHODOLOGIES.**

2. Manufacturers should consider:
    a. Ways to improve owner's manuals to include recommended preventative maintenance, including the level of technical expertise required to perform each step.
    b. Ongoing investment in remote diagnostics and technological methods for determining repair needs and declining function.
    c. Focus development on mechanisms to collect and preserve data regarding performance and ways to alert consumers and suppliers regarding needed repairs and maintenance.
3. Payers have a significant role to play in improving access to repairs and should consider:
    a. Reviewing prior authorization requirements and consider reducing or eliminating them especially for components that are expected to require service.
    b. Simplifying and standardizing documentation requirements for CRT devices prior to repair.
    c. Meet with suppliers to discuss concerns regarding rates associated with repair parts, labor time and payment for in-home repair travel when the consumer is unable to get the device to the supplier's location and coverage and payment for acceptable short-term rental CRT mobility devices.

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All stakeholders, including suppliers, manufacturers, clinicians, consumers and payers should work together to identify barriers to timely and professional repairs and agree on initiatives to influence positive change. Efforts are needed to understand the complex factors that impact the wear and function of mobility devices, and the role that timely and proper maintenance can play in reducing catastrophic device failure. Identify the challenges that suppliers face in providing timely repairs.

As a first step in this long process, NRRTS (as the subject matter experts on CRT provision), in cooperation with the University of Pittsburgh, has developed the Best Practice for Service, Maintenance and Repair document, which follows, through a review of collected data, studies of repair frequency, profitability and trends, a presentation of a rough draft at ISS, and an open comment period prior to the publication of the document. The trajectory of the current CRT repair process is neither sustainable financially by the supplier nor acceptable by the CRT consumer and medical communities.

The Best Practices for Service and Repair is the first critical piece of the process. **Best Practices are not policy. They are recommendations by NRRTS to improve the process of CRT repairs resulting in increased consumer satisfaction.**

The industry has continuously improved itself through RESNA standards, credentialing and continuing education, but the repair side of the process has lagged in the production of best practices.

The purpose of this "Best Practices for Repairs" document is for the CRT professional organization, NRRTS, to take the lead in producing a standard guideline rather than wait for an outside agency, legislative or regulatory body to set one for the industry. It is imperative that the CRT industry establish best practices based on our history and knowledge as well as accepted research data from academic, medical and scientific institutions.

Through these guidelines, NRRTS hopes to accomplish the following:

1. Standardized practices can be used to demonstrate to both legislative and regulatory bodies the complexity of CRT repairs that would in turn lead to:
   a. Reduced lead times for consumers through improved processes and procedures.
   b. Reduced lead times for suppliers and consumers
   through simplification and standardization of documentation requirements.
   c. Improved safety for consumers through adequate coverage and reimbursement for appropriate and reliable short-term rental wheelchairs.
   d. Improved reimbursement rates for CRT repair parts and labor that afford suppliers the ability to serve their clients well.

The first step in accomplishing the above goals and expectations is to have industry accept "best practices" to establish internal policies rather than having them dictated to us by those who do not fully understand the complexity of CRT.

Sincerely,

Weesie Walker, ATP/SMS

NRRTS Executive Director

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Weesie Walker, ATP/SMS, is the executive director of NRRTS. She has more than 25 years of experience as a Complex Rehab Technology supplier. She has served on the board of directors for NRRTS and GAMES and the Professional Standards Board of RESNA.Throughout her career, Walker has worked to advocate for professional suppliers and the consumers they serve. She has presented at the Canadian Seating Symposium, RESNA Conference, AOTA Conference, Medtrade, ISS and the NSM Symposium. Walker is a NRRTS Fellow.

NRRTS National Registry Of Rehabilitation Technology Suppliers

NRRTS PRACTICE GUIDELINES FOR CRT SERVICE, PREVENTATIVE MAINTENANCE AND REPAIR

Written by: **MARK R. SCHMELER, PHD, OTR/L, ATP; JACK FRIED, MRT; RICHARD M. SCHEIN, PHD, MPH; GEDE PRAMANA, PHD; MADELYN BETZ, MRT, ATP; WEESIE WALKER, ATP/SMS; MARK SULLIVAN AND RITA STANLEY**

This practice guideline was developed under a grant from the National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR Grand number 90REGE0001). NIDILRR is a center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS) of the United States. The contents do not necessarily represent the policy of NIDILRR, ACL or HHS, and should not assume endorsement by the U.S. federal government.

