PMG
POSTURE & MOBILITY GROUP

POSTURE & MOBILITY

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this issue...

AQP: What Does The Future Hold?

see inside, page 4 and pages 8 to 16

- Aldersea Lecture 2011
- Development of an Objective Measurement System to Assist in Wheelchair Seating Prescription
- Measuring the Impact of Wheelchair Basketball for Disabled Children
- Seating for Activity

Introducing a new partnership between special seating and mobility: **James Leckey Design & Invacare**.

James Leckey Design is a Northern Ireland based company which has been designing and manufacturing postural equipment for infants, kids and adults for nearly 30 years. Leckey has established itself as an innovative and pioneering company, designing clinically superior, easy-to-use products of exceptional quality.

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KIT Seat on Spectra XTR Chassis
Ages 12-adult

Mygo Seat on Rea Azalea Chassis
Ages 4-14

Squiggles Seat on Snappi Stroller Base
Ages 1-5

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Editor's Foreword

I want to start by offering you a very warm welcome to the winter 2011 edition of the PMG journal. I am acting editor for this edition because Carolyn Nichols has been so busy working incredibly hard on collating PMG's response to government plans for reforming wheelchair service provision in England. I am sure you will all join me in offering our sincere gratitude to Carolyn for doing such a wonderful job and in continuing to drive this forward. We wait with bated breath to see how it all pans out over the coming weeks and months.

Once again countless thanks go to Olwen Ellis for her tireless work and commitment in putting this journal together, and also to Jane Menzies (sub-editor) for helping fill the gap which Carolyn usually occupies. Thanks go to the rest of the Publications & Marketing sub-committee too for their support and generation of ideas.

In this edition, for the first time, we have a guest editorial! We are delighted to have such an interesting reflection by Peter Rowell about the changing faces of the NHS wheelchair services over the years. Thank you for this article Pete; it makes for a very apt opening to an edition with a focus on the challenges being thrown our way by government plans. I hope Pete's contribution will inspire you all to write for the journal with your views, opinions, and to share with your fellow PMG members the clinical and other challenges you face every day at work.

There are certainly interesting times ahead for many of us.

Jane Chantry, Acting Editor

Guest Editorial – AQP
Rose Tinted Spectacles, Crystal Ball... or Both?

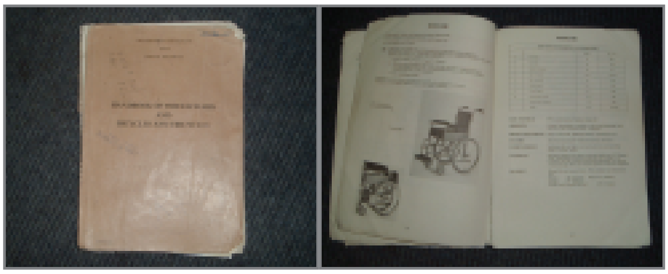
I would like to thank PMG for giving me the opportunity to share some of my thoughts with the readership.

First an introduction: I am a Rehabilitation Engineer (RE) working in the West Midlands, based at West Midlands Rehabilitation Centre (WMRC).

My background: I started with an engineering apprenticeship with the Ministry of Defence then further training to Incorporated Engineer level. With over 10 years in the retail motor trade, the latter years managing a Ford main dealership in Warwickshire, I took up my current post at the Artificial Limb & Appliance centre in Selly Oak, Birmingham in 1988. This was just after the McColl report of 1986 with the Disablement Services Authority set up to transfer services from Dept of Health & Social Security to NHS.

I have been privileged to spend these past 23 years working in a Rehabilitation Consultant led environment which has been forward thinking, and not afraid of change. In the West Midlands, REs are contracted out to district services within the region and I have been fortunate to have worked with a small, well-led, committed, stable team within Worcestershire. It is a testament to this service that staff turnover is extremely low and I believe this is the case in many areas of the country.

I recall the "good old days" when six REs (now there are over 20) worked from WMRC, collected our work on a Thursday, worked from home and visited service users (*patients*, we used to call them) armed with our buff book, the MHM408.



