POSTURE AND MOBILITY

Volume 29:1 Summer 2012

The Journal of the Posture and Mobility Group

Spirit in Motion

Boccia

PhD Journey

TravelChair

Wheelchair Comfort

STOP PRESS!

NTE 2013

July 10th, 11th & 12th 2013

BRISTOL

After 5 years at Warwick University, PMG is finally upping sticks and taking the annual NTE down the road to Bristol.

Look out for more details in forthcoming ebulletins, and on www.pmguk.co.uk. Put these dates in your diary NOW!

POSTURE AND MOBILITY
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PMG
POSTURE & MOBILITY GROUP

Volume 29:1
Summer 2012

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EDITORIAL TEAM

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The journal is provided bi-annually to all members of the Posture and Mobility Group. To join, please see www.pmguk.co.uk/members

CONTRIBUTIONS

We welcome submissions from PMG members and others. Please supply your text in a Word (.doc) format, and supply images in EPS, TIFF or JPEG format.

Copy deadline for next issue: **5th October 2012**

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Nikki Emerson, Team GB 2012 Paralympian
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Back Cover:
Images of Boccia,
see article on page 7

SPIRIT IN MOTION

GENERAL ARTICLES

PMG 20TH ANNIVERSARY CONFERENCE

EDITORIAL

Paul Hewett has been beavering away over the past nine months to help us develop our “new-look” journal, and we are thrilled with the way it has turned out. We are very grateful to him and to Nicholas Smith, our publisher, who have worked together to get the new format up and running. And, as always, Olwen Ellis has gently steered us towards a summer holidays publication date. Many thanks to all of you.

Following on from a very interesting and successful NTE this year, and now looking forward to the Olympics and Paralympics in London, I am very pleased that Bart Van der Heyden offered to write something for us about the development of the Paralympics, and how they are contributing to changing people’s attitudes to disability world-wide.

Our special treat at NTE was the presentation by Mary Massery, a specialist in cardiopulmonary physiotherapy from Chicago; I suggest you read the bursar report on this session, and have a look at the web-cast when it becomes available. Our Education & Training team is already organising a return visit for Mary in 2013: look out for the ebulletins giving details of dates and venues.

Best wishes to all.

Carolyn

Carolyn Nichols
Editor

NEWS

PMG WELCOMES SPMN!

PMG has recently welcomed many new members from north of the border, following the sad demise of the Scottish Posture and Mobility Network (SPMN) earlier this year.

With so much talent and experience available, we wasted no time in inviting some of the new members from Scotland to join three of PMG’s hardest working sub-committees. Happily, they all accepted! *see page 24*

BRITISH HEALTHCARE TRADES ASSOCIATION ANNUAL CONFERENCE:

26TH SEPTEMBER 2012

BIRMINGHAM
Details from: bhta@bhta.com

SAFETY OF WHEELCHAIR ACCESSIBLE VEHICLES

The Foundation for Assistive Technology (FAST, fastuk.org) recently published the following news item: *Disabled Motoring UK is campaigning for a change in legislation which it says will improve the safety of wheelchair accessible vehicles (WAVs). Its ‘No Compromises!’ safety campaign is urging buyers of WAVs to demand sled testing certificates, which the organisation says is the only way to check a vehicle is as safe as possible. The campaign will also seek to change legislation so that only ‘sled tested’ vehicles can be sold. More details via: goo.gl/ZMClD*

FOUNDATION DEGREE IN CLINICAL TECHNOLOGY

From September 2012, London South Bank University will be running a part-time FdSc in Clinical Technology. The course offers a technical qualification to meet industry’s requirement to provide knowledge and understanding of the relationships between special seating, orthotics, prosthetics, and engineering design and manufacture. For course details contact Dr Victor Goss: gossga@lsbu.ac.uk

TACKLING MOBILITY CHALLENGES IN CHILDREN

1ST OCTOBER 2012

Royal Society of Medicine, 1 Wimpole Street, LONDON.
Details via: goo.gl/flVrV

LETTER FROM THE CHAIR

Well hello there, and welcome to our new look journal. Doesn't it look fabulous? One of the benefits of this to me (and therefore to you) is that my letters *have* to be shorter!

So, without wasting my precious space, I wanted to reflect on your vote at AGM *not* to increase annual PMG membership fees from £25 to £40. Of course your vote is respected, but to keep it in perspective I checked what £25 gets us nowadays on average: just under half a tank of fuel; one third of a weekly family shop; just under four pints of beer during the Olympics; one eight hundredth of a wedding…

Do you get my point? We understand that people are stretched from every angle, but your PMG professional subscription gives you two high quality journal publications per year, reduced fees for NTE and other educational events, and up-to date information about political change such as AQP. There's really not much out there to beat that.

And because we know only too well that every penny is important, we're going to recommend that PMG membership for students be waived completely. Contact olwen.ellis@pmguk.co.uk

Have a restful (if not completely dry) summer.
With warm regards,

Clare

Clare Wright
PMG Chair

NEWS

PMG'S SMALL RESEARCH STUDY FUNDING SCHEME 2013

PMG members are eligible to apply for funding to support small research studies in the field of posture and mobility. Deadline for submission of outline proposals for funding in 2013 is:
30th September 2012. For further information and to submit proposals online, go to: www.pmguk.co.uk/pmg-research-funding-information.html

DONATION FROM KIRTON

PMG wishes to thank Kirton Healthcare for their recent donation of £200, made in appreciation of the success of the National Training Event 2012. Thank you Kirton!

MEMBERSHIP SUBSCRIPTIONS: DIRECT DEBIT

Plans are afoot to allow PMG members to set up Direct Debits for annual membership subscriptions, hopefully from 2013. Look out for ebulletins about this shortly.

NTE 2013: ALL CHANGE!

In case you missed the Stop Press, PMG is changing the date and venue of the annual National Training Event next year. The new venue is the **University of West of England Exhibition & Conference Centre, Bristol** (goo.gl/gK9vx)

THE DATES ARE 10TH, 11TH AND 12TH JULY 2013.

More information coming soon via PMG ebulletins/NTE website pages.

AQP DEADLINE MISSED – WHAT NEXT?

With a critical deadline missed, other key deadlines and dates in the AQP calendar are also changing. You can read about these changes and related developments on PMG's dedicated AQP website page www.pmguk.co.uk/any-qualified-provider.html.
With thanks as ever to Peter Rowell, chair of PMG's Strategy & Policy sub-committee, for his continued vigilance in monitoring the shifting sands of AQP on our behalf, and to PMG journal editor, Carolyn Nichols for writing the website update.

PARALYMPIC SPORT – HOW 'ONE INSPIRES MANY'

Bart Van der Heyden
Physical Therapist/Consultant, Director Training and Education Europe, The ROHO Group;
Clinical Expert Europe, Bodypoint Inc. Email: bvanderheyden@attglobal.net

A great deal has changed since 1948, the year Sir Ludwig Guttman organised a sporting event in England for World War II veterans with a spinal cord injury. Four years later, athletes from the Netherlands also competed, and an international event we now call the Paralympic Games was born.

The first formal event took place in Rome in 1960 and, up until 1972, only athletes using a wheelchair could compete. In 1976 people with amputations and visual impairments were included as well. In the same year the first Paralympic Winter Games took place in Sweden.

Nowadays, the Paralympic Games are an international sporting event for athletes in six different categories. In Rome in 1960, 400 athletes competed. During the Paralympics in Beijing in 2008, over 4,200 athletes participated.

In 1996, while I was a physical therapist in the US, I was fortunate enough to attend the Paralympic Summer Games in Atlanta. The motto of the Games was *The Triumph of the Human Spirit*. It was the year in which the UK took 42 gold medals, 42 silver medals, and 41 bronze medals. But perhaps more important was that the perception of the millions watching on television worldwide toward sport and people with disabilities changed. Back then there was not much media coverage of the Paralympics, but those who managed to view it could witness the heroism and strength of the athletes in overcoming human frailties. It was truly a 'triumph of the human spirit'. The Games were about sport, yes, but also about seeing beyond disability: they were about what we are able to do, and not about what we're disabled from doing.

In 2010 I attended the Winter Paralympics in Vancouver, and I could clearly see how the Games had evolved. Athletes from 44 nations participated, there were 230,000 spectators, and the worldwide TV audience was 1.6 billion people! The opening ceremony was tremendous, with 60,000 people cheering the athletes. *One Inspires Many* was the motto of these Games. It was safe to say that ALL of us found inspiration from the athletes.

The hopes and expectations for London are high: Lord Coe, chair of the 2012 Paralympic Games, stated that he 'wanted (the Games) to set new standards on and off the track, and to be a catalyst for continued change in public attitudes towards disability'.

I have no doubt that the ripple effect of the Games will continue way beyond a two-week timeframe, influencing our cultures and inspiring millions.

Let the games begin!

SEATING REQUIREMENTS TO MAXIMISE PERFORMANCE IN BOCCIA

Dawn Ibrahim
Lead Physiotherapist, GB Boccia, English Institute of Sport, Yorkshire
Email: dawn.ibrahim@eis2win.co.uk

Boccia is a Paralympic sport introduced in 1984 and has no Olympic counterpart; it is believed to have Greek origins and is played by athletes in over 50 countries. It is a sport designed specifically for athletes with a disability affecting locomotor function and includes a wide spectrum of disabilities such as muscular dystrophy and cerebral palsy; all players must have impaired functional ability in all four limbs. It is a target sport that tests muscle control and accuracy, demanding extreme skill and concentration at the highest level. Boccia is a tough test of nerve, tactics, and skill and is played on a rectangular badminton court. Athletes throw, kick, or use a ramp device to propel the ball onto the court with the aim of getting closest to the “jack” ball.

Athletes are divided into four classifications depending on their disability and their functional ability. All athletes have different levels of function and therefore their demands from their seating systems and wheelchairs are unique and specific to their sporting action. The stability, along with freedom of movement required to perform, varies for each individual athlete relative to their physical presentation. So, in order to design a bespoke sport specific chair/seating system, both knowledge of the sport and the sporting action for that individual must be carefully considered.

The GB programme has a full squad of athletes across all classifications and nine athletes (the maximum number) have qualified to compete at the London 2012 Paralympic Games, including the pairs and team events, as well as eight qualifying in the individual competition. There are seven potential medal event opportunities within Boccia at the Paralympics. The team won a gold medal in Beijing and the squad has many of the top three ranked athletes in the world.

Working with such a broad spectrum of disabilities within the GB programme, along with athletes who differ so much in their physical presentation, I have been faced with significant challenges when addressing their postural and seating needs specific to the sport. I have therefore brought in external expertise to assist in the assessment and provision of bespoke seating systems and wheelchairs in order to address performance solutions which optimise playing positions to influence and enhance performance.