BACKGROUND

Complex Rehabilitation Technologies (CRT) including custom-fitted manual and power wheelchairs are crucial to the everyday lives of people with disabilities such as spinal cord injuries, cerebral palsy, brain injuries and multiple sclerosis. As with all types of equipment, these devices and associated seating and positioning systems do require regular maintenance, repair and the replacement of components to maintain user health, function and participation. Experience and research show that the wheelchair requires regular services to ensure appropriate use including physical checks, adjustments and/or maintenance to reduce the magnitude of overall repair cost, complexity of parts needed and procurement time. Device failures and subsequent adversities are well documented. Studies further indicate an increase in wheelchair failures with a decrease in timely and accessible services to address the issues. Further research indicates that most users are not aware when their device requires maintenance or repair and are often unable to perform these tasks themselves. The purpose of this document is to establish a best practice for CRT maintenance and repair to inform stakeholders, including the public, consumers, practitioners and policymakers to improve the overall state of the issue.

SCOPE

For this document, service is defined as any inspections, maintenance, component replacements or repairs performed on CRT.

NRRTS Practice Guidelines for wheelchair service including repair and maintenance provide a guideline for Registrants to achieve consumer safeguards and high-quality service. It further supports NRRTS and its Registrants as valued members of the health care community. Such standards are also intended to facilitate consumer well-being, continuous quality improvement and equitable third-party coverage policy.

1. These practice guidelines address three primary areas:
    a. Efficiency: Support timeliness of service by decreasing burdens associated with intake, assessment and completion of service.
    b. Documentation: Standardized procedures for monitoring and managing CRT devices.
    c. Prevention and Replacement: Identify critical warning signs of component failure and establish preventative maintenance procedures and timelines to assure product reliability and provide component service replacement prior to failure.

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CRT SERVICE METHODS

The practice guidelines designed to achieve the intended outcomes are:

1. Intake Process
    a. Maintain accurate records of each device, including model of product, serial number, date of purchase, distance traveled (whenever possible) and repair history. Such information is critical for understanding needs over time related to maintenance, repair, replacement and recalls.
2. Service Environments
    a. Three viable service options described below should be discussed with the consumer and supplier to make the best decision. Overall, service should occur in an accessible setting conducive to the type of service being provided.
        i. When possible, service should take place in a service facility to ensure:
            1. Best ergonomic environment to prevent injury to the technician and to the consumer.
            2. Best access to necessary tools should any additional repairs or issues arise.
            3. Best access to additional parts if needed.
            4. Reduced appointment and travel time, which in turn reduces overall repair time.
        ii. Another option is a mobile repair van that functions as a repair facility on wheels and can be deployed to the home or clinic. This achieves the above goals while reducing travel issues for the client. It is imperative that these vehicles include all necessary tools in order to ensure any number of repairs, whether they are expected or not, can be completed within the visit.
        iii. Repair in the consumer's home may occur when the consumer's and/or caregiver's ability to travel is restricted or the provider deems the home location as most efficient for all.
3. Remote Technology
    a. Prior to service, a service request should be triaged to determine the best approach to addressing the service issue. This can be performed through a variety of strategies such as interactive video inspection and data available from the device.
        i. Utilize available remote strategies to monitor, assess and triage to resolve the problem or to schedule an in-person service encounter.
4. Service Encounter
    a. At the time of any in-person encounter, the equipment should be inspected for all identified and any potential unidentified issues to avoid unforeseen loss of mobility and additional service trips for the consumer.
    b. Complete any preventative maintenance items recommended by the manufacturer to prevent additional service calls or loss of mobility for the consumer.
    c. In the event of an extended repair cycle, an acceptable short-term rental wheelchair should be provided if needed.
    d. Technicians should be properly trained on all devices provided by the supplier with procedures to elevate issues back to the clinical team when issues or concerns are identified.
5. Documentation
    a. Maintain appropriate documentation, both service and medical, for the purpose of best practices.
    b. Provide sufficient documentation of the services provided as well as the amount of time spent performing the service.
    c. Request payer to make the repair history of the device available to the supplier to make known the frequency of what and who has serviced the equipment.
6. Quality assurance
    a. Collect all relative data regarding repairs by functional step. Intake, scheduling, repair time, travel time, documentation and billing.
    b. Routinely summarize the above data to understand where opportunities for improvement exist and where roadblocks to quicker repair times and reduced costs exist.
    c. Routinely share data with stakeholders in the pursuit of continuous improvement, with referral sources to encourage partnership in pursuit of better processes, quality equipment, and with payers to educate on their role in supporting shorter repair cycles.

PREVENTATIVE MAINTENANCE AND REPAIR

A preventative maintenance service should be introduced to the consumer at the time of the delivery/fitting of the mobility system. A separate session within a reasonable time period after delivery should be scheduled to go over expectations and training on the mobility device with the consumer. This can take place in-person or via phone or digital communication.