MHM408

We also visited engineering contractors for purposes of quality assurance and then returned to WMRC each week to repeat the whole process. I recall at least one day a week was spent at WMRC undertaking wheelchair clinics. In those days everyone had appointments at 9.30am, were initially seen by the Medical Officers if an indoor powered chair or specialist seating was required, and then assessed on a "first come, first served" basis. If a pressure redistributing cushion was needed (options were extremely limited) a referral had to be made back to the Medical Officer. He worked, as we all did, to strict guidelines in the ALAC manual. This was the "bible" and had a rule for just about any scenario which could arise!

ALAC manual

Anyway, enough of the past and those rose tinted specs! There were *some* good things, at least we had a nationally equitable service, but the range of equipment was limited and product development stifled.

Over the years there have been numerous efforts to reform the services:

a. *The NHS Modernisation Agency Wheelchair Service Collaborative was announced by Jacqui Smith MP* Nov 2002
b. *Fully Equipped* by Nick Mapstone (2002 Audit Commission) reported on medical loan services and also considered wheelchair services
c. Information gathering 2007/08. The first unpublicised meeting in January 2010 of the *National Wheelchair Services Advisory Group*
d. Early 2010 Phil Hope MP, Minister for Care Services, to re-structure the Wheelchair and Seating services
e. NHS document (Gateway reference 16242) dated 19 July 2011, *Operational Guidance to the NHS, Extending Patient Choice of Provider*. Any Qualified Provider (AQP) initiative announced by Andrew Lansley.

I felt that the Collaborative seemed to have had most impact as it was the first time we were enabled, with the backing of our Trusts, to take time out to review our services. We compared our operating systems with those of the other 44 participants, "process mapped" our own service and completed Plan, Do, Study, Act (PDSA) cycles to ascertain efficacy of our procedures. It may sound obvious, but the PDSA cycles allowed us to try new things, review after a pre-determined period and then implement change if necessary. We focussed the initial PDSA cycles around any bottlenecks within the service. Within Worcestershire this led to major changes within our equipment monitoring and inspection procedures, clinic structure and administrative organisation. Simple things such as how to effectively manage triage, acknowledge referrals, contact service users to arrange clinic appointments and home visits. The impact of the Collaborative has been long lasting – the things we learned through this period are still being used today across a number of services which operate from the same site as the Wheelchair & Seating Service. The work we completed enabled us to prove that our staffing levels were inadequate and make a case for additional staff.

What of the future? Let's get the crystal ball out! You will all be aware of the efforts made by PMG to influence AQP. Someone once said that there are not problems, just opportunities. It can be difficult to stay positive when there are perceived threats to the future of a service which one has worked so hard to develop and improve.

St Paul the Apostle said "We are pressed down on every side by troubles, but we are not crushed or broken. We are perplexed but we don't give up and quit. We are hunted down but God never abandons. We get knocked down but we get up again and keep going." No matter what we think, change will happen and all of us, whether in the public or private sector, need to work together to ensure that change is as positive as it can be for our customers. But a word of warning: ensure that statements made by potentially competing organisations are truthful and that any statements we make ourselves are honest and evidence-based.

I guess we need to use the rose coloured spectacles *and* the crystal ball to ensure that the **good of the past** can help shape the **new opportunities for the future.**

Finally, a call to the younger members, students and trainees. There are a number of us "grumpy old men & women" who will not be around forever; all of us need to look to the future, to work together with whoever we need, to ensure the best possible service for our customers .... we may need it ourselves one day!

Pete Rowell IEng IIPEM
Rehabilitation Engineer
West Midlands Rehabilitation Centre

Letter from the Chair

Howsaboutya? That's a variation on the theme! By now summer seems a distant memory and we are well and truly hurtling towards winter. As I write this letter, the clocks have just gone back, and the reality of going to work and returning home in the dark is upon us. It makes me want to hibernate!

However, that not being a realistic option, we on PMG Executive Committee and sub groups continue to work on your behalf. You may recall that our priorities for 2011 were to strengthen our base; produce a new website; and maintain and further develop our successful National Training Event. As 2011 draws to a close, these priorities will change slightly for 2012.