ABSTRACT

This article will give you an introduction to the Paralympic sport of Boccia and will highlight some of the work that has been ongoing within the GB Boccia programme. A number of case studies will demonstrate the importance of appropriate sport specific seating and the impact that appropriate seating/wheelchair set up can have on postural control and activity, on influencing playing position, and on sport specific function. These will be demonstrated across classifications and disabilities and will feature athletes selected to represent Great Britain at the London 2012 Paralympics. The article will emphasise the importance of collaboration between professionals and a holistic approach when considering seating to ensure the specific physical needs, as well as the sporting needs, of the athlete are met.

Many of the Boccia athletes have been playing in their everyday chairs and seating which have not been adjusted specifically for Boccia. The versatility required, and the demands placed on an everyday chair, are very different to that of a sport specific chair. An everyday chair needs to suit the demands of a range of different activities and functions, and also needs to be comfortable, and provide pressure relief due to long hours spent sitting.
Many everyday chairs have tilt-in-space and risers which add movement into the frame. When considering the demands of Boccia, it is essential that the chair/seating system optimises stability and provides a stable platform from which to throw or deliver the ball via a ramp device. Therefore a sport specific

chair needs to have features to ensure that stability is optimised and movement is limited within the frame. The following components may assist in creating this stability: solid tyres rather than pneumatic; limited adjustable parts restricting areas where "give" can occur; no rise or tilt; a supportive firm cushion rather than a weight dispersing design (dependent on clinical need). By improving the stability within the chair and seating system, and optimising playing posture through bespoke sport specific designs, the performance benefits have included improved accuracy, increased power, and reduction in fatigue.

CASE STUDY 1

Jacob Thomas is a young BC3 athlete who has muscular dystrophy and uses a ramp device to deliver the ball (a ramper). Ramp players have an assistant on court who sets and lines up the ramp according to athlete instruction. The assistant has their back to the court at all times and is unable to see the jack position. The ball must be released by the athlete; Jacob uses a head pointer but other athletes use their hand, nose, or a mouth pointer to release the ball. The BC3 classification is for athletes who are unable to throw or kick the ball with purposeful direction onto the court and may include athletes with cerebral palsy, muscular dystrophy, or other conditions resulting in profound weakness. Jacob first joined the GB squad following selection via the Fast Track Development Programme run in 2010. Jacob has successfully been selected for the L2012 Paralympic Games as a pairs and individual player, and this will be his first games. For a BC3 athlete optimising playing position and alignment are key for lining up, and for effective delivery of the ball. Therefore postural stabilisation is critical within this group to optimise stability and function, minimise any unwanted movement, and to reduce energy expenditure while allowing a small degree of trunk movement.

KEY PERFORMANCE INDICATORS (KPI):

Over the past 12 months Jacob has experienced some deterioration in his physical condition and muscle activity as a result of deterioration of his underlying condition and following a serious illness. Due to increased weakness and low tone in the left side of his trunk and limited activation, Jacob was leaning more to his left side, with the collapsing of the left side of his trunk resulting in increased lumbar and hip discomfort. This was complicated by the fact he has a spinal fusion, which meant he was putting increased pressure through his lumbar spine and pelvis. As pain and discomfort increases, there is a tendency for performance to decrease. With marked reduction in his sitting balance and trunk stability, Jacob increasingly compensated for his lack of trunk strength by using the left armrest and his shoulder girdle to stabilise and maintain his posture, which resulted in increased muscle tone and tension in his cervical musculature. This therefore affected his joint mobility and cervical range, having a direct influence on his level of function. His left arm continually slid off the left armrest resulting in increased fatigue on court. His seating system, particularly the backrest, was not supporting him adequately due to the change in his clinical needs, and he was not able to maintain a central posture. In addition to changes within his trunk, Jacob also had reduced muscle activity and function of his right upper limb. This meant that he was experiencing difficulty reaching his electronic controls, and was increasingly using compensatory movement or assistance to use them. The programme has worked closely with Swansea NHS seating clinic and in collaboration with the seating specialists over the past few months to ensure that Jacob's every day clinical needs have been met whilst also considering the sport specific components of his new seating system. After some discussion about the best way forward a decision was made to opt for a contoured foam seating system.

Fig 1. Jacob Thomas: Pre chair changes

KEY FEATURES OF SEATING:

- Contoured foam seating – improved pelvis and trunk position and support in all angles of seat – more central alignment – reduced pressure areas

- C-shape, fully adjustable head rest – increased cervical and head support and improved alignment
- Electronic control position adjusted on right side to allow independent use
- Foot plates – position and angle are altered when playing

Fig 2. Contoured seating system

PERFORMANCE IMPACT:

- Improved postural stability and consistency of playing position
- Improved alignment and playing position – easier lining up, reduced tension and fatigue of cervical musculature – less energy expenditure
- Independent use of electronic controls – easier chair manoeuvrability
- Foot plates allow ramp position closer to wheelchair when playing

Fig 3. Jacob Thomas performing in new seating

CASE STUDY 2

David Smith is ranked world number two in the BC1 category and is a gold medallist from Beijing who will form part of the team in 2012, as well as qualifying for the individual event. BC1 athletes are able to use their hands or feet to consistently propel a ball into the field of play and may have an aide to pass them the ball before each shot. David throws the ball (a thrower). He has cerebral palsy with significant spasticity in all 4 limbs and wears a spinal brace due to his severe scoliosis. A BC1 athlete requires a balance between postural stability and freedom of movement to optimise function as they have limited selective trunk function and poor sitting balance/trunk stability. As spasticity and spasm are common with these athletes, the chair set up needs to optimise stability, minimising any give or unwanted movement in order to provide a stable platform from which to throw.

KEY PERFORMANCE INDICATORS:

David is unique as he is able to throw both over arm and under arm which means he needs to change his playing position. His chair has risers and a tilt option which affected the chair stability when throwing. In addition, the footplates were loose due to pressure exerted through his legs when throwing, particularly over arm, to create power. His knee block was also loose due to knocks and the demands of everyday activity.

Fig 4. David Smith pre seating system

Over the past twelve months David has had some improvements physically and has been fitted with a new spinal brace, improving his upright sitting posture. Therefore his existing seating system (CAPS 2) was not supporting his physical needs both when considering his sporting action but also everyday postural support. The programme has worked closely with the team at Active Design and in collaboration with Hampshire NHS seating clinic to provide David with a bespoke seating system and modifications to his chair.

KEY FEATURES OF HIS SPORT SPECIFIC SEATING:

- Improved chair/seat stability and throwing platform through the use of metal rods to secure the chair position for sport specific activity. These are removed for everyday use to allow shock absorption and for comfort
- Lynx backrest – made lower and adjusted to provide increased lumbar support and to improve pelvis position and stability
- Firm seat cushion – improved pelvic/lumbar stability
- Stabilised foot plates – new foot plates with supporting metal bar to improve stability and support increased load
- Thoracic supports adjusted to provide increased support, and longer on right, shorter on left, to allow freedom of movement to adjust between over arm and under arm

Fig 5. David Smith: new seating system over arm

- Chest strap – provides thoracic support for over arm shot and stability – attached to right thoracic support for ease of use for athlete and sport assistant. Noticeable improvement in accuracy using this
- Head rest removed when playing – less tension in cervical musculature

PERFORMANCE IMPACT:

- Throwing platform more stable
- Improved alignment and playing position, over arm and under arm
- Ease of transition between playing positions
- Improved power and accuracy – both shot types – ease of long game

Fig 6. David Smith under arm action shot

CASE STUDY 3

Nigel Murray is ranked the world number one BC2 athlete, winning individual silver at the Beijing Paralympic Games and a team gold medal. Nigel has been involved with the sport for a considerable number of years and is one of the most successful Boccia players of all time. BC2 athletes use their hands to consistently propel the ball into the field of play and tend to have better trunk and postural control, sitting balance, and higher selective function than BC1 athletes. Within this classification, athletes require greater freedom of movement but need a stable platform from which to throw. Nigel has used the same sport specific chair for over 20 years, and when he asked for assistance to try to find a new chair from which to play, as a back up for his existing chair, this presented a real challenge – especially as he wanted to replicate his existing chair as closely as possible and the chair is no longer being made. Several attempts to find a different chair over the years had been unsuccessful.

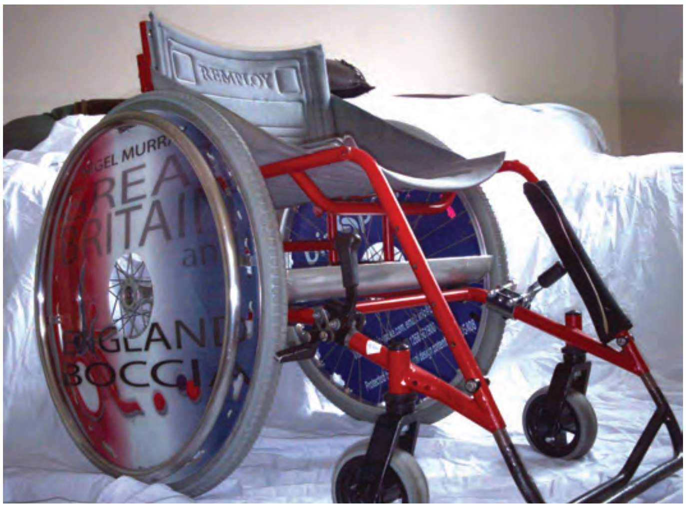

Fig 7. Nigel Murray: existing chair

Fig 8. Nigel Murray in action

KEY PERFORMANCE INDICATORS:
These included several features of the original chair:
- Identical angles of the foot plate as he uses this for lining up
- Overall set up as identical as possible to his existing chair – backrest, seat, castor position, alignment of the wheels
- Capacity to house the same or similar ball holder under the seat
- Stability within the frame – his existing chair is very heavy

From a programme perspective it was key to find Nigel a chair as quickly as possible to ensure that he had a reserve with the Paralympic Games fast approaching. From a physio perspective it was discussed that a firmer seat would be useful to improve postural stability and enhance his playing position while remaining comfortable. We worked closely with Equipment for the Physically Challenged (EPC) in Farnborough to assess Nigel's sport specific needs, and to create a bespoke playing chair that was almost identical to his original chair but that also addressed any performance issues. EPC's expertise was invaluable as they were able to offer solutions to specific issues and problems associated with some designs of chairs. They worked closely with Nigel and me to ensure the chair was as close to the original as possible, with additional enhanced features where possible. This collaborative approach between the seating experts, athlete, and sport physio is key to ensuring a greater understanding of what is required from the equipment, and how adjustments and key features within the chair can influence performance. For example, small changes to size, shape, and position of the castors can affect lining up and chair stability when throwing, both of which are critical to performance. Although there have been a few hiccups along the way, the ability to design and change aspects of the chair alongside the expertise we consulted have made this project successful.