1. Suppliers should go over their specific company policies regarding maintenance and repairs with a leave behind written checklist and provide complete warranty information on the components, including where this information can be found in the owner's manual and/or manufacturer's website.
2. It is imperative that all information and expectations discussed at the time of delivery is provided in written format for future references, including who to contact. Instructions regarding consumer responsibilities should be tailored to the level of experience and ability of the consumer.
3. Set a preventative maintenance appointment schedule per manufacturers recommendations as well as consideration of both the environment and consumer. It is recommended that manufacturers provide in their owner's manuals a clear set of expectations for both the consumer and the supplier to follow. Manufacturers should indicate the level of expertise required to perform various services. This can be in the form of a checklist or narrative; however, it is recommended that mobility device manufacturers develop a standardized format.
4. Advise consumers on their Reasonable Useful Life (RUL) expectancy of components due to those factors listed above.

PREVENTATIVE MAINTENANCE GUIDELINES

The preventative maintenance of wheelchairs applies to the mechanical and electrical components of the chair as well as its seating:

1. Mechanical Components
    a. The function and performance of the wheelchair's casters, wheels, brakes, footrests, armrests, headrests and backs.
    b. These items should be checked and replaced routinely as determined by their wear and use by the user to decrease failures.
2. Electrical Components
    a. The function and performance of the wheelchair's battery, joystick, controller and other electronics.
    b. These items should be checked and replaced routinely whenever signs of decline or malfunction are found.
3. Drive Motors
    a. The function and performance of the drive motors of power wheelchairs should especially be monitored due to its importance for overall wheelchair function.
    b. Motors should be routinely checked, and any suspected issues should be addressed as soon as possible.
4. Seat Actuators
    a. For users with seating functions in their wheelchair, seat actuators are another vital component that must be given specific attention.
    b. Actuators should be routinely checked, and any suspected issues should be addressed in a timely manner.
5. Inspection
    a. In addition to the above specified items the entire device should be inspected and tested for potential issues.

It is not expected that all consumers of CRT wheelchairs will be able to perform many of the service or maintenance requirements. CRT level power wheelchairs especially are highly technical in their design and include motors, high level electronics, alternative drive controls and seat actuators, which require servicing by trained technicians. An individualized service plan can be created that considers the preventative maintenance schedule and the consumer's ability to complete these tasks.

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CONSUMER RESPONSIBILITIES:

During the repair and maintenance session scheduled after delivery, the consumer should be instructed on how to properly perform inspections as detailed in either the supplier's written instruction checklist or the manufacturer's owner's manual. When the experience and abilities exist, the consumer can be instructed to make minor repairs such as tire pressure and caster flutter. The frequency of these inspections and repairs and their reasoning should be clearly explained.

PROVIDER RESPONSIBILITIES:

- Follow manufacturer's recommended guidelines for preventative maintenance and tailor that to the user's experience, ability, environment and usage.
- Establish a recommended inspection and service schedule that covers all brands of CRT wheelchairs sold based on manufacturer's recommendations and the supplier's experience. Provide this in a written form to the consumer at the time of the CRT delivery or written instructions on where to access the information electronically.
- Train all technicians and Rehabilitation Technology Suppliers (RTS) on the procedures for instructing inexperienced consumers on how to thoroughly inspect their wheelchairs for potential problems.
- Encourage consumers to adhere to recommended preventative service and inspections.

PAYER GUIDELINES:

Payer changes to policy would improve repair times, reduce downtime of equipment and reduce cost to the system.

1. Develop documentation requirements that are consistent across various payer groups. Currently CRT providers interface with several payer sources with differing policies and fee schedules.
2. Allow providers to repair the consumers mobility device prior to approval from the payer especially when the repair is imminent and a threat to health and function. Prior authorization can add anywhere from days to weeks to repair times. Payment would be made upon submission of designated documentation.
3. Reduce documentation and prior authorization requirements for service and replacement of wearable items such as upholstery, casters, forks, bearings, batteries, leg supports and arm supports that are expected to fail periodically.
4. Provide reimbursement for documented "preventative maintenance" work per manufacturer's guidelines.
5. Ensure access for a CRT appropriate short-term rental wheelchair when a repair is expected to take more than one day if the equipment is disabled or unsafe to utilize.

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RESNA CERTIFICATION NEWS

Written by: **ANDREA VAN HOOK, EXECUTIVE DIRECTOR, RESNA**

How is the summer over, and it's already fall? It seems like just yesterday we were celebrating spring, and now it's just a few short months until the holiday season starts!

Are you feeling a little frisson of panic like I am right now? Well, let me go a step further. If you are one of those who will be recertifying your ATP this fall, take note: you are not alone. In fact, there are 732 people in the same boat. Not only that, but an additional 200 are due in January 2024.