Clare Wright

So for 2012...

In 2012 we will continue to strive to strengthen our membership base. Although our current membership stands at a reasonably healthy 400+, it is increasingly important that we are strong in numbers because strong numbers equals a bigger voice, and sometimes we need to make ourselves heard – I'll say more about that in a moment. At this stage however, we are very glad of our decisions to employ Olwen directly, and to ask Linda Marks to be our external advisor. Both have proven they are worth their weight in gold.

Journal Production Team:

Editor: Carolyn Nichols

Production Editor: Olwen Ellis

Sub-Editor: Jane Menzies

Book Reviews Editor: Fiona Eldridge

Editorial support from:
Julianna Arva, Jane Chantry, Barend ter Haar,
Geoff Harbach and Joanne McConnell

Design: Nicholas Smith

Printer: SPS Communications, Ilford, Essex.

Next year we are taking steps to entice new members aboard: the Education & Training group is running a one-day course in January with reduced rates for members; and later in the year we will be implementing a Direct Debit payment scheme which will help to streamline applications and retain those members who would otherwise forget to renew. Much gratitude goes to Barend and Olwen for their patience and tenacity in finding a DD scheme which will work for a charitable organisation.

By now I hope most of you will have had a chance to view our new-look website, which is both easy on the eye and easy to navigate, as well as being interactive and informative. It is a fantastic tribute to James Hollington's tireless leadership on this project. Paul Hewett too: Paul's dedication to this project has been, as ever for PMG, unstinting. James and Paul, along with the rest of the team, will be glad to hang up their website development hats – only to be quickly replaced by other hats I'm sure!

Planning for the 2012 NTE is underway, and in order to ease the workload for Olwen, we have employed Hayley Webb on a fixed term contract as Exhibitions & Bookings Manager. Hayley was a great asset to the team this year, and she has agreed to step into the breach with Kirsty-Ann and Olwen for 2012. Simon (Hukku) is

Journal Advertising costs:

Full Page:	£600
Inside Front Cover, Inside Back Cover or Outside Back Cover:	£750
Half Page:	£360
Quarter page:	£200
Loose inserts:	£200

For the next journal we would again like to invite articles relating to **the active user**

- **service provision – assessment, supply criteria, set-up of chairs, training of users**
- **health, fitness and injuries of active users**
- **wheelchair sports, even chairs and training for the upcoming Paralympics!**

Copy deadline is 29th February 2012. Details from **olwen.ellis@pmguk.co.uk**.

pursuing his new teaching career, but continues to support the Exeter team, fortunately for all of us!

When we established our priorities for this year, we made a judgement that the Political Action group could sit on the back burner, because things seemed very quiet. How wrong we were! Most of you will be aware of the Department of Health's plans to offer wheelchair services to Any Qualified Provider (AQP). Not surprisingly, this led to a storm of protest from many of you – not necessarily against change per se, but with concern for the potential erosion of the expertise needed for our clients. Carolyn Nichols has been instrumental in writing, collating and editing much of the information that has been shared with you. Enormous thanks must go to Carolyn for this, to those of you who felt passionate enough to respond, and also to Jane Chantry who has temporarily taken over the journal editorial role to allow Carolyn to focus on AQP.

I mentioned earlier about strength in numbers – this has never been more the case than with our attempt to influence Government proposals. Therefore, in 2012 we will be trying to become more "politically-savvy" so that we can best protect the interests of the vulnerable clients that we work with. Anyone interested in joining us is more than welcome...

The rest of PMG...

Alongside the focused busy-ness of the last few months, the other groups continue to work towards the aims of PMG. Rakesh, who as well as becoming the proud father of Sameer Jay in September, has completed the end of year accounts – no mean feat. Similarly David continues to oversee the ongoing research fund and projects, generating precious evidence to inform our practice.

And finally...

It's said that continued thanks becomes meaningless, but often there's no other way to express gratitude for the hard work of our committees and you, our members.

So thank you. I wish you all a restful Christmas and a peaceful New Year. Hope to see you in April in Warwick.