Fig 9. Nigel Murray: new chair

HOLISTIC APPROACH TO POSTURAL MANAGEMENT

A multidisciplinary approach is important to ensure a successful outcome when considering changes to seating to meet sport specific needs, and in the overall management of these athletes. Within the GB programme all athletes have individualised strength and conditioning programmes, prehabilitation programmes, and have access to physio and soft tissue interventions regularly. All are designed to suit the individual needs of the athletes, with treatment goals linked to their individual performance development plans. Programmes comprise of flexibility stretches (both active and assisted stretches) and core stabilisation exercises, including trunk control activities, sitting balance, and the use of wobble cushions/gym balls. Athletes may also have hydrotherapy and swimming programmes, gym based activity, and theraband exercises focussing on improving functional ability and performance enhancement, in particular improving power, strength, range of movement, and postural control. All athletes have individualised warm up routines and recovery strategies. In addition, athletes have access to treatment interventions such as acupuncture, myofascial release, specific soft tissue release, and kinesiology taping which are all useful in normalising tone and spasticity. These are used in both the preparation and recovery phases, and also targeted to support any physical changes when seating is modified.

In summary, this article highlights the importance of appropriate sport specific seating and the impact that appropriate seating/wheelchair set up can have on postural control and activity, and on influencing playing position and sport specific function across disabilities within Boccia. It emphasises the importance of collaboration between the athlete and professionals, with a holistic multidisciplinary approach when considering seating, to ensure the specific physical/clinical needs of athletes are met in line with their sporting needs which all contribute to enhancing performance.

Acknowledgement is given to *Active Design* and *EPC* for their support over the last two years, and for the ongoing assessment and provision of suitable sport specific seating systems/wheelchairs in collaboration with the GB programme. These have been invaluable.

PASSION FOR PARALYMPICS ottobock.

In the build up to the London 2012, Ottobock, the official technical service provider for the Paralympic Games, along with the International Paralympic Committee (IPC), have been touring a ***Passion for Paralympics*** travelling exhibition around the country to raise awareness of Paralympic sport and of the competing athletes. Having begun its UK tour at Glasgow Science Museum in April, the tour will end in London at the Westfield shopping centre in Stratford, East London between 27th July and 12th August, before the exhibition moves to the Olympic Park for the Paralympic Games, 29th August to 9th September 2012.

The exhibition features an interactive display that explores the relationship between mood and gait, stories of Paralympic and recreational athletes who use prosthetic limbs, and a presentation detailing Ottobock's 24 years of involvement with the Paralympic movement. Interactive exhibits give visitors the chance to experience first-hand the reserves of strength required to use a carbon fibre running blade, plus the opportunity to take part in a simulated hand cycle race and add their speed to a leader board where they can compare it with other racers around the country.

Visitors can also get involved by pledging their support for the London 2012 Paralympic Games through sharing their passion and uploading their picture to a fan wall on the newly launched Passion for Paralympics website www.ottobock.com/paralympics

As official technical service provider for the London 2012 Paralympics, Ottobock has over 80 technicians at the Games providing repairs and technical service.

PARALYMPIC TICKETS PRIZE WINNER!

Those of you who were at the PMG conference this year will know that the prize for the *Last Person Standing* at the end of proceedings was four tickets to attend the Paralympic Games in London in September, very kindly donated by Ottobock. The lucky winner was Rhiannon Mycock, a senior rehabilitation engineer at Queen Mary's Hospital wheelchair service in Roehampton. Rhiannon's group of four will be able to spend the whole day from 9am to 10.30pm following teams competing in Football 7-a-side, Goalball, Wheelchair Tennis, and Wheelchair Basketball. Watch out for Rhiannon's report on her *Day at the Games* in the next issue of the journal!

TRAVELCHAIR: PROVISION OF POSTURAL SUPPORT FOR CHILDREN WITH COMPLEX NEEDS ON AIRCRAFT

Anna-Stina Ponsford MPH MCSP
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ABSTRACT

The charity MERU provides advice and makes special products and bespoke equipment for disabled children.
In 1999 MERU's engineers designed a chair which provided postural support for children while flying which was sold to a few airlines. Recent legislation and disability access campaigning have increased the pressure on airlines to accommodate disabled passengers.
Around 2010 the manufacturer of the original TravelChair ceased trading and MERU was approached to find new solutions for flying disabled children.
This article deals primarily with the research phase of finding data needed to create a new product design specification.

AIMS AND OBJECTIVES

The aim of this first phase of the TravelChair project was to determine:
1. Whether there was a need to design a new chair
2. What competition was available
3. Specific needs of primary users: children with complex needs
4. Specific needs of secondary users: parents, cabin crew, airline support staff

The objective was to produce a product design specification using the data collected.

BACKGROUND

The charity, MERU, makes bespoke equipment for children with complex needs in the south of England. One of MERU's engineers designed and made "TravelChair" in 2001. This chair, manufactured in Dorking, Surrey, provided postural support for children while flying. Monarch Airways and British Airways have, over the last 10 years, offered the use of the TravelChair to young disabled passengers. British Airways and Monarch Airways contacted MERU in December 2010 looking to replace their chairs. Additionally, Virgin had for some time been searching for appropriate chairs to be used in their aircraft. MERU used these requests as an incentive to redesign the TravelChair.

This paper deals primarily with the first part of this project, the research phase of finding the data needed to create a product design specification. Techniques and standards are not included in this paper. In addition to creating a product specification, this paper will also list stakeholders and cover some aspects of the wider context of flying.

DATA COLLECTION

Data was gathered from the following sources:
- Semi-structured group interviews with nine parents of children with special needs (seven mothers and two fathers) were arranged on two occasions. One was held at MERU, the other at Monarch's training centre at Luton. The training centre provided access to an aircraft fuselage. Parents were asked how they felt about flying, why they would choose to fly or not to fly, and what postural support their child needed. The interviews were recorded and then transcribed.
- Nine cabin, security, and administration staff (eight women and one man) familiar with using TravelChair MkI were interviewed (semi-structured group interview), giving constructive feedback on the use of the chair. This interview was recorded and transcribed.
- Monarch Airways provided access to archived travel data from 64 disabled passengers who flew between August 2010 and March 2011. The Monarch information sheets included data about age, height, weight, nature of disability, level of postural need, behavioural problems, medical conditions, and additional information relevant to flying. The information sheet, which had evolved from ten years experience using the MERU TravelChair and the Crelling harness, was designed by an administrator at Monarch whose special task was to do a pre-flight screening of postural needs of passengers to determine whether a Crelling harness or TravelChair

should be used. This process happened several weeks before the family boarded the plane. A content analysis was made of the records provided by Monarch Airways.

- Meetings with the Civil Aviation Authority/Federal Aviation Authority discussing aviation regulations and individual aircraft requirements.
- Workshop on human rights legislation at the Mobility Roadshow 2011 in Peterborough.
- Empirical experience of staff at MERU, desk research, and anecdotal evidence provided additional data.

RESULTS

INTERVIEWS WITH PARENTS

Parents' related experiences of challenges when flying ranged from damaged wheelchairs at the end destination to not being able to take special milk feeds through security.

The interviews disclosed experiences with some airport staff who lacked training and awareness of the very special needs disabled people have. Others had experienced extremely helpful cabin crew who at every point of the journey attempted to do their utmost to assist.

The interviews showed many gaps in the desired unbroken "mobility chain" from home to final destination. We asked parents why they would choose not to fly. Many parents expressed that they felt anxious and worried about getting their children's liquid foods and medicine through. Some parents explained that they had had unfortunate experiences travelling with wheelchairs which came out mauled at the other end. They were then completely stranded without transport during their stay. Parents also told us that they stop flying when their children grow too big to carry.

Luton Airport – parents of disabled children who helped by giving useful information

"You panic, you get nervous."

"I was absolutely petrified. Yes they nearly took the erythromycin off of her because they said you are not allowed liquid in your handbag."

"The airlines we flew with, one of them was great. The other two were terrible, just not interested, patronising."

"I know how you feel" "Actually you don't know how I feel!"

"At the moment flying is off the menu until all the other children are very established because we cannot cope with it."

"The reason why Daniel hasn't been on a plane is that I don't know how he is going to get on it. I don't know how to sit him on it. He wouldn't sit. He cannot sit; he has an extensor spasm so when he does sit he kicks his legs forwards the whole time so the person sitting in front of him will have issues with that. So seating is one of the main issues but there are obviously other issues: How do I take all his equipment with me. He is tube fed; he doesn't eat so there is all the supplies (liquid food) with that, medical supplies. How do you change a nappy? There is loads. My son is completely incontinent; he shakes so I cannot take him into an aeroplane toilet."

"A reason I would choose not to fly is that it's a lot harder to take everything that you need. When you're restricted (by weight and only one handbag) you have to carry it all yourself. I try not to think about it. It's too much hassle."

INTERVIEWS WITH CABIN STAFF AND SAFETY PERSONNEL

Monarch offered for MERU to attend a meeting with cabin and safety personnel who had used TravelChair.

"The TravelChair went through stringent tests by Monarch at first."

"It was difficult to get the TravelChair back in and out of the bag."

"Perhaps the bag could have a loose cover with a drawstring."

"It would be good if it was less bulky."

"Remove the red bib."

"There is too much Velcro."

"Only one Velcro strap."

"It would be good to have the pieces colour-coded."

"It would be better if aircraft seat fabric was used."

"The metal bits are very rigid; better to use plastic rather than metal."

"It would be good to be able to stow the TravelChair in the overhead lockers; it needs to be more rounded."

PRE-FLIGHT SCREENING

Of the 64 pre-flight screening assessment forms provided to us by Monarch, three forms were excluded because they missed entries on measurable data and another three were excluded as the age of those passengers was over 25 years. The information gathered from the remaining 58 forms was entered into a database, providing anthropometric data of a group of young disabled passengers who had used different posture support systems, including MERU's TravelChair. Results are provided in the tables.

	Mean	Sample size (no. of passengers)
Mean weight	23.4 kg	55
Mean height	1.19 m	47
Mean age	8.4 years	55
Mean number in a party who accompanied disabled child	5 passengers	58

Table 1. Results gathered from pre-flight screening assessment forms

Travelchair	31	56%
Crelling harness	19	35%
Harness II	4	7%
Harness III	1	2%
TOTAL	55	

Table 2. Variety of postural support systems used by Monarch's disabled passengers

CP	30
Development delay	13
Different syndromes	7
Down's Syndrome	3
Scoliosis	1

Table 3. Spread of diagnoses for 54 children

HUMAN RIGHTS AND FLYING

Fear of litigation has motivated airlines to look more closely into disability rights. In the current climate, where airlines have been taken to court and fined for failing to adequately provide for disabled passengers, there seems to be a renewed imperative to come up with a solution to this problem. Further information on this topic is provided at www.equalityhumanrights.com

COMPETITORS' PRODUCTS

Some of the competitors' products had been designed for use in cars; another Swedish posture belt system was designed for use in cars and wheelchairs. One support system created tailor-made support by using vacuum. This system was sensitive to high altitudes and used a noisy pump to modify pressure.

