SNAPSHOT IN TIME:

PRESSURE MAPPING AS A TOOL IN MOBILE SHOWER COMMODE CHAIR SELECTION AND SETUP

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Jerry is a 47-year-old C6-C7 complete quadriplegic, 27 years post injury following a motor vehicle accident. Jerry presents with a reducible left low pelvic obliquity and posterior pelvic tilt. He uses a power wheelchair with power tilt and recline, a custom-molded cushion and a RAZ self-propel mobile shower commode chair for toileting and showering. Jerry is moderate assist for sliding transfers. Jerry experienced his first pressure injury in November 2023 — Stage 2 injury inferior to the left ischial tuberosity.

A TEAM APPROACH

Jerry's occupational therapist initiated a thorough assessment with the help of his mobility and accessibility consultant to address the issue. They worked to identify potential areas in Jerry's daily life that could have led to the source of the pressure injury. Considering all surfaces where he spends time, including his bed, wheelchair and mobile shower commode chair. Jerry and his wife, Maddalena, a manual wheelchair user who works full time, were included in all intervention decisions. Jerry preferred not to alter his traditional marital bed or use a mechanical lift for transfers but agreed to assess changes in his MSCC to reduce pressure and support healing. Jerry typically spends two to three hours every other day in the mobile shower commode chair, which became the focus of the assessment. Since the team had not assessed the mobile shower commode chair at this capacity, they asked the manufacturer representatives to join the team approach.

INITIAL ASSESSMENT DECEMBER 2023

The team met at Jerry's local dealer to assess the mobile shower commode chair using a BodiTrak2 pressure mapping system. His current commode is a RAZ self-propel with a molded front opening seat and tension adjustable back support. Baseline pressure mapping, Figure 1, revealed increased pressure on his left ischial tuberosity, most likely contributing to his pressure injury. His pelvis was in a posterior tilt, and pressure distribution was suboptimal, particularly on his buttocks and thighs. The team has implemented several steps to address this.

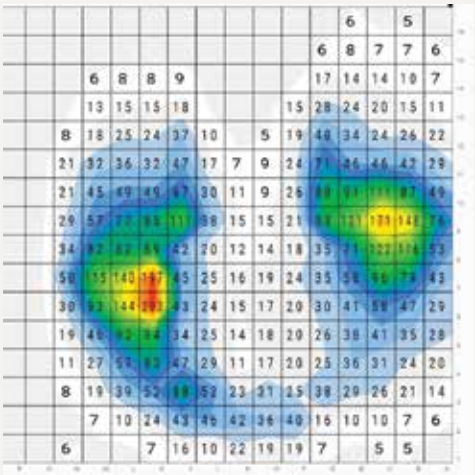

FIGURE 1 Baseline pressure mapping

UPGRADING TO VISCO FOAM INTERFACE

The team swapped Jerry's molded seat for a visco foam interface seat, which improved pressure distribution by allowing more immersion. Ischial Pelvic Alignment System was used to move the seat 1" forward on the base to try to distribute more pressure to the rear buttocks. Footplates were lowered to try to increase thigh loading for pressure distribution. This seat change and minor adjustments led to better pressure reduction, Figure 2.

ADJUSTING THE SEAT POSITION

To neutralize the pelvis and ensure seat depth was not pulling Jerry into the Posterior pelvic tilt, the Ischial Pelvic Alignment System was moved back to the original position and then moved 1" more rearward. The tension adjustable back support was tightened to allow support of the posterior superior iliac spine. It was noted Jerry's pelvis moved closer to neutral. The team agreed that these adjustments, along with the previously made footplate adjustments, provided the most ideal results, Figure 3. Collectively, it was decided a custom 18-inch depth visco foam interface seat would be the best option moving forward to allow for pressure distribution and a more neutral pelvic position. Education on positioning utilizing pressure mapping was completed.