So how does RESNA process that large number of recertifications during a few short months? We can't do it without your help. Follow these steps to ensure a timely and hassle-free renewal:

- Use RESNA's online renewal form and upload digital copies of your continuing education certificates and the rest of your paperwork at least six weeks prior to your certification expiration date. Yes, early January folks, I'm talking to you — get that paperwork in the first week of December!
- If you find the form difficult to use, and you can't upload your certificates, scan all the certificates into a single PDF and email everything to certification@resna.org. Do not snail mail.
- Make sure your RESNA online account is up-to-date! It is your responsibility to ensure that we have your correct information. Your username is the email address you have on file with RESNA. You can reset your password if you've forgotten it. Remember to check that spam folder for the reset link!
- Don't delay — pay that invoice right away! Within three business days after receiving your paperwork, we will place an invoice on your account and email you. If you do not receive the email, check your spam folder. If you still can't find an email, login to your RESNA account and see if the invoice is there before contacting the office.
- Make sure you have the required continuing education credits, and you submit digital copies of the certificates. You must have 20 hours of continuing education over the previous two years. Of those 20 hours, at least 10 must be IACET CEUs or from a preferred provider, like AOTA, APTA, etc. or from a university, like University of Pittsburgh. Note: NRRTS is an IACET-accredited provider, as is RESNA.

You can use the same continuing education credits for ATP recertification as you use to renew your NRRTS registration. NRRTS requires Registrants to renew on an annual basis with documentation of 1.0 CEU of continuing education. This means that those who successfully renew NRRTS registration meet the requirements to renew their ATP. The only difference is that the ATP renewal is every two years.

The RESNA office will close for the holidays on Friday, Dec. 22 and reopen Tuesday, Jan. 2, 2024. Plan ahead and stress less!

SMS EXAM ON HIATUS STARTING NOV 1, 2023

RESNA will launch an updated SMS exam form in early 2024. As a result, the current SMS exam is available until Nov. 1, 2023, and then will go on hiatus until

February 2024. The new SMS exam blueprint is now available on the RESNA website for those who would like to take the exam next year.

The SMS is a specialty certification for those working in seating and mobility. Eligibility requirements include holding an ATP certification in good standing, work experience in seating and mobility, and involvement in specific professional activities showing leadership in the field. Visit the RESNA certification website for more details.

ANNUAL NOTICE OF THE CODE OF CONDUCT AND STANDARDS OF PRACTICE

Earning certification requires not only demonstration of a core knowledge in assistive technology, but also a requirement to follow RESNA's Code of Ethics and Standards of Practice, which sets forth the fundamental concepts for ethical practice. Violation of one or more can result in punitive action by the RESNA Professional Standards Board, who oversees the Certification Program.

It's a good idea to review the Code of Conduct and Standards of Practice once a year, and make sure you know and understand the four duties owed by ATPs to consumers and the public, to the profession, to companies and affiliates, and to RESNA. The Code of Conduct and Standards of Practice are posted on the RESNA website in the certification section.

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SHARING OUR PASSION: WHY DO WE CARE?

Written by: **LINDA NORTON, M.SC.CH, PH.D., OT REG. (ONT)**

The NRRTS Canadian Advisory Committee has been critical to the success of NRRTs in Canada. Recently we've taken the opportunity to reflect on our accomplishments, and why, we as individuals, invest our time and energy to this committee.

"This committee helped me understand how things are the same, and how they are different between Canada and the U.S. Yes, the funding sources are different, but at the core, there are the same issues, challenges and commitment to meeting the client's needs in Canada and the U.S."
– Weesie Walker, ATP/SMS

As a committee, we have recognized the similarities to our U.S. counterparts, but we have also worked to ensure that the Canadian context is represented in NRRTs activities, education and resources. For example, Canadians now hold board positions, participate in the planning of the slate of webinars offered for the year as well as in the selection of articles for DIRECTIONS.

Our goal is to ensure people who use Complex Rehabilitation Technology receive the most appropriate equipment that enables them to participate in life.

"I've always felt we need to lead with education. Prescriber and provider education leads to better product selection for the end user and a happy client. We want to make a positive difference in our clients' lives. Groups like the NRRTs Canadian Advisory Committee lead to higher standards, so that clients don't end up with inferior products because of lack of education."
– Judy Rowley

"NRRTS enables your teams to be trained using the best education that is available with Canadian and American speakers (beginners through experienced providers) with articles and webinars"
– Michelle Harvey, BSC HONS OT, RRTS®

Our goal is to ensure the provision of Complex Rehab Technology (CRT) is recognized as a profession. The provision of CRT does not become recognized as a profession by saying, "We're a profession!" We become a profession by declaring and recognizing a unique set of knowledge and skills, participating in ongoing education, adhering to a set of professional standards and ethics, and holding each other accountable. NRRTS gives us all these components.