All the very best,

Clare Wright, PMG Chair

Special Supplement: Any Qualified Provider (AQP)

Introduction

In this special AQP section, we have contributions from Alex Kamadu, Carolyn Nichols, and Dave Harrison.

Alex Kamadu is on six month secondment to the Department of Health (DH) from his usual job as Manager of Southwark Wheelchair Services. Although his role at the DH involves the whole gamut of AQP services, he obviously has a personal interest in the wheelchair services. Within a couple of weeks of his arrival at the DH in September 2011, Alex was instrumental in bringing PMG into the heart of discussions with the Wheelchair Services AQP implementation team. Whether the advice and input from the PMG team and others will have any impact, coming so late in the day, only time will tell, but it certainly won't be for want of trying. We must thank Alex for his efforts to improve the outcomes.

Carolyn Nichols has been at the AQP helm for PMG, and I'm sure everyone else who has also been involved in the process will forgive me that I don't list names here – for fear of leaving anyone out more than anything! This wide ranging group has worked tirelessly in coming to grips with what AQP might mean for the wheelchair services in England, and has provided reams of advice and guidelines to the DH AQP Implementation team. We hope to some avail but, again, only time will tell. Carolyn's first contribution to this section – *PMG, Wheelchair Services, and AQP* – was written while consultations with the AQP implementation team seemed more positive and potentially fruitful than they now appear to have been.

To give you an idea of the contribution PMG members have made to try to influence the final phases of the AQP implementation process, we are also publishing here the draft document *Levels of input and expertise needed for wheelchair service provision*, which was among the raft of guidance offered. A huge amount of energy and effort went into all this work as I am sure you will appreciate from reading Carolyn's articles, all done on a voluntary basis by people already working hard every day maintaining services for their clients up and down the country. One of these volunteers, Dave Harrison, recently sent us his personal view of the consultation culture, and we have published it here in the form of a *Letter to the Editor*.

As we go to press, we know that some commissioners have gone ahead with putting forward paediatric wheelchair services as one of their three AQP choices. This in spite of the DH having removed Wheelchair Services (children) from its initial "shopping list" of eight services, replacing them with *Wheelchair services for adults and children – access, assessment, provision and on-going support.* (healthandcare.dh.gov.uk/any-qualified-provider-2).

Along with partner organisations, PMG hopes to engage with the new All Party Parliamentary Group for Paediatric Mobility Reform, and continues to lobby as widely as possible on the inevitable deleterious impact the fragmentation of wheelchair services into age groups would have on clients of the services.

The AQP landscape won't become clear until after we have gone to press, with a statement from the Secretary of State expected at the end of November 2011. We would value any feedback or comments from you, in particular information about how AQP will be affecting wheelchair service provision in your region. We will attempt to keep you updated through ebulletins and via the website.

Olwen Ellis, PMG Administrator
Email: olwen.ellis@pmguk.co.uk

Post script: we have included a late addition to the Special Supplement on page 16. This statement from PMG – *Why splitting wheelchair services on grounds of age does not make sense* – was produced when it became clear that there are some commissioners in England who have put forward paediatric wheelchair services as one of their three choices for tender through the AQP process. The document is being used initially by Lord Rennard to inform his discussions with MPs and others.

Extending Patient Choice of Any Qualified Provider

Alexander Kamadu, Planning and Service Delivery Manager, Department of Health,
79 Whitehall, London, SW1A 2NS

Introduction: *In response to the NHS Future Forum's report, this Government recommitted to extending patients' choice of AQP. This means that for certain services, when patients are referred, they can choose from a range of providers that meet the necessary quality, standards, and price.*

The goal is to enable patients to choose from any qualified provider where this will result in better care. A phased approach will be adopted, introducing AQP for services where there is a demand from patients for greater choice to improve quality, starting with selected community and mental health services from April 2012.

Keywords: *Implementation packs, wheelchair services, any qualified provider, AQP*

What benefits will this bring?