DISCUSSION

When MERU started the research process to find data which would lead to a design specification for the TravelChair, MERU considered sending questionnaires with closed questions to relevant participants. This would have been reasonably cheap; however MERU decided against this method because a wealth of personal information would have been lost. The combination of hard data gathered from Monarch passenger forms and the semi-structured interviews with parents and cabin crew made it possible for us to explore material which was relatively unknown. We learned about unique experiences and the information we gained was comprehensive and rich and made it possible for the interviewers to probe and follow up interesting points as they arose. Although the Monarch sample is small, it gave MERU sufficient evidence to make a decision about the size of the chair. Another fact which determined the size of chair was that parents disclosed that they stop flying when the children are too heavy to carry. Today airports offer transit chairs for disabled passengers to transfer them to their seats; however these chairs do not have any postural support.

The interviews with parents of disabled children opened up a whole field of confusing and conflicting aspects of flying. For flying to become a positive experience for families with disabled children, considerable work needs to be done with all stakeholders. MERU is exploring a support service called “try b4 u fly” to reduce the stress and anxiety before and during flight for parents of children with disabilities, and for other individuals with disabilities. Following discussions with airlines, aircraft interiors manufacturers, and potential users, MERU has formulated a vision of a new product, and a complete service based around enabling disabled children and their families to fly. All the parties involved have worked closely and co-operatively together, and the unique situation of MERU with all the goodwill towards the charity has paved the way for this project to come to fruition.

ACKNOWLEDGEMENTS

I wish to say thank you to the following. The families with disabled children who have offered their experience and time. Monarch Airlines for their generosity in assisting MERU with the TravelChair project. They offered access to experienced staff, the use of their premises for assessments and meetings, and helpful data from their archives. D4D (Devices for Dignity) for providing funding and encouragement during the first phase of this project. The UK CAA (Civil Aviation Authority) for guiding us through legislation and policies. Virgin very generously provided the use of their fuselage for assessments. Many other individuals not mentioned here have contributed to making this project a success.

The new MERU TravelChair

Anna-Stina with her TravelChair poster at NTE2012 (photo by Sirobhin Sundar)

EVALUATING WHEELCHAIR SEATED COMFORT

Kim Chaney
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ABSTRACT

Wheelchair users can sit for more than eight hours daily (Maeda et al. 2003), enabling mobility and independence for thousands. This enables them to travel on a variety of surfaces: up and down curbs; up and down slopes; and across cambers. However, although shock and vibration is known to influence seated comfort (Mansfield 2005), in wheelchair seating this dynamic element to comfort is often overlooked.

WHOLE-BODY VIBRATION

Whole-body vibration (WBV) is mechanical vibration transmitted to the body as a whole through a supporting contact surface such as a seat cushion, backrest, or foot support.

People are most sensitive to WBV in the frequency range 1Hz to 20Hz where vibration can affect health and performance (Mansfield 2005). Griffin (1990) reported that vibration above 2Hz can amplify within the human body, with a clear resonance at 5Hz where peak transmissibility to the head corresponds with spinal resonance.

It is known that long term exposure to high levels of shock and vibration can contribute towards health problems such as low back pain in healthy adults (Porter & Gyi 2002). European legislation in the form of the Physical Agents (Vibration) Directive 2002/44/EC (2002) provides daily Exposure Action Values (EAV) to indicate a level of exposure beyond which healthy workers could be at risk. The legislation also stipulates a legal exposure limit, known as the daily Exposure Limit Value (ELV).

Research by Chaney & Mansfield (2011) suggests that powered wheelchair users who travel long distances in their chair each day may be at risk of WBV exposure above stipulated EAV levels.

STATIC AND DYNAMIC COMFORT

In 2000, Ebe & Griffin examined static and dynamic factors influencing comfort in car seating. In exploring static factors, they found that thinner foams were generally considered more uncomfortable than thicker foams, with softer (lower stiffness) foams being more comfortable than harder foams. In dynamic conditions however, Ebe & Griffin found that softer foams were much more sensitive to changes in vibration magnitude. As their work showed that discomfort increased with vibration magnitude, they concluded that overall comfort was influenced by both static and dynamic factors.

Ebe & Griffin described their conclusions using a qualitative model of overall seat discomfort, which illustrates the relative influence of static and dynamic factors (Figure 1). This model shows that when a seat is not exposed to vibration, comfort is dictated by static factors. In wheelchair seating this would equate to the comfort of sitting in a stationary wheelchair.

However, as shock and vibration is transmitted to an individual, for example through a wheelchair seat surface from travelling over different terrains, discomfort will increase in line with vibration magnitude. As vibration magnitude increases, dynamic

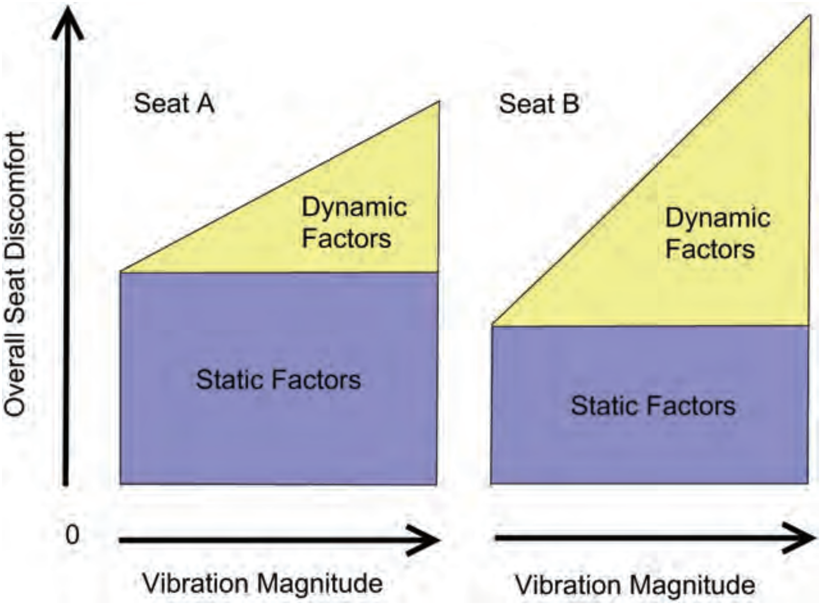

Fig 1. Ebe's Model of Overall Seat Discomfort

factors have a greater influence on overall seat discomfort.

Ebe & Griffin's research highlights a possible paradox where one seat (A) can be considered more comfortable that another (B), in static conditions. However when exposed to a certain magnitude of vibration, the combined static and dynamic factors could result in the first seat (A) being less comfortable that the second (B).

In 2009 Stockton & Rithalia examined wheelchair users' perceptions of comfort of 'pressure reducing' cushions. During this study participants were asked to continue to use their wheelchair both indoors and out as normal. From this evaluation of combined static and dynamic comfort it was found that users expressed an overall preference for firmer (harder) cushions.

COMFORT AND TIME

Further research by Mansfield et al. (2007), confirming Ebe's model, also showed that overall seat discomfort accrues with time. This element of time was also highlighted in research by Stockton & Rithalia (2009) who showed that wheelchair users only tend to acknowledge discomfort from a wheelchair cushion after two hours of continuous use. This is consistent with the finding of the Vehicle Ergonomics Group (VEG), as reported by Gyi & Porter (1999) that at least 2 hours is required to clearly differentiate between different seats.

CONCLUSION

Ebe's model suggests that simply assessing wheelchair seat comfort in static conditions may not provide a full picture of a product's comfort performance in active daily life. In addition, work by both the Vehicle Ergonomics Group and Stockton & Rithalia raises the importance of allowing users at least two hours of continuous use in order to fully assess the prospective long-term comfort of their wheelchair seating.

As Gyi & Porter (1999) observed, the initial assessment of a seat is often a poor judgement of long term performance. This highlights the need to allow users to 'road test' their wheelchair seat in the context of their usual daily activities over a period of time. However, the need to assess comfort in both static and dynamic conditions over a two hour period has implications on clinical practice where there are often limitations on clinical time and assessment resources.

The discussed research suggests that first impressions formed in static 'show room' conditions, are likely to give a preference for softer foams (Ebe & Griffn 2000). However in the longer term, and under the influence of both static and dynamic factors, firmer wheelchair cushions may be preferred (Stockton & Rithalia 2009).

A thorough understanding of cushion and material characteristics can also help clinicians make informed, individualised, seating selections with balanced consideration for comfort, posture, pressure ulcer prevention, and function. One way this might be achieved is through test methods for determining the physical and mechanical characteristics of pressure redistribution cushions, such as those described in BS ISO 16840-2. However, further research and development in this area is required to ensure such tests are both reliable and valid (Hillman & Hollington 2012).

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The poster exhibition at NTE 2012 (photo by Sirobhin Sundar)

THE JOURNEY TOWARDS A PROFESSIONAL DOCTORATE IN PHYSIOTHERAPY

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ABSTRACT

The Professional Doctorate in Health and Social Care at the University of Brighton is a part-time programme lasting a minimum of four years and is designed for senior professionals. Students are required to produce research findings that will advance practice and add to the knowledge base within their profession. It is recommended that a reflective journal is kept throughout the period of study, and evidence of the development of critical reflections on both the research journey and on clinical practice has to be shown in the final thesis. This paper describes some of the challenges and changes in thinking that arose and were recorded in that journal beginning from the very first day. Extensive reading and the findings from my study have made me consider the problems of posture, sleep and pain in young children with cerebral palsy, our focus as therapists and the evidence for our interventions.

INTRODUCTION

As a 50-something clinical and managerial paediatric physiotherapist just let loose from a part-time Masters course in Edinburgh, I attended a party during a PMG conference, had one too many glasses of wine with a colleague, also from the far South West of England, and found myself enthusiastically agreeing to us both applying for the recently instigated Professional Doctorate in Physiotherapy programme at the University of Brighton. Why Brighton? My area of study was postural management and Terry Pountney, my supervisor for my Masters, had studied there and was now a supervisor there. What follows is a reflection on the five year journey which ensued.

THE PROFESSIONAL DOCTORATE PROGRAMME

The professional doctorate programme is designed for senior health and social care professionals. Unlike a traditional PhD, which is intended to produce professional researchers, the professional doctorate is intended to produce researching professionals who are able to advance practice and contribute to the knowledge base within their profession. In this part-time course over a minimum of four years, students from different disciplines meet together for taught study days and go through the first two years as a close cohort, exploring philosophical paradigms, research methods, data collection, and methods of analysis, while working up their own research study protocols.

A key recommendation of the programme is the keeping of a reflective journal. This is to facilitate and record the process of the student's development towards being a critical and reflective researching professional in their own clinical field. It records the convoluted path taken during the research journey, and reflections on the thinking behind the decisions taken at each twist and turn. In my diary I recorded 'lightbulb moments' prompted by my reading or discussions with fellow students and colleagues.

These reflections and their implications for clinical practice have to be demonstrated in the final written thesis and it is from my thesis, titled *Posture and Sleep in Children with Cerebral Palsy*, that the following is taken.

