**Posture and Mobility Group Conference, Manchester 2018**

**Breakout 5 Reflective Piece by Laura Reddy (Occupational Therapist, National Star College Cheltenham)**

I attended Breakout session 5 by James Hollington (Principal Clinical Scientist) from NHS Lothian Wheelchair Service. He utilised two complex case studies to illustrate the successful use and potential value of anterior supports in customised seating. Anecdotally he had found that such supports were worth clinical consideration in cases where:

* Clients presented with complex posture and required a full foam carve.
* Clients were corkscrewing by laterally flexing their spine and rotating their torso out of their seating system.
* Clients were without functional ability in their upper limbs.
* Tilt and harnesses (even Y harnesses) were not sufficient for anterior anchorage and prevention of rotation from the shoulder.
* All other feasible routes of seating had been explored first.

In these cases it has been seen that anterior supports could be used to help clients achieve an optimal seated position. This process is a labour intensive one requiring two casting bags and often presenting difficulties with scanning and processing. Such processing difficulties include the strength of the support (as one arm alone equals 5.3% of total body weight) and configuration of the support e.g. the way in which forces and weight can be integrated into the design to allow for functional operation of the catch required for hinging the new support. Specifically it was found that forces in line with one and other (i.e. those in perpendicular position) allow for better lateral catch release.

Additionally it was important to ensure that the interface of the anterior-lateral support to back rest was positioned posteriorly to the rib cage apex and shoulder to prevent any gap emerging between segments that the client could slip into. This particular interface configuration is also preferable as it allows for a shelf to be created under the flexed spine that can introduce some useful upward force and lift to prevent and protect against further scoliosis.

Engineering challenges aside the importance of identifying contraindicated risks to the client were also stated. Risks such as:

* Impact on breathing.
* Impact on shoulder joint and;
* Heat.

In terms of the risk to breathing pre-existing conditions and challenges should be considered but where benefits are felt to outweigh concerns it is suggested that clients might trial the impact of anterior support on breathing by spending a prolonged period in the casting bags. Over this extended period any vital signs may be monitored.

Strain on the shoulder joint may be mediated by carving a gutter/ shelf and enabling access to additional upper limb therapy.

Whilst heat may be managed by choice of material (such as spacer and/ or bamboo covers), incorporation of airflow holes and provision of education to users/ support staff regarding 24 hour postural management and appropriate choice of clothing.

In the event that all outlined risks and design considerations are subject to a well thought and stringent clinical reasoning process James demonstrated how resultant anterior supports could have an incredibly positive impact on service users’ quality of life. For some of the case studies presented this included:

* Increased comfort, outcome measured by a decrease in challenging behaviour and;
* A decrease in pulmonary aspiration (from three times a month to none).

These outcomes were measured in a measurable GAS goal format kind of way.

All of the above will be incredibly useful knowledge to come armed with when referring my own complex clients from special education to their retrospective wheelchair services. In the event that students are corkscrewing out of their old (or even new) moulded seating systems I can make a referral and provide real practical, solution-focused input. And in the event clinicians or engineers are still left scratching their heads or sideways glancing me sceptically I can direct them to the NHS Lothian’s service first-hand to see exactly how it can be done!

Yes it’s true there may be a few other things I may wish to consider such as how will my student now travel in transport without a harness? Can I have a cutaway for a seat belt carved into the foam or has this been risk assessed as reasonable? Also what is the impact of the anterior support from a sensory perspective? Are there effects of tonic pull and stimulation of key points that could be of relevance?

I guess the answer is that every case is different… but if we are sure to consider all of the aforementioned we may actually have a shot at successfully seating some of the trickiest client’s to seat within our most complex of caseloads.

Thank you James Hollington and NHS Lothian for sharing your findings and expertise I will most certainly be storing this new found knowledge in my OT tool box for a later date!