"NRRTS has allowed me as a professional to show others what I do. The best advocacy for your client is to bring the biggest toolbox … best way to serve the client is to want to help build the tool box and raise the level of professionalism in Canada, in this industry. We want to be leaders."
– Jason Kelln, ATP, CRTS®

Professional CRT expertise isn't free. It is a professional service that should be funded. Demonstrating our professionalism through the work we do each day, investing in education, adhering to standards of practice and ethics, and being self regulating solidify our position as professionals. Until we hold ourselves, and each other, accountable are we really professionals, or do we just sell stuff?

"NRRTS is the vessel that elevates us – why are there not higher professional standards? I want to leave a long-lasting impact on this industry. Governments believe we sell stuff, but we are not recognized as professionals who are an integral part of our health care system. We have a profound impact on people's lives."
– Christien Allen

As we attend conferences and network with our peers, it is hard to ignore that we are an aging profession. In fact, the average age of a Complex Rehab Technology provider is 52; approximately 10 years older than the national average worker age[1]. It is likely that there is a similar aging workforce in Canada. As people retire, there is a danger that we will lose the tacit knowledge we have gained over the collective years of experience.

"We try to engage new people and promote ourselves as a viable industry. How do we encourage young people to take up this profession? We keep them engaged in education and give them the tools to be successful. The Canadian NRRTS Committee helps to shape the education program and the future of the industry."
– Kathy Fisher, B.SC.(OT)

As individuals who participate on the Canadian NRRTS committee, we have relationships with each other outside of our work with NRRTS. There are supplier-vendor relationships, and we are often sitting beside our peers who may be business competitors. We bring different perspectives — manufacturers, large companies and smaller companies. What draws us together is our passion for our profession and our shared goals.

"It doesn't matter who you work for, NRRTS is the priority and how we make NRRTs relevant to the registrants. It is about cooperation, not competition – a united cause. Our united cause gives us credibility as a profession and how we provide services as NRRTS is a way to build trust."
– Weesie Walker, ATP/SMS

"I appreciate that NRRTS uses a collection of diverse voices to bring together decades of knowledge and experience in a single community of practice that is focused on providing an excellence-driven client experience. My clinical lens contributes to that voice."
– Cher Smith

So why am I involved in NRRTS? I believe that everyone has a voice that deserves to be heard as we shape our profession. It is thorough our diversity of knowledge, skills and experiences that can move us forward in providing excellent care to our clients, at a fair reimbursement and secure a bright future for those entering the Complex Rehab Technology (CRT) profession.

Now it's your turn. We want to hear from you. We want you involved in the NRRTS committees and activities. Interested in promoting the professionalism of CRT provision in Canada? Consider volunteering to join the NRRTS board or the Canadian Advisory Committee. Interested in sharing knowledge or advocating for training and education? Consider volunteering for the education committee or DIRECTIONS committee. Better yet, volunteer to run a workshop or write an article. Interested in participating but worried about how to present or how to write an article? Let us know. We will help pair you with someone who can help. Don't think you have any expertise to share? We all have experiences to share. Think back over your career. What do you wish you were told at the beginning that you know now? What interesting clients have you seen? What have you learned along the way? Volunteer with NRRTS, share your expertise; it is well worth the investment.

CONTACT THE AUTHOR

Linda may be reached at
LINDA.NORTON@MOTIONCARES.CA

REFERENCE
NIX, SCHEIN, R. M., CLAYBACK, D., BRIENZA, D. M., & SCHMELER, M. R. (2021). AN EXPLORATORY STUDY ANALYZING DEMOGRAPHICS AND OPINIONS OF ASSISTIVE TECHNOLOGY PROFESSIONALS WITHIN THE COMPLEX REHAB TECHNOLOGY INDUSTRY. ASSISTIVE TECHNOLOGY, 33(5), 255–263. HTTPS://DOI.ORG/10.1080/10400435.2019.1619634

Linda Norton, M.Sc.CH, Ph.D., OT Reg. (ONT), is the Director of Learning and Clinical Education for Motion, leading mobility and accessibility solutions provider serving clients of all ages in Ontario, Alberta, British Columbia and Saskatchewan. Additionally, she is on faculty at the International Interprofessional Wound Care Course and Western University's Advanced Health Care Practice–Wound Healing program. She also serves on the board for NRRTS Canada and the Canadian Pressure Injury Advisory Panel, an interprofessional representation of sectors of the health care community to address the issue of pressure injuries in the Canadian population.

NEW NRRTS REGISTRANTS

Congratulations to the newest NRRTS Registrants. NAMES INCLUDED ARE FROM JULY 14, 2023, THROUGH SEPT. 15, 2023.