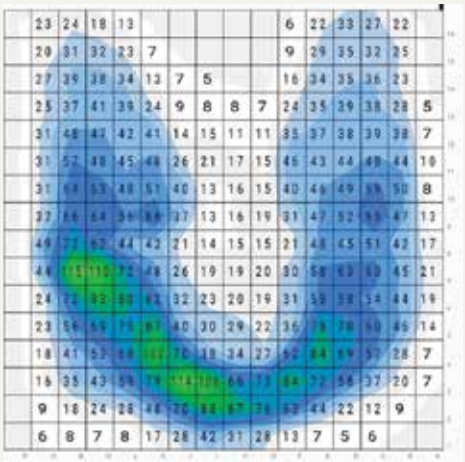

FIGURE 2 Visco foam interface seat moved forward, footplates lowered

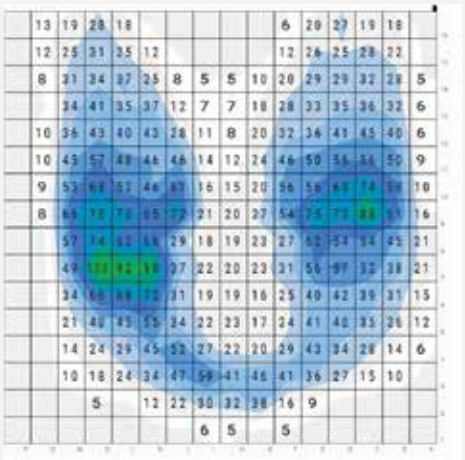

FIGURE 3 Visco foam interface seat moved rearward, back support adjusted

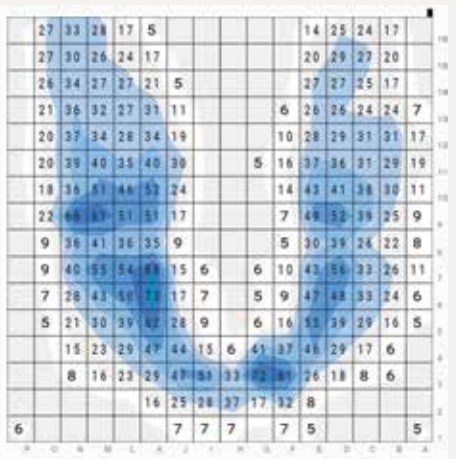

FIGURE 4 18" depth double Visco foam interface seat

FOLLOW-UP JANUARY 2024 – MOBILE SHOWER COMMODE CHAIR DELIVERY

Jerry's sore had not healed and had worsened slightly. Jerry had reduced his time in the mobile shower commode chair from three hours to two, but he could not tolerate the lower footplate position as he was unable to position himself properly to empty his bowels. Despite these challenges, Jerry remained committed to avoiding the use of a mechanical lift, preferring independent transfers and independence with self-propulsion. The team reconvened to deliver Jerry's new 18-inch depth VFI seat and the initial pressure mapping showed positive results.

During this session, the team also trialed an 18-inch custom double foam visco foam interface seat, with the goal to provide more immersion and envelopment, leading to further improvements in pressure mapping. Education on proper positioning was prioritized as the pressure mapping showed positive results when he was ideally positioned, Figure 4. Jerry and his care team were educated on the importance of centering his pelvis during use of the mobile shower commode chair.

FOLLOW-UP MARCH 2024

Jerry's pressure sore worsened, and he underwent flap surgery. Post-surgery, significant changes were made to his routine. Transfers were now performed with a mechanical lift, and his bowel routine was shifted to bed to reduce time spent in the mobile shower commode chair, which would now be used solely for showering. Jerry also lost 51 pounds, prompting another reassessment of his equipment.

FINAL ASSESSMENT JUNE 2024

The team reassessed Jerry's equipment, focusing on proper positioning in his mobile shower commode chair.. While pressure mapping was consistent with previous assessments, maintaining positioning became more challenging and the team's priority. The team discussed the potential benefits of incorporating tilt and recline into the mobile shower commode chair for pressure relief, something Jerry had previously resisted. Figures 5 and 6 demonstrate the significant changes with the use of tilt and recline decreasing pressure on the buttocks. With demonstration of the benefits, Jerry agreed to switch to a RAZ Attendant Tilt base, with tilt and recline. Education was completed using guidelines from the Rehabilitation Engineering and Assistive Technology Society of North America Position on the Application of Tilt, Recline and