BEGINNINGS

The first entry in my reflective diary, made immediately after the first cohort meeting at the university, records the discomforting experience of having my clinical practice challenged. We heard from the programme leader that all students at some point, usually in the second or third year, feel they know nothing. This happened to me on the first day. I reflected in my diary that I know I am very open to suggestion, an 'early adopter' in change management terms, and can therefore immediately assume that I am wrong and the challenger is right. My response to this feeling of unease is to find out more by reading and by discussing with colleagues until I can decide on a course of action which may include changing my ideas or practice. Although uncomfortable, this approach has, I think, stood me in good stead as a student researcher. That first challenge to my practice came from a casual remark by a fellow student about the types of wheelchair issued in her practice and why she didn't use the ones we did.

The second challenge arose from the unfamiliar literature in the field of sleep physiology. On reading the classic paper by Kotagal et al (1994), I became aware of the breathing difficulties children with severe cerebral palsy may have during sleep. These difficulties, caused by obstructive sleep apnoea, central apnoea and epileptic episodes, were not being taken into account when a sleep system was being prescribed in my practice. Whereas typically-developing children with obstructive sleep apnoea change their position when they stop breathing, children with cerebral palsy in a sleep system cannot. Although many of these children are limited in their ability to move when lying without the support of the sleep system, the risks associated with sleeping in a sleep system need to be understood and assessed. In my practice, at that time, the decision to prescribe a sleep system was often made unilaterally with no reference to the child's paediatrician. My reading and later introduction to the *Chailey Sleep Questionnaire* (Khan & Underhill 2009) changed practice in my workplace. The potential risks to a child sleeping in a sleep system are now fully discussed with the child's paediatrician prior to prescription.

It seemed strange at first that a goal in the development of becoming an academic is to become less certain about what you think is 'true' but I did become increasingly tolerant of uncertainty as I read more and had my views challenged. An early note in my reflective diary states: "You don't know what you don't know until you start reading". In turn, I reminded colleagues that some of the evidence underpinning practice was based on inadequate research and encouraged a pragmatist's stance that, although this is what we think now, further evidence may change that thinking in the future.

ONTOLOGICAL AND EPISTEMOLOGICAL CONSIDERATIONS

I had not discovered ontology and epistemology during my Master's degree and, consequently, when this new world with its incomprehensible terminology first arose in the doctoral programme it was utterly unknown to me but apparently familiar to most of the cohort. This felt extremely uncomfortable for a period until, with further reading, philosophy became fascinating.

To understand the historical perspective to current ontological positions I read a little about the classical philosophers and how the history of thought developed. I began a journey of self-contemplation informed by ancient and modern philosophical writings which came alive and meaningful to me as an individual. Marx's motto "question everything" described how I felt and it was exciting. The concept of Emancipation took on a role, not just for the proletariat, but for my consideration of the barriers and boundaries that we put in place in our lives. The ideas of the Frankfurt Institute with their Critical Theory, demanding that we challenge the status quo and seek change, that we open up new ways of understanding and search for freedom, resonated with me. Hegel wrote of reality not being static, and that there will always come a force which destabilises stasis, the antithesis, which leads to a new way of being. The fourth century BC Stoics in Greece talked of inner solitude and that "Man is troubled not by events but by the meaning he gives them". Marcus Aurelius in the first century spoke of having a steady mind and a peaceful repose and that "Virtue and happiness are entirely up to you". I felt constantly surprised by the relevance to and resonance with modern everyday life. I had a feeling of wonder at the sense of continuity through the ages, and that the human experience has probably not changed in essence since classical times.

Considerations of the study design made me first understand, and then question, my positivist assumptions. Although philosophically interesting and challenging, the notion that there is no external world but instead multiple internal worlds, each created by individual observers, and that if an object is not being observed it does not exist, is not plausible. Acceptance of the concreteness and solidity of a real world which exists independently to the observer is fundamental to my belief system. However, while an external world exists, it would seem that individuals do have different interpretations of it, or different experiences of it, depending on their personal histories, social backgrounds and cultural assumptions. Endeavouring to place these tenets of belief within the major paradigms became problematical as they appeared to reach into the domains of both positivism and constructivism. It was also impossible for this study to be value-free because I already held beliefs about the practice of postural management. Listening in particular to Gary Rolfe, Professor of Nursing, expanded my thinking from a narrow scientific view of the world to consider realms as different as Post-structuralism with its 'Death of the author' and 'Birth of the reader'. These ideas were exciting, and significantly challenged my original ontological and epistemological assumptions.

The direction of investigation changed considerably during the course of the first year of the doctoral programme, from a quantitative study focussing on the effects of using a sleep system on hip migration, to the effects on oxygen saturation and, finally, to a qualitative study exploring the views of users. The reflective diary records reluctance to relinquish the intention of measuring hip migration percentage, but documents that: "It's no good knowing that postural management at night keeps hips in joint if parents and children won't use it."

At times I questioned the relevance of the study, thinking that the findings would simply corroborate what I already knew. Reading on the acquisition of practice knowledge, however, reassured me that even if the findings do not illuminate practice for expert clinicians, the findings will be an addition to the base of propositional knowledge that less expert clinicians could draw on when working in the field of postural management.

INFLUENCE ON CLINICAL PRACTICE

An increase in confidence and assertiveness was reflected back to me by senior colleagues as the doctoral programme progressed and it appeared that the combination of clinical expertise and research activity was respected. Paediatricians and fellow therapists listened to, and acted on, my suggestions for improvements to practice.

Strong feelings of empowerment have arisen from meeting deadlines through hard work, of persevering when the journey seemed so long, and from coping with disappointment when supervisors came to different conclusions from mine about the quality of writing submitted. This feeling of empowerment has transferred to other areas of life and bestowed an enhanced perception that, with effort, anything is possible.

In normal clinical, managerial and professional leadership practice there is little time to read, follow links, thoroughly explore the literature on a subject, and then reflect on what it means for clinicians and service provision. This lack of time causes real difficulties with getting evidence into practice. The reading and reflection required for the professional doctorate programme, the close links with a multi-professional cohort of fellow students, and the interaction with, and lectures from, stimulating professional researchers had an affect not only on me but also on my colleagues in the workplace. Often in a Monday morning staff meeting I posed questions about our current practice in the light of my reading over the weekend and sometimes these discussions would continue over several months as colleagues further reflected on the issues raised. They too have become more used to considering opposing views, to coping with uncertainty in the light of limited evidence that supports long-accepted elements of practice. They have expressed the view that they and the service we provide to children and families have benefited from my professional doctoral journey.

THE VOICE OF THE CHILD

The reading and reflection required for this study have made me consider identity and childhood in more depth than before. Having written a paragraph early one morning on the identity of children as social actors in their own right, I heard a shocking news item about child slavery in Haiti and considered how different the experience of childhood is between children.

In a staff meeting we discussed the relative merits of our interventions for the child now and the future adult the child will become, a debate inspired by reading about pain from muscle stretching and the lack of evidence for the effectiveness of manual stretching. This debate continues as we consider the merits of selective dorsal rhizotomy, the long recovery period requiring intensive physiotherapy and the outcomes that are reported to have benefits later in life.

In clinical practice I was sensitised to seeking and hearing the voice of the child, realising that sometimes we do not actively listen and at other times we lose the child's voice in the clamour from parents. Several examples of this were startling at the time and were recorded in my diary. The first, a boy of 11 who had recently had multi-level surgery and was just out of plaster, shouted in pain and anxiety while his mother ignored his cries and continued to show the therapist how she had been moving his legs. When I asked him why he was upset he replied that his knees were extremely painful when allowed to roll inwards. Hearing that, his mother and the physiotherapist were able to move his legs while supporting the knees to prevent them rolling into the painful position. The physiotherapist reflected afterwards that we are sometimes drawn into colluding with parents because we assume they understand their child's behaviour better than we do and always have their interests at heart. A second example arose recently as parents were agreeing with professionals about the necessity for their child to continue with toilet training, when the child spoke up and reported that his toilet chair was kept in the garage and was not available for use. A third example of the importance of listening to children and taking action where necessary was an incident in which a three-year-old described a scene of domestic violence within his household. This was taken seriously, recorded and reported to the appropriate services.

PAIN

The finding from my study that very young children with cerebral palsy reported pain heightened my awareness of the potential for pain and encouraged us to instigate the routine use of the Paediatric Pain Profile (Hunt et al 2004) for those children most at risk. One parent was surprised at the mention of the potential for pain in his child who was unable to report it verbally but, on explaining the behaviours which might indicate pain, he recognised that his child had occasionally displayed these and, on reflection, considered the presence of pain a distinct possibility. A teenager with a dislocated hip and spinal deformity recently presented with acute pain which was difficult to alleviate and which caused her very significant distress. She disclosed that she had experienced regular pain since the age of nine, a fact of which her parents, paediatrician, orthopaedic surgeon and physiotherapist had been unaware and for which she had received no regular medication. One of the children in the study had been woken at night by pain caused by muscle stretching from use of leg gaiters within a Chailey Lying Support. This was discussed with the child's physiotherapist, one of my staff, and later in a staff meeting when we considered the weight of evidence for the effectiveness of passive muscle stretching versus the discomfort it caused and the requirement for quality of sleep.

USE OF THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY AND HEALTH (ICF) MODEL

A shift in thinking, where needed, has taken place from the medical to the social model of disability. Discussions about the use of the ICF framework model (WHO 2001) to help us focus on encouraging participation in life rather than on body impairment, have been an ongoing feature of clinical supervision sessions and staff discussions in recent months. Therapists have been encouraged to agree goals for intervention that are meaningful to the child and have long-lasting effects on quality of life rather than simply short term effects on impairment.

SLEEP

Significant concerns about the sleep difficulties experienced by families in the study caused me to take on the role of local champion for a sleep intervention service. Parents had not had any advice to help them and some were chronically sleep-deprived. One parent was advised by her child's paediatrician to have a glass of wine and to take some of her child's Melatonin to help her sleep when it was her husband's turn to stay up with the child at night!

In the light of such difficulties faced by families there is a need, when considering interventions such as the introduction of a sleep system, to take a holistic view of the child and family, and to heed advice that family functioning is a major factor in the emotional health of the child and the family (Raina et al 2005). In some cases family and environmental factors may make the introduction of a sleep system problematical, and may even increase the burden of care though in others, if the child sleeps more comfortably, the whole family will inevitably have an improved quality of life.

CONCLUSIONS

This has been a reflection on the journey taken during the course of the doctoral programme; a personal inner journey that has produced a more confident, assertive practitioner better able to tolerate uncertainty, assess evidence and question practice, and one with a conviction that anything is possible with hard work and motivation. This journey has also produced changes to clinical practice, and highlighted the need for closer attention to sleep difficulties and the potential for pain in children with cerebral palsy.

My supervisors enhanced the research experience with their consummate ability to encourage whilst being positively critical, and their deep knowledge both of the process and clinical field; while my cohort of fellow students, and especially my colleague from the far South West, enriched this adventure with their friendship, support and well-reasoned differing views.