Austin Sweet, ATP, RRTS®
Phoenix Rehab & Mobility
3700 Brainerd Rd
Chattanooga, TN 37411
Telephone: 706-935-2352
Registration Date: 07/24/2023

Brian Severson, ATP, CRTS®
National Seating & Mobility, Inc.
2387 River Road #130
Grand Junction, CO 81505
Telephone: 970-200-9656
Registration Date: 09/07/2023

Brittney Salter, RRTS®
Southeastern Medical Supply
3615 Century Blvd, Unit 1
Lakeland, FL 33811
Telephone: 863-607-4495
Registration Date: 07/27/2023

Cassandra Kinnamon, RRTS®
National Seating & Mobility, Inc.
302 Innovation Dr, Ste 500
Franklin, TN 37067
Telephone: 405-420-4202
Registration Date: 08/23/2023

Chevhaun Mathers (Jarrett), RRTS®
Davies Home Healthcare
1417 St Georges Ave
North Vancouver, British Columbia V7L3J3
Telephone: 604-985-8771
Registration Date: 09/11/2023

Christian Cervantes, RRTS®
Superior Mobility
1950 E 220th St, Ste 208
Carson, CA 90810-1651
Telephone: (562) 505-0899
Registration Date: 08/30/2023

Christine Caetano, RRTS®
Kingsville IDA - Sunshine Drugs
271 Main St E
Kingsville, Ontario N9Y1A7
Telephone: 519-733-6541
Registration Date: 08/07/2023

Cole Walking Eagle, ATP, CRTS®
Walking Eagle Mobility
1105 West Poplar St, Ste C
Walla Walla, WA 99324
Telephone: 509-386-5935
Registration Date: 08/30/2023

Craig Moulden, ATP, CRTS®
Alliance Rehab & Medical Equipment
2205 Petrus Cir
Ozark, MO 65721
Telephone: 417-581-5747
Registration Date: 07/27/2023

Daniel Daoust, RRTS®
TLC Medical Supply
691 Brookdale Ave, Unit E
Cornwall, Ontario K6J5C6
Telephone: 613-258-3344
Registration Date: 08/16/2023

Daniel Torrison, RRTS®
Independent Living Specialists
106 Bailey St
Grovedale, Victoria 3216 Australia
Telephone: 0415-150-353
Registration Date: 08/01/2023

Daniel Avery, RRTS®
Reliable Medical Supply, Inc.
8226 W Mineral King
Visalia, CA 93291
Telephone: 559-509-1291
Registration Date: 08/30/2023

Daniel Bartran, RRTS®
National Seating & Mobility, Inc.
13 Power Ln
Hattiesburg, MS 39402-8563
Telephone: 601-550-8096
Registration Date: 08/31/2023

James C. Bond, ATP, CRTS®
National Seating & Mobility, Inc.
1417 Orange St
Helena, MT 59601-0646
Telephone: (406) 696-2348
Registration Date: 09/01/2023

Jennifer Barrow, OTR/L, ATP, CRTS®
Rehab Medical Inc.
131 Bethea Rd, Ste 606
Fayetteville, GA 30214
Telephone: 678-834-5874
Registration Date: 08/23/2023

Lazaro Muniz, ATP, RRTS®
Warrior Service Company, LLC
1075 E 14th St
Hialeah, FL 33010
Telephone: 888-724-4344
Registration Date: 09/06/2023

Mary Lisa McGuire, ATP, RRTS®
Rehab Medical Inc.
2700 Northeast Expressway
Atlanta, GA 30345
Telephone: 470-433-7258
Registration Date: 09/06/2023

Palwinder Sangha, RRTS®
Davies Home Healthcare
1471 St Georges Ave
North Vancouver, British Columbia V7L3J3
Telephone: 604-985-8771
Registration Date: 09/12/2023

Sabrina Montandon, RRTS®
Reliable Medical Supply, Inc.
8226 W Mineral King
Visalia, CA 93291
Telephone: 559-205-2982
Registration Date: 08/30/2023

Sara Miller, RRTS®
Harding Medical
163 Susie Lake Cres
Halifax, Nova Scotia B3S1C3
Telephone: 902-453-6900
Registration Date: 07/27/2023

Tamara Shoemaker, RRTS®
Cook Medical Supply
162 Hwy 13 South
Morton, MS 39117-3352
Telephone: 601-732-6334
Registration Date: 08/25/2023

Vincent Gumbo, RRTS®
Motion
1450 Hopkins St #5
Whitby, Ontario L1N2C3
Telephone: 905-260-5966
Registration Date: 08/01/2023

CRTS®

Congratulations to NRRTS Registrants recently awarded the CRTS® credential. A CRTS® receives a lapel pin signifying CRTS® or Certified Rehabilitation Technology Supplier® status and guidelines about the correct use of the credential. NAMES LISTED ARE FROM JULY 14, 2023, THROUGH SEPT. 15, 2023.