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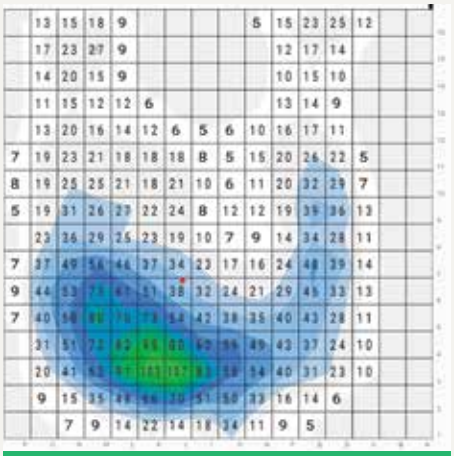

FIGURE 5 Tilt of 25 degrees

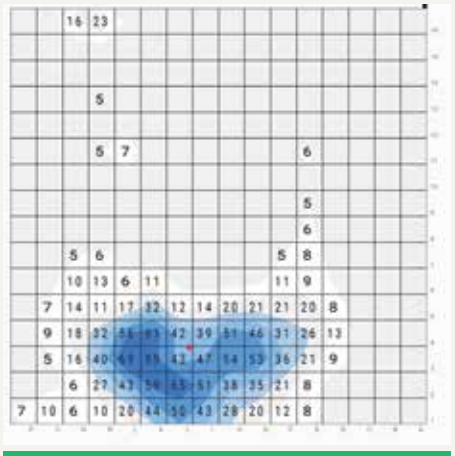

FIGURE 6 Tilt of 40 degrees, recline of 100 degrees

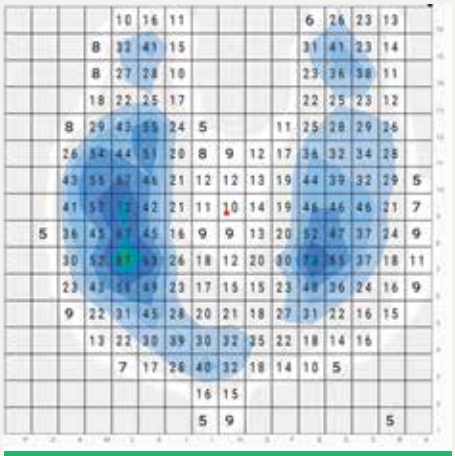

FIGURE 7 15 degrees of tilt to maintain independence

REHAB CASE STUDY
(CONTINUED FROM PAGE 33)

Elevating Leg Rests for Wheelchairs. When tilt is used alone, the degree of tilt must be greater than 25 degrees for pressure relief at the ischial tuberosity and the greatest reductions in pressure are seen when tilt and recline are used together. Figure 7 shows Jerry in 15 degrees of tilt to maintain independence.

CASE TAKE AWAYS

Jerry's case highlights several important takeaways for health care professionals:

- Client Preferences: Respecting Jerry's independence while navigating complex health challenges was key to maintaining his quality of life.
- Pressure Mapping: This tool provided valuable insights into how small changes in equipment selection and setup can significantly impact pressure distribution.

Jerry and his wife, Maddalena, during the first assessment.

- Education: Continuous education for Jerry, his wife, and care workers was essential for maintaining proper positioning with the hopes of preventing future injuries.
- Commode Setup: mobile shower commode chairs require the same level of consideration and customization as wheelchairs to optimize independence, positioning and pressure relief.

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Alli Speight, MScOT, ATP, began her career as an occupational therapist in the community setting, where her expertise was sought after for conducting home safety and mobility device evaluations. Her dedication to enhancing the lives of individuals through optimal seating and mobility solutions led her to join Motion Composites in 2016 as a clinical education specialist. Now as director of education with Motion Composites, Speight is instrumental in elevating the brand's presence across Canada and the United States. She is a respected figure in the field, providing global education on best practices in Complex Rehab Technology, with a primary focus on ultralightweight manual wheelchairs and seating and positioning prescriptions. Speight's passion and expertise earned her speaking opportunities at prominent conferences, including theInternational Seating Symposium, Canadian Seating and Mobility Conference and ATSA. Speight is also a member of the Canadian Advisory Committee for iNRRTS.