Alexander Kamadu

- Giving people choice can affect how they experience their treatment. In a survey, carried out by the mental health charity Mind in 2010, people who said they had a choice of therapy were three times more likely to be happy with their therapy than those who wanted a choice but didn't get it.
- AQP is intended to empower patients and carers, improve access, outcomes and experience, and address gaps and inequalities.
- Better providers will thrive whilst poorer providers will be incentivised to improve the quality of the services they offer. Offering choice of provider will encourage innovation, drive change, and improve practice amongst providers.

The Government recognises that current wheelchair service provision is not as good as it could be in some places. Some service users and carers have indicated that they are dissatisfied with the service they receive, and they would like to have greater choice and control over how and when they receive their chairs.

The Department of Health (DH) has identified a list of potential services for priority implementation, which is based on discussions with national patient groups, and an assessment of deliverability. For all of the eight services on the initial national menu, the DH is co-producing an implementation pack with the NHS, which will help commissioners implement AQP in their area. The packs will be available on *Supply2Health* from November 2011. It is important to stress that the packs are a sample, and commissioners can choose to use the specifications within the pack or, instead, work with local providers to create a service specification. Crucially the development of each implementation pack is being owned and led by the NHS. Patient safety and service quality will remain a priority. [www.supply2health.nhs.uk/S2HHome.aspx]

To qualify, all providers would have to meet the specified NHS quality requirements, appropriate professional standards, and the requirements of NHS standard contracts, including being able to demonstrate that they have staff who are suitably qualified to deliver excellent care. AQP is not a price competition nor is it about privatisation; regardless of who provides services, wheelchair provision will remain free at the point of need for patients. While it is recognised that AQP cannot resolve all issues related to wheelchair provision, such as wider access criteria or better funding, it is hoped to remove some of the barriers to faster, better wheelchair services by shortening waiting lists and driving innovation.

Where necessary, providers would have to be registered with the Care Quality Commission and licensed by Monitor (from 2013), or meet equivalent assurance requirements. The NHS Commissioning Board will become the owner of AQP policy.

2011/12 – 2012/13 is a transition period, with a phased managed roll out.

The DH recognises the importance of developing our current and future workforce. There is an opportunity for Allied Health Professionals (AHPs) and their professional and regulatory bodies to become involved to ensure that patient safety is assured and quality is improved.

PMG, Wheelchair Services, and AQP

Carolyn Nichols

Background

The document published by the Department of Health (DH) on 3rd August 2011, *Operational Guidance to the NHS: Extending Patient Choice of Provider*, provides guidance to providers and commissioners on implementation of the "government commitment to extend patient choice" of Any Qualified Provider (AQP). There will be a phased roll out, starting with selected community and mental health services, from April 2012. This means that, when patients are referred for a service, they will be able to choose from a number of qualified providers; this system is already in use for some elective procedures.

Following consultation with patient groups, the DH has identified eight services that are recommended for implementation of AQP; one of these is wheelchair services. By the end of October 2011, each Strategic Health Authority (SHA) was to have chosen three (or more) services for implementation of AQP in their area; by the time of publication of this PMG journal, each of us should know whether provision of wheelchair services has been chosen in our local area.

Concerns and Recommendations

PMG members are concerned about what AQP will mean for their clients and also for themselves. A document published recently by PMG and the British Healthcare Trades Association (BHTA) compiled comments from members of PMG, BHTA, the National Wheelchair Managers Forum (NWMF), and the Rehabilitation Engineering Services Management Group (RESMaG), and was circulated widely.

In the process of gathering this information, we were put in touch with members of the AQP Implementation Team for wheelchair services and have been given the opportunity to comment on some of the documents they are producing. Although we are very pleased to be consulted, and we have offered to advise on some aspects of their work (as described below), we would like to make it clear that we have some fundamental concerns and recommendations:

1. Why is this Being Done at All? After years of work to develop skills and establish effective case management systems and channels of communication, we wonder why improvements cannot be made within the current system. These concerns are highlighted in comments, quoted below, recently made by the parent of a wheelchair user. In response to the question, "How do parents perceive the 'problems' with the current system?" he replies with some suggestions for improvements within the current system:

"Lack of a Seat Riser is the most common reason for a family to set out to obtain a different powered wheelchair. This results in charities funding a second powerchair, where there could have been an addition to the first powerchair.