Brian Severson, ATP, CRTS®
National Seating & Mobility, Inc.
Grand Junction, CO

Cameron Russelburg, ATP, CRTS®
National Seating & Mobility, Inc.
Indianapolis, IN

Cole Walking Eagle, ATP, CRTS®
Walking Eagle Mobility
Walla Walla, WA

Jennifer Barrow, ATP, CRTS®
Rehab Medical Inc.
Fayetteville, GA

Job Huckaby, ATP, CRTS®
Doc Supply - Rehab
Jackson, TN

Latoria Cooke, ATP, CRTS®
Numotion
Norcross, GA

Xavier Garza, ATP, CRTS®
Medical Plus Supplies
Houston, TX

FORMER NRRTS REGISTRANTS

The NRRTS Board determined RRTS® and CRTS® should know who has maintained his/her registration in NRRTS, and who has not.

NAMES INCLUDED ARE FROM JULY 14, 2023, THROUGH SEPT. 15, 2023. FOR AN UP-TO-DATE VERIFICATION ON REGISTRANTS, VISIT WWW.NRRTS.ORG, UPDATED DAILY.

Richard J. Wilwohl, ATP
Erie, PA

Ray Kent
Fresno, CA

Charles P. Barrett, III., ATP
Germantown, MD

Richard L. Liley, ATP
Temperance, MI

Randal Potter, ATP/SMS
Aurora, CO

Bobbi Mackedanz, ATP/SMS
La Crosse, WI

Paul Arnold, ATP
South Burlington, VT

John Small, ATP
Middleton, WI

Robert Proracki
Nanaimo, British Columbia

David Stokes
Cranbrook, British Columbia

BE SURE TO FOLLOW NRRTS ON SOCIAL MEDIA!

RENEWED NRRTS REGISTRANTS

The following individuals renewed their registry with NRRTS between July 14, 2023, and Sept. 15, 2023.

PLEASE NOTE **IF YOU RENEWED AFTER SEPT. 15, 2023,** YOUR NAME WILL APPEAR IN A FUTURE ISSUE OF DIRECTIONS.
IF YOU RENEWED PRIOR TO JULY 14, 2023, YOUR NAME IS IN A PREVIOUS ISSUE OF DIRECTIONS.

FOR AN UP-TO-DATE VERIFICATION ON REGISTRANTS, PLEASE VISIT WWW.NRRTS.ORG, WHICH IS UPDATED DAILY.

Aaron Harvey, RRTS®
Albert Alvarado, ATP, CRTS®
Albert Baxter, ATP, CRTS®
Alex Biello, ATP, CRTS®
Andres V. Ferreira, ATP, CRTS®
Andrew Cantrell, ATP, CRTS®
Anthony B. Nunez, RRTS®
Aundre Judge, RRTS®
Barney Deichert, ATP, CRTS®
Benjamin Jones, RRTS®
Blake Faulk, RRTS®
Bradley R. Gooch, MBA, ATP, CRTS®
Brett A. Watson, ATP, CRTS®
Brian Coltman, ATP/SMS, CRTS®
Britt Sitzes, ATP, CRTS®
Bryan Benton, ATP, CRTS®
Carlos Lorenzo, RRTS®
Carlos M. Collazo, ATP, CRTS®
Christian Stephens, PTA, ATP, CRTS®
Cynthia Bohlmann, COTA/L, ATP, RRTS®
Dan Tourond, RRTS®
David T. Murray, ATP, CRTS®
Derek W.M. Ng, ATP, CRTS®
Donald W Callaway, ATP, CRTS®
Douglas Crana, ATP, CRTS®
Douglas Hess, ATP, CRTS®
Eric Newell, ATP, CRTS®
Faith Uzebu, RRTS®
Francesca Whitaker, ATP, RRTS®
Frank A. Lane, ATP, CRTS®
Gregg M. Platis, ATP, CRTS®
Jaime L Pla-Gotay, RRTS®
James Blair, ATP, CRTS®
James Rees, ATP, CRTS®
Jamin Sprague, ATP, CRTS®
Jason Kelln, ATP, CRTS®
Jason Cook, ATP, CRTS®
Jason Lang, ATP, CRTS®
Jason P. Steiner, ATP, CRTS®
Jay Krusemark, ATP, CRTS®
Jed Golding, ATP, CRTS®
Jeff Cysewski, ATP, CRTS®
Jeff Lane, ATP, CRTS®
Jeffrey C. Ray, ATP, CRTS®
Jillian Petrillo, RRTS®
Job Huckaby, ATP, CRTS®
Joe Wood, RRTS®
John Lanier, ATP, CRTS®
Jonathan C Adams, ATP, CRTS®
Jordan Joslin, ATP/SMS, CRTS®
Jordan Swan, ATP, CRTS®
Jordan Henderson, RRTS®
Jose Escobedo, ATP, CRTS®
Joseph Loza, ATP, CRTS®
Joseph Vance Bryant, ATP, CRTS®
Joshua Hamilton, RRTS®
Julian C. Fiske, ATP, CRTS®
K. Brandon Cowart, ATP, CRTS®
Karen Bussey, ATP, CRTS®
Kathy Fowler, ATP, CRTS®
Katie Allesia, RRTS®
Kenneth Gibbons, ATP, CRTS®
Kevin Ross-Jenkinson, ATP, CRTS®
Kevin Wallace, ATP, CRTS®
Kevin J. Mooney, ATP, CRTS®
Kristen Porcello, OTR/L, ATP, CRTS®
Latoria Cooke, ATP, CRTS®
Lisa Hammock, ATP, CRTS®
Lyle Haynes, ATP, CRTS®
Lynn Ferguson, ATP, CRTS®
Mark Hebert, ATP, CRTS®
Matthew Lippy, ATP, CRTS®
Matthew MacQueen, RRTS®
Michael Thayer, ATP, CRTS®
Michael T. Crown, ATP, CRTS®
Miguel Nunez, RRTS®
Nancy Greco, ATP, CRTS®
Pat Molloy, RRTS®
Phillip D. Swanson, ATP, CRTS®
Rick Church, RRTS®
Rick J. Capps, ATP, CRTS®
Robert Garwood, ATP, CRTS®
Robert Brent Hudson, ATP, CRTS®
Robin Grider, ATP, CRTS®
Rose Ebner, ATP/SMS, CRTS®
Ryan J. Romero, ATP, CRTS®
Sally Buxton, RRTS®
Sarah Stelter-Stirrett, RRTS®
Sean P. Reed, ATP, CRTS®
Sharon Frant Brooks, MA, OTR/L, ATP/SMS, CRTS®
Shean Wages, MHA, ATP, CRTS®
Stacy Denmark, ATP, CRTS®
Stephen Clark, ATP, CRTS®
Tammy McDowell, RRTS®
Tammy Wilcox, RRTS®
Ted L. Hyde, BFA, CO, FAAOP, ATP, CRTS®
Teresa Glass-Owens, ATP, CRTS®
Teresa "Gaye" Barger, PTA, ATP, CRTS®
Thomas C. Powell, IV, ATP, CRTS®
Tim Robinson, ATP/SMS, CRTS®
Trisha Swan, RRTS®
Tristan Yapuncich, ATP, CRTS®
William Leoutsacos, RRTS®
William Marlatt, RRTS®
Xavier Garza, ATP, CRTS®
Yvonne Powell, RRTS®
Zeb Dugan, ATP/SMS, CRTS®