Happily, the subjects of two of the pilot studies - a child and her mother who had had very interrupted sleep for the 9 years of the child's life and whose plight motivated me to champion the need for a sleep intervention service – do now usually sleep well; a satisfactory conclusion to this journey.

FUNDING

My thanks to PMG for the grant to purchase sleep systems for the children participating in the study.

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WELCOME SPMN! (FROM PAGE 4)

CATHERINE MATHIESON

With her experience of organising SPMN's annual conferences, the National Training Event (NTE) sub-committee was the obvious choice for ex-SPMN chair, Catherine Mathieson, to join. Catherine introduces herself:

"I am a physiotherapist and have worked primarily in paediatrics for the past 23 years. I am currently lead clinician for "Enabling Technology for Children", the wheelchair and special seating service for children in south east Scotland. I have been closely involved in the modernisation of wheelchair services, from the petitioning of the Scottish Parliament in January 2005 through the review and implementation phases. I was chair of SPMN for the past three years and during the run-up to joining forces with PMG."

PAM HARPER

SPMN's treasurer, Pam Harper, has agreed to become chair of the PMG Finance sub-committee at the 2013 AGM, when Rakesh Shukla stands down after his three year term as PMG treasurer. Pam introduces herself:

"I trained in medicine at Edinburgh University and, after studying both rehabilitation and geriatrics, I became a consultant in geriatric medicine, maintaining a strong interest in rehabilitation. I now work full time as a disability analyst, doing medical assessments of those claiming benefits.

I was a founder member of the 'Scottish Society of Rehabilitation', and was its long-standing treasurer. I had also become treasurer of SPMN's predecessor, the Scottish Seating and Wheelchair Group (SSWG) in 1993, purely as a temporary measure! I must have done something right – I am still Treasurer of SPMN now, overseeing the transfer of funds to PMG.

I enjoy music, easy country walking, and try to ski/cross-country ski and I also like owls!"

JENNIFER HOOPER-ROE

When Jenny agreed to join the Publications and Marketing (PaM) sub-committee, she was put to work immediately, and has already proved an invaluable asset to PMG, helping out with copy editing this very journal! Jenny introduces herself:

"I am a physiotherapist in Dumfries & Galloway, working with people who have learning disabilities. My background is in orthopaedics, head injury and mental health. I moved to Scotland ten years ago, and since then have been involved in the development and promotion of posture management for a patient group with severe and complex physical disabilities.

I am on the committee of the Association of Chartered Physiotherapists for People with Learning Disabilities (ACPPLD) and was a member of SPMN committee."

USE OF INVALID CARRIAGES ON HIGHWAYS: PROPOSED CHANGES TO REGULATIONS

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In 2010, as many of you will know, the Department for Transport (DfT) undertook a consultation into possible reforms to the *Use of Invalid Carriages on Highways Regulations 1988 (Statutory Instrument 1988 No 2268)*.

In March 2012 the Department published its response to the consultation, and the following is an overview of that report and progress to date.

1. The legal term *invalid carriage* should be replaced with a more suitable and contemporary term. Unfortunately the term is set by primary legislation and may take some consideration and time.
2. No changes should be made regarding the following issues:
   - speed limits and maximum permitted speeds on both Class 2 & 3 vehicles
   - the minimum age for using a Class 3 vehicle will remain 14 years of age
   - the law relating to the use of a mobility scooter by only one person
   - the current arrangements for registering Class 3 vehicles with the DVLA
   - any additional requirements for making vehicles conspicuous, such as adding reflective strips to vehicles or a requirement for users to wear high visibility jackets
3. The maximum unladen weight of Class 2 powered wheelchairs should be increased to 150kgs, but the Class 3 mobility scooter should stay at the current maximum unladen weight of 150kgs.
4. No mandatory eyesight testing is necessary for users of Class 2 vehicles, but the position in respect of Class 3 scooters requires further consideration.
5. It is a criminal offence to injure another party by dangerous or irresponsible use of the carriage; however there is currently little evidence and/or recording of this information. From 2013 the police will be able to record whether a vehicle has been involved in an accident on the public highway.
6. There should be improved guidance and information for mobility vehicle users.
7. Compulsory training and assessment should remain voluntary but should be recommended and promoted.
8. Compulsory third party insurance requires further evidence and investigation.
9. The Transport Select Committee has also invited DfT to look into the carriage of mobility scooters on public transport. The Confederation of Passenger Transport has produced a code of practice regarding carriage on buses, while train operators have their own individual arrangements.

Following this publication, guidance for Class 3 users was produced – see link in list below.

In March 2012 a meeting of interested parties took place to review the available evidence and options, including matters relating to insurance, eye testing, mandatory assessment and the use of specialist training providers. A standard assessment form is being looked at for those selling the products. There is still work to be done, but progress is being made and will hopefully benefit mobility vehicle users in the long run.

USEFUL WEBSITES:

Department of Transport Publications Website: goo.gl/emkGL

Department of Transport Guidance for Class 3 users: goo.gl/HqdSc

Consultation: Proposed changes to the laws governing powered mobility scooters and powered wheelchairs: goo.gl/Nehsv

To make the money go further, PMG awarded half bursaries as well as full bursaries to the successful members who applied for financial help to attend the 2012 NTE at Warwick University in April. In return for this funding, the bursars were required to undertake tasks of value to PMG. Full bursaries were awarded to: **Graham Henderson** who helped Paul Hewett with the recording of parallel sessions for the webcasting project; **Laura Milner** and **Sarah Sanders** who reported on a parallel session each – see this page and page 28. Half bursaries were awarded to: **Paul Harrington** and **Sirobhin Sundar** who both took photographs at the event; **Sally Kyle** who helped at the AGM; **Rosie Yarnall** who worked on the NTE registration desk, and was inspired to put pen to paper on her return home. See Rosie's reflections on page 30.

BURSAR REPORT: PRESCRIBING TO MEET THE ONGOING NEEDS OF PEOPLE LIVING WITH MND

Presenter: Jenny Rolfe
Specialist Occupational Therapist, Oxford MND Centre, Oxford Centre for Enablement
Reporting Bursar: Laura Milner
Rehabilitation Engineer, Leeds Wheelchair Service, Seacroft Hospital, Leeds

ABSTRACT

The presenter gave a concise summary of motor neurone disease (MND) while 'myth-busting' some common misconceptions about MND. Through case studies and personal experience she highlighted common postural and functional problems experienced by people with MND and gave an overview of the solutions and equipment available to best meet the needs of these clients. Through asking the audience to reflect on how their service would provide equipment to MND clients, the presenter made important points about current prescribing practice, and promoted discussion about future practice. Jenny Rolfe is funded full time by the MND Association to develop NHS wheelchair services across the UK, and to help improve wheelchair provision for people with MND.

As a relative newcomer to the field of posture and mobility, prior to the conference I had limited experience of working with people with MND. However, even in the short space of time I have been working within a wheelchair service, I have become acutely aware of the practical difficulties in providing suitable solutions for people with fast deteriorating conditions such as MND, so I was eager to attend this session.

The session began by presenting the audience with a fairly typical MND referral for an electric powered indoor/outdoor chair (EPIOC), and asking us to think about how our services would meet the needs of this client. It was clear that the eligibility criteria of most services would mean that this equipment would not normally be provided, as the referral stated that the EPIOC was initially only to be used outdoors and the client was not currently a full-time user. They were also waiting for social services to make the home environment suitable. The presenter asked us to keep in mind throughout the talk whether MND clients always fit our criteria and if it is appropriate to make the criteria fit the client.

The next part of the session was a quick quiz and the audience was asked some simple 'true or false' questions about MND, such as how many people suffer from the disease in the UK, whether it is passed on genetically, and how it affects bowel, bladder, cognitive, and respiratory functions. This served to highlight some of the common misconceptions people have about MND, and I think that the majority of the audience did not necessarily get all their answers right first time!

We were then shown a number of slides and provided with a comprehensive introduction to the different types of MND, given the short time available. Types of MND such as Amyotrophic Lateral Sclerosis, Primary Lateral Sclerosis, flail arm/leg, and Progressive Muscular Atrophy were discussed, and the presenter went though the involvement of the upper and lower motor neurons in each type, and how the type generally affects the onset, progression, and survival rates. It was stressed that, although progression can be unpredictable, it can be very helpful to know the type of MND when thinking about equipment provision.

We then moved on to look at some of the common presenting problems with an MND client. Although too numerous to list here, they include postural limitations such as progressive weakness in the trunk, limbs and neck, muscle wastage, kyphosis, neuropathic pain, spasm, and reduced joint ranges. Through the use of diagrams and photographs we were shown some typical postures of an MND sufferer to help highlight the result of these problems. We were taken through some of the functional problems faced such as acceptance of equipment, controls, environment, transfers, and carer/family issues. Particular importance was placed on recognising the issues around acceptance of equipment in such a fast moving disorder especially the psychological impact of this. It was stressed that avoiding inappropriate prescriptions means that equipment will get more use and help the client not to lose trust in the service.

This brought us to the question of how to get the prescription right. The simple answer is to identify the postural and control needs not just for now but also for the future, and then **prescribe to meet future needs now**. This high specification will lead to an initial higher cost and is normally contraindicated by eligibility criteria. However, it was pointed out that this usually leads to a lower number of visits and reviews, lower cost in having to upgrade equipment, and, most importantly, will negate having to play ‘catch up’ when you may not have the time left to do it.

The presenter then gave examples of typical EPIOC and manual prescriptions that she would use, and recommended simple solutions to common problems. As well as specifications such as tilt-in-space, angle adjustable head supports/ foot supports, and pressure-relieving cushions, there were also a number of items I would not necessarily have considered, such as using tension adjustable backs to accommodate a kyphosis and the large range of high specification controls and accessories.

To conclude the session we were shown the referral again and asked how we would now treat this referral, and what changes to our service delivery would be needed to make this happen. This led to a discussion about how different centres deal with MND referrals. Our wheelchair centre is fortunate to have benefitted from a donation from an MND charity and holds a small stock of powered and manual chairs specified to the levels required for a complex MND client, allowing us to provide for MND referrals relatively quickly.

Delegates arriving at the NTE 2012
(photo by Sirobhin Sundar)

However it became apparent that, as is often the case, there are disparities between wheelchair centres and it seems to be pot-luck or reliance on charity as to what can be provided. The audience shared tips and helpful advice on how to practically overcome these problems within the budget limitations that most wheelchair services face and ways around the difficulties. The presenter also gave us contact details for the MNDA regional care development advisors who can help with wheelchair provision questions (goo.gl/nYbJA).

In conclusion, this session showed the importance of considering both the immediate and long term needs of this client group from the initial time of referral to ensure that adequate seating is provided as the condition deteriorates. Although it is difficult in increasingly busy and under-supported services, it is clear that providing the right equipment at the beginning will not only save time and money in the long run, but most importantly will allow the client to have their postural and functional needs met throughout the course of their life.

I would like to thank Jenny Rolfe for an excellent, informative and thought-provoking session. I would also like to thank PMG for giving me the opportunity to attend this year’s NTE which I thoroughly enjoyed.

BURSAR REPORT: BREATHING AND UPRIGHT POSTURE; SIMULTANEOUS NEEDS

Presenter: Mary Massery PT DPT DSc
Physical Therapist, Massery Physical Therapy, USA
Reporting Bursar: Sarah Sanders
Specialist Physiotherapist, Newham Wheelchair and Special Seating Service, Stratford, London

Dr Mary Massery, a cardiopulmonary physical therapist based in Chicago, specialises in identifying and treating ventilation impairments following neurological insults. The aim of this session was to describe the link between breathing, postural control, and postural alignment and to discuss physiological components to be considered when assessing seating. The speaker provided a fascinating PowerPoint presentation and interactive session about a topic not often considered in wheelchair clinics.

Mary began by describing the ‘soda-pop can’ model of postural control. When a drink can is open or empty the can is not structurally strong and can be easily crushed. However, when a can is full and sealed shut, the internal pressures make the can functionally resilient and virtually impossible to crush (Massery 2005). It is the internal pressure and not the can’s material properties which provide the strength.

Mary explained that this model represents the human trunk where the muscles are used to generate internal pressures. These pressures prevent the skeleton from being crushed by external forces which include gravity and atmospheric pressure. In patients with weak or paralysed chest muscles, external forces acting on the skeleton will compromise the musculoskeletal system and internal organs, thus reducing lung expansion.

Mary Massery preparing for her Parallel session, with help from Dave Long (photo by Sirobhin Sundar)

The diaphragm separates and regulates the thoracic and abdominal cavities, and these two chambers each create different internal pressures. Mary described a case study, “M”, aged 3, who had sustained a complete C5 spinal cord injury during birth; she now has acquired postural deformity and also a tracheostomy. Mary realized that M’s open tracheostomy prevented maintenance of sufficient internal pressure in the thoracic cavity, and M therefore was unable to counteract the force of gravity acting on her body. This inhibited upright sitting, thus causing the skeleton to give way to external pressure and collapse.

M was the case study who enabled Mary to identify that the two chambers (thoracic and abdominal) are sealed at the top by the vocal folds and at the bottom by the pelvic floor. The intercostal muscles, diaphragm, abdominal and paraspinal muscles, vocal folds, and pelvic floor muscles all aid generation, regulation, and maintenance of internal pressure in both chambers. *(see Figure 1)*

Mary shared her experience that in patients with a weak trunk, lung volumes and diaphragmatic function can be maximised through support of the lumbar lordosis and opening the anterior chest wall. If intra-abdominal pressures are low, additional support may be required from a binder.

Further suggestions to support breathing mechanics in seating included:

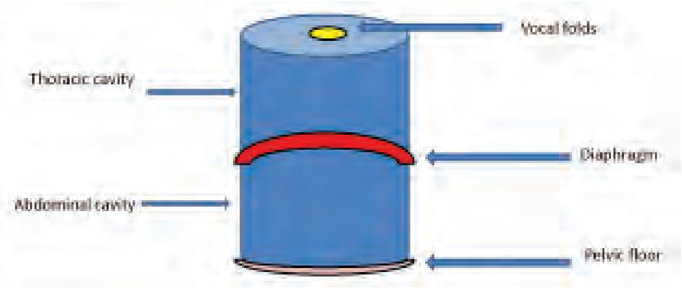

Fig 1. Massery's 'Soda-pop can model of postural control'

- Abdominal binders – to provide pelvic alignment and intra-abdominal pressure (Boaventura et al 2003, Wadsworth et al 2008).
- Tracheostomy speaking valves – to support intra-thoracic positive pressure (Fukumoto et al 2006, Hagins et al 2004, Brigger and Hartnick 2009, Cameron et al 2009).
- Thoraco-lumbar-sacral orthosis (TLSO, body jacket) – to stabilise the costotransverse junction and allow anterior rib movement against gravity (Frownfelter et al 2006).
- Dynamic chest straps and lateral trunk supports (Mao et al 2006).
- Tilt-in-space seating (Michael et al 2007).

In my current practice, I assess trunk alignment and muscle recruitment, and ensure biomechanical advantage for breathing and swallowing as part of the postural assessment. Following the session presented by the speaker, I will now also consider internal pressure regulation, and the dual role of the diaphragm, i.e. postural control and breathing (Hodges 2000). I will also evaluate the need for a speaking valve, spinal jacket, and abdominal binder.

Mary Massery presented a fascinating model to explain the interactions between posture, postural control, and breathing. Her interactive and dynamic session was greatly enjoyed by all in attendance. I am keen to continue further reading of her work and to share this with my professional colleagues. Thank you PMG for enabling me to attend an informative and enjoyable conference.

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EDITOR'S NOTE

I also found this session fascinating and have a few points that I found interesting and deserving of further thought and investigation to add to those mentioned above by Sarah:

- *Mary recommends that many TLSOs used with these clients should come up to the level of the upper sternum (junction of the manubrium and the main body of the sternum and ribs) in order to provide a point where the trunk can be extended and the chest therefore opened and able to expand.*
- *She said that, in the USA, ALL TLSO's are made with a large abdominal cut-out to allow for expansion for breathing; if some extra tone or pressure is needed in the abdominal area, a stretchy abdominal binder is used.*
- *Mary also said that nocturnal feeds are not used, as the GI system shuts down at night and is not ready to receive food, therefore adding to the risk of reflux and vomiting.*

BURSAR REPORT: REFLECTIONS ON THE PMG CONFERENCE, 12TH & 13TH APRIL 2012

Reporting Bursar: Rosie Yarnall
Paediatric Postural Management Lead, Cornwall Foundation Trust
Email: rosie.yarnall@cft.cornwall.nhs.uk

This year I was lucky to be offered a half bursary to attend the PMG Conference, held at Warwick University.

Attending this conference spurred me into writing this reflection on posture management, and where we are now in 2012, compared with 25 years ago. What are the lessons we have learned and what needs to happen in the future?

I have worked in the NHS for 30 years across a whole spectrum of specialist service areas: older people's services, physical disabilities, learning disabilities, and children's services, with stints at a number of special schools for children with complex physical health needs. In all these work areas I have used posture management and self management as the basis for my therapeutic interventions.

I first became interested in posture management back in 1996, when I was privileged to hear Pauline Pope present her work at a day conference run by Noreen Hare, who founded the Hare Association for Physical Ability (HAFPA). From that moment on I was sold on posture management. At the time I was working on a project for Scope Bristol, in partnership with Southmead NHS Trust, setting up a service for adults with cerebral palsy (CP) who could not access appropriate rehabilitation services. Prior to that, I had spent 5 years 'theraping' children as a paediatric physiotherapist. Working with the adults made me realise that, on reflection, most of the physio I had done in the previous 5 years was probably a waste of time, as I had never met the 'outcome' of an adult living their life with the long-term physical consequences of growing up with CP. As David Scrutton once said, 'The child gets the treatment and the adult gets the life'. During my time with Scope I worked with over 70 amazing adults and learnt so much. So… a posture management advocate was born!

SO, WHERE ARE WE NOW?

Posture management has moved on, and the words are bandied around in all sorts of clinical settings, but posture management services remain a curate's egg, good in parts. There are a number of trailblazers in the field and, as expected, they hold different views on outcome measures and best practice. A number of organisations have developed posture management care pathways, which say more or less similar things. However, there is still not a consistent posture management competency framework on which clinicians can hang their CPD hats.

I like to think of posture management as an umbrella term for physical management, as it encompasses so many services, including wheelchairs and seating, orthotics, physiotherapy, occupational therapy, spasticity management, etc. We therefore need to have a suitcase of appropriate assessment tools which can be pulled out, depending on the main presenting problem at the time, for that episode of intervention. So, the International Classification of Functioning, Disability and Health (ICF) has to be the starting point, and then into the suitcase goes Posture 24, The Chailey Levels of Ability, The Goldsmith Indices of Body Symmetry (GIoBS), Australian Hip Surveillance Guidelines [a bit x-ray heavy, but I like the fact allied health professionals (AHPs) are involved in the processes], Gross Motor Function Measure (GMFM), Gross Motor Function Classification Scale (GMFCS), [as a classification of function tool], and, following on from the conference, Dr Mary Massery's work on respiratory function and posture (Gosh! Amazing! – I need to know more!).

WHAT WOULD YOU PUT IN YOUR SUITCASE?

In the last 25 years I have gone full circle in my career, as I am back working with children. Has anything changed? I will leave you to draw your own conclusions, depending on where you work in the country.

Has the importance of good posture management been recognised yet? Or is it still just seen as something wheelchair services do and that wheelchairs can be used for? Again, draw your own conclusions.

Posture management is just good physical management for adults and children living with a long term physical health condition, and needs to be promoted as the best way forwards for developing 'expert patients'. I believe education and training people to self-manage is the key. Also we need to promote posture management at undergraduate level and embed it into clinical practice at all levels of the workforce in health and social care settings. I also feel there needs to be more focus on posture management within PMG, as this year's conference felt very much focused on wheelchair services. Maybe that in itself is telling. How many services are there nationally that have the opportunity to focus on posture management in these times of NHS austerity?

Note: the views shared in this reflection, are purely my own and not those of the organisation I work for.

BEST FREE PAPER & BEST POSTER PRESENTATIONS AT PMG'S NATIONAL TRAINING EVENT 2012

At the 2012 PMG Conference this year, Active Design very generously provided the prizes for the best free paper (as judged by a panel) and best poster presentation (voted for by a ballot of the delegates).

The prizes were all expenses paid places on an Active Design course, which includes:
1. One place on a course of the winner's choice in either London or Coventry
2. One night's B&B accommodation, with refreshments and lunch on both days
3. Travel expenses up to £50

Each prize worth approximately £350, to be taken by the winner or a service/company colleague.