NRRTS REGISTRANT — RENEWAL FAQS

Renewing your NRRTS Registrant status requires action each year.

HOW DO I ACCESS THE FREE NRRTS EDUCATION?

If you need your login information, please contact Amy Odom at aodom@nrrts.org.

HOW DO I RENEW MY REGISTRATION?

All renewals can be completed online at https://nrrts.org/registrant-renewal/

WHAT IF MY MANAGER IS NOT IMMEDIATELY AVAILABLE TO SIGN THE RENEWAL?

Please complete the renewal and include his/her contact information on the form, and NRRTS will obtain your manager/supervisor's signature on your behalf.

CAN I UPLOAD CEUs WHILE COMPLETING THE RENEWAL ONLINE?

Yes, but you must choose you didn't complete education with NRRTS.

I DIDN'T GET MY EDUCATION UPLOADED, SO CAN I REDO THE ONLINE RENEWAL FORM?

No, or you'll be charged again. Simply email the CEUs to Amy Odom at aodom@nrrts.org.

IS THERE A LATE FEE?

Yes, if you renew 30 days past your renewal due date, you will be charged a late fee. Renew at https://nrrts.org/renewal-with-late-fee/.

HOW LONG DOES IT TAKE FOR NRRTS TO COMPLETE MY RENEWAL?

The renewal process takes approximately three business days.

CAN MY NRRTS CERTIFICATION BE REVOKED?

Yes, if you are more than 60 days past your renewal date, your name will be presented to the board of directors for non-renewal. If you have extenuating circumstances, please contact Amy Odom at aodom@nrrts.org.

WHAT IF I HAVE CHANGED EMPLOYERS?

Please complete a change of employment form using this link: https://nrrts.org/change-of-employment-form/

WHAT IF I HAVE EXTENUATING CIRCUMSTANCES REGARDING MY RENEWAL?

Please contact Amy Odom at aodom@nrrts.org. Our goal is to work with you, but you must communicate with us.

NRRTS National Registry Of Rehabilitation Technology Suppliers
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www.nrrts.org

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Lubbock, TX 79424

P > 800.976.7787

FRIENDS OF NRRTS [FONS]

As Corporate Friends of NRRTS, these companies recognize the value of working with NRRTS Registrants and support NRRTS' Mission Statement, Code of Ethics and Standards of Practice.

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