The winners were:

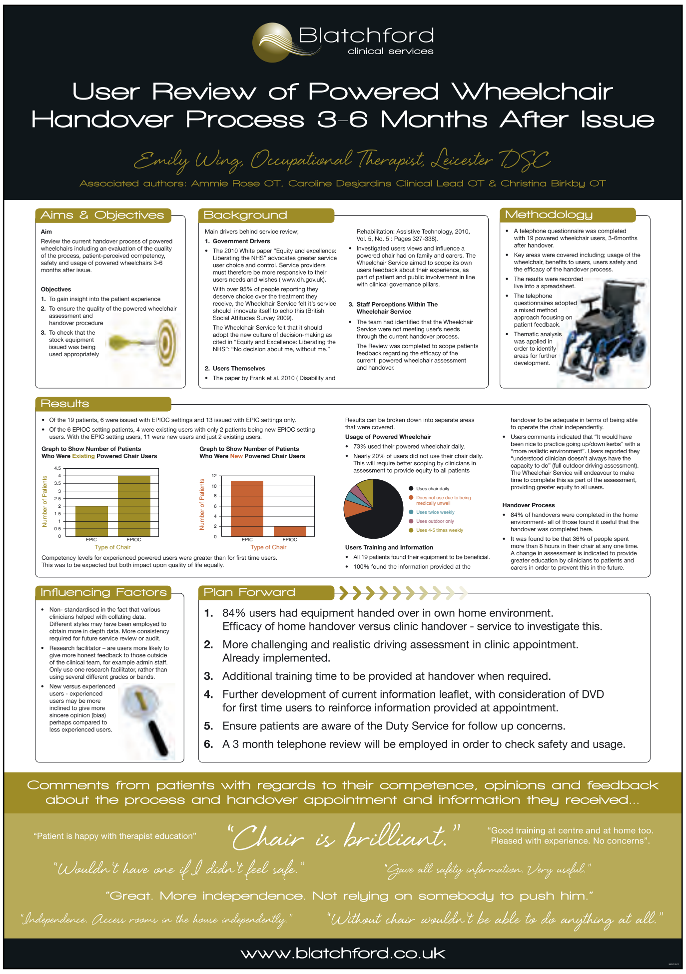
BEST FREE PAPER

Susan Hillman and James Hollington for their study *Clinical interpretation of ISO16840-2: Measurement for Wheelchair Seating Cushions.*

BEST POSTER PRESENTATION

Emily Wing for *Review of powered wheelchair (Electrically Powered Indoor (EPIC) and Indoor/ Outdoor (EPIOC)) handover process, relating to quality of information provided, patient-perceived competency, safety, and usage 3-6 months after issue.*

For further information about Active Design courses, please go to: goo.gl/FRoLX



Blatchford
clinical services

User Review of Powered Wheelchair Handover Process 3-6 Months After Issue

Emily Wing, Occupational Therapist, Leicester DSC

Associated authors: Ammie Rose OT, Caroline Desjardins Clinical Lead OT & Christina Birkby OT

Aims & Objectives

Aim

Review the current handover process of powered wheelchairs including an evaluation of the quality of the process, patient-perceived competency, safety and usage of powered wheelchairs 3-6 months after issue.

Objectives

1. To gain insight into the patient experience
2. To ensure the quality of the powered wheelchair assessment and handover procedure
3. To check that the stock equipment issued was being used appropriately

Background

Main drivers behind service review;

1. **Government Drivers**

- The 2010 White paper "Equity and excellence: Liberating the NHS" advocates greater service user choice and control. Service providers must therefore be more responsive to their users needs and wishes (www.dh.gov.uk).

With over 95% of people reporting they deserve choice over the treatment they receive, the Wheelchair Service felt it's service should innovate itself to echo this (British Social Attitudes Survey 2009).

The Wheelchair Service felt that it should adopt the new culture of decision-making as cited in "Equity and Excellence: Liberating the NHS": "No decision about me, without me."

2. **Users Themselves**

- The paper by Frank et al. 2010 (Disability and Rehabilitation: Assistive Technology, 2010, Vol. 5, No. 5 : Pages 327-338).
- Investigated users views and influence a powered chair had on family and carers. The Wheelchair Service aimed to scope its own users feedback about their experience, as part of patient and public involvement in line with clinical governance pillars.

3. **Staff Perceptions Within The Wheelchair Service**

- The team had identified that the Wheelchair Service were not meeting user's needs through the current handover process.

The Review was completed to scope patients feedback regarding the efficacy of the current powered wheelchair assessment and handover.

Methodology

- A telephone questionnaire was completed with 19 powered wheelchair users, 3-6months after handover.
- Key areas were covered including; usage of the wheelchair, benefits to users, users safety and the efficacy of the handover process.
- The results were recorded live into a spreadsheet.
- The telephone questionnaires adopted a mixed method approach focusing on patient feedback.
- Thematic analysis was applied in order to identify areas for further development.

Results

- Of the 19 patients, 6 were issued with EPIOC settings and 13 issued with EPIC settings only.
- Of the 6 EPIOC setting patients, 4 were existing users with only 2 patients being new EPIOC setting users. With the EPIC setting users, 11 were new users and just 2 existing users.

Graph to Show Number of Patients Who Were Existing Powered Chair Users

Graph to Show Number of Patients Who Were New Powered Chair Users

Competency levels for experienced powered users were greater than for first time users. This was to be expected but both impact upon quality of life equally.

Results can be broken down into separate areas that were covered.

Usage of Powered Wheelchair

- 73% used their powered wheelchair daily.
- Nearly 20% of users did not use their chair daily. This will require better scoping by clinicians in assessment to provide equity to all patients

Users Training and Information

- All 19 patients found their equipment to be beneficial.
- 100% found the information provided at the handover to be adequate in terms of being able to operate the chair independently.
- Users comments indicated that "It would have been nice to practice going up/down kerbs" with a "more realistic environment". Users reported they "understood clinician doesn't always have the capacity to do" (full outdoor driving assessment). The Wheelchair Service will endeavour to make time to complete this as part of the assessment, providing greater equity to all users.

Handover Process

- 84% of handovers were completed in the home environment- all of those found it useful that the handover was completed here.
- It was found to be that 36% of people spent more than 8 hours in their chair at any one time. A change in assessment is indicated to provide greater education by clinicians to patients and carers in order to prevent this in the future.

Influencing Factors

- Non- standardised in the fact that various clinicians helped with collating data. Different styles may have been employed to obtain more in depth data. More consistency required for future service review or audit.
- Research facilitator – are users more likely to give more honest feedback to those outside of the clinical team, for example admin staff. Only use one research facilitator, rather than using several different grades or bands.
- New versus experienced users - experienced users may be more inclined to give more sincere opinion (bias) perhaps compared to less experienced users.

Plan Forward

1. 84% users had equipment handed over in own home environment. Efficacy of home handover versus clinic handover - service to investigate this.
2. More challenging and realistic driving assessment in clinic appointment. Already implemented.
3. Additional training time to be provided at handover when required.
4. Further development of current information leaflet, with consideration of DVD for first time users to reinforce information provided at appointment.
5. Ensure patients are aware of the Duty Service for follow up concerns.
6. A 3 month telephone review will be employed in order to check safety and usage.

Comments from patients with regards to their competence, opinions and feedback about the process and handover appointment and information they received...

"Patient is happy with therapist education"

"Chair is brilliant."

"Good training at centre and at home too. Pleased with experience. No concerns".

"Wouldn't have one if I didn't feel safe."

"Gave all safety information. Very useful."

"Great. More independence. Not relying on somebody to push him."

"Independence. Access rooms in the house independently."

"Without chair wouldn't be able to do anything at all."

www.blatchford.co.uk

Emily Wing's winning Best Poster Presentation which can be viewed in full at: goo.gl/6IgBX

POSTSCRIPTS

Those of you who attended the Gala dinner at the 2012 conference know that Mike Hare was quiz master for the evening.
After returning home, Mike sent an email to PMG.

Thank you very much for inviting me to the PMG conference: it was the best retirement present I had. I was very pleased to be there, and I both enjoyed the time and learned new things at the Conference. I think it was the best one I have been to, with excellent speakers, inspirational people, and I was impressed with the enthusiasm, dedication and passion of the younger speakers, contributors, poster designers and delegates.


Quiz Master Mike Hare in full flow (photo: Paul Harrington)

I feel more confident about the future of the service having heard and spoken to them. The changes will come as they did with the move to the NHS, but it will be better for the users of the services if the staff take the opportunity to try for more funding and improvements, and I feel these enthusiastic younger members will do it. I am taking it as read the older ones will; they would not still be in the service if they were not passionate and committed to it.

But it will help them to know the younger ones are there with them.

Thank you once again for inviting me; it finished my working career on a real high and will be fondly remembered by me in the years to come.

Best wishes for the future,

Michael Hare

During the 2012 conference proceedings, delegates were treated to a video message from Patsy Aldersea, congratulating PMG on its 20th Anniversary. The video had been shot only the day before by PMG executive committee member Monica Young, on her way to conference from the family's Easter break in the Lake District, where Patsy now lives.
Because she had contributed to the event, BES later sent Patsy one of their PMG 20th Anniversary mugs. Patsy emailed Barend ter Haar of BES in response

What a great surprise when the package arrived with the mug celebrating 20 years of PMG. Thank you so much. I am really delighted to have it, and it is already in use on a daily basis. Have had glowing reports of your Aldersea lecture – entertaining, informative, excellent and much more – obviously really enjoyed by those present. Congratulations.

I can't believe it is 20 years since the PMG began – one always remembers the stressful times, and I vividly remember the first meeting in Sheffield (pre PMG) which Dr. Roberts said that his department would set up (this meant Ros Ham and myself) and we were still printing the programmes as the delegates were queuing at the door – never imagined it would eventually turn into a successful long-term group.

You certainly have to be congratulated on all the work you have put into it over the years.

Many thanks once more and I will think of you all as I have my daily coffee – love the design of the wheelchairs and their occupiers over the decades!

Best wishes,

Patsy Aldersea

FROM THE CONFERENCE PHOTO ALBUM

RAatE *Conference and Exhibition* 2012

Recent Advances in Assistive Technology & Engineering

Monday 26 November 2012, Warwick University Conference Centre, Coventry

REGISTRATION

RAatE 2012 is the only UK conference focussed on the latest innovations and developments in Assistive Technology (AT). This conference will be of interest to anyone who uses, works with, develops or conducts research on AT. The event is run in association with Coventry University's Health Design & Technology Institute (HDTI). HDTI seek to develop new products and new systems of care provision for the assisted living sector. The conference program has, over the past years, regularly included new technological developments, service innovations, results of formal research projects and service based research and development as well as a wide range of other stimulating topics.

RAatE 2012 is delighted to announce this year's keynote speaker as Mark Hawley, Professor of Health Services Research at the University of Sheffield and Honorary Consultant Clinical Scientist at Barnsley Hospital, where he is the Head of Medical Physics and Clinical Engineering. Mark has 20 years experience of providing, researching, developing & evaluating assistive technology, telehealth and telecare products and services for disabled people, older people and people with long-term conditions and is a founder non-Executive Director of Medipex Ltd., the NHS Innovation Hub for Yorkshire and the Humber.

The call for papers for this years' event is asking for abstracts on the following subjects:
Mobile AT Apps, Telecare/Telehealth, Robotics, Special Access, Service Developments, Case Studies, Outcome Analysis & Measurement, AT in Ageing & Long Term Conditions.

All papers submitted to this year's conference will be considered for inclusion in a special issue of the journal Disability and Rehabilitation: Assistive Technology to be published early in 2013.

We welcome contributions from healthcare professionals, researchers, service providers and users on the full range of products and services designed to enable independence for disabled and older people. If you have a paper or poster that you would like to present that does not fall in to any of the above topics we would still like to hear from you.

To book your place at **RAatE 2012,** register online at **www.raate.org.uk.** Cost is £150.

TOBY CHURCHILL Coventry University F A S T hdti


Salomon