Families often want to have a wheelchair that is more acceptable due to having design features and colours that they like.

Current provision does not consider other members of the family – often siblings and friends need to be transported as well.

Families will often operate with a level of compromise in order to be able to continue a lifestyle that they find acceptable. This means that often a piece of mobility equipment that is 100% posturally effective may only be used 20% of the time (we believe the 90% posturally effective 80% of the time is better than a beanbag!). The allowance of a little compromise may need to be recognized."

These comments relate mainly to clients and their families wanting or needing more than that which is provided within current budgets and eligibility criteria, and it is suggested that improved partnership arrangements with third sector funders/providers could (and currently, in many places, do) fill this gap. **This parent feels strongly that this can and should be done within the current structure.**

Commenting on the broader themes of the PMG/BHTA publication, *The Future of Wheelchair Services – Any Qualified Provider?*, he continued:

"Many of the contributors are known to me personally and I rank them among the finest and most dedicated in the postural mobility world. Whilst the contributions are clearly aimed at resisting an ill-prepared scheme that is threatening to engulf the current provision arrangements, my thoughts were running along the lines of 'What is actually wrong with the current system?'.

We clearly have the best and most qualified people in the NHS Wheelchair Services – how can we liberate them?"

2. Fragmentation of the Service: Within the proposed system, the service will be divided in three ways, as described below, and we fear that this fragmentation may lead to poor communication, loss of established care pathways which link with other services, inefficiency, and inequality.

- **Division by age:** Although the AQP team has strongly advised **against** dividing the service into paediatrics and adults, it is still split by age on some of the DH documents and website, and some SHAs /commissioning groups have indeed chosen **paediatric** wheelchair services as one of their services to be provided via the AQP process. We wonder why or how the service will suddenly differ once an arbitrary age is reached.
- **Division into two distinct stages of the process**, the first stage being assessment and prescription, and the second stage being provision of equipment. The experience of many very experienced services is that it is just not possible to generically "prescribe" in such a way as to leave a user with choice of the final product. Furthermore the prescriber has a professional duty to ensure that the prescription meets the needs identified at the assessment. If this is to be the process, prescription forms must specifically define the clinical/postural aims (not just the measurements) but also remain generic enough to enable users to choose their individual solution.
- **Division by level of disability/complexity of provision.** Within the proposed model, eligible wheelchair users are being divided into three groups, and each group may be managed differently:
    a. People with "complex physical disabilities" (according to definition no. 5 of the Specialised Services National Definitions Set) will have their equipment assessed, prescribed, and provided via a "Specialist Wheelchair and Seating Service"
    b. Somewhat less complex cases will be dealt with via the new AQP agenda, using "qualified/experienced" clinicians to assess and prescribe, followed by provision of equipment
    c. Fairly straightforward "standard" cases will be dealt with via AQP using "competent assessors/prescribers", followed by equipment provision.

3. Focus on the Person Rather than on the Equipment The draft specifications for implementation of AQP for wheelchair services focus primarily on **equipment**, but wheelchair services are **clinical**. All elements of managing the client's disabilities must be addressed, including management of spasticity, minimising deterioration, maximising function, avoiding tissue damage and pressure sores, and responding to lifetime changes and increasing needs.

4. Common Eligibility Criteria must be used nationally, with local variations as highlighted by local consultation.

5. Universal Criteria must be used to specify Any Qualified Provider, with competition on a level playing field. These criteria must define the service being provided, and the level of expertise required for clinical staff. We recommend that the levels of training should be comparable to those within the NHS, and continued professional development must be guaranteed.

6. AQP Contract Timescales Must Be Long Term as frequent changes in contracts will lead to confusion, poor communication, difficulty maintaining levels of qualifications, and even more fragmentation.

PMG Members Have Offered Advice or Are Already Involved in Advising in the Following Areas:

- Defining **levels of complexity**, which we hope to do from a person perspective NOT an equipment perspective, and we hope to include relevant multidimensional factors
- Defining **competencies** (qualifications and experience) of clinical staff and required continued professional development
- Defining **levels of tariffs** related to level of complexity

We are very grateful to the many PMG members who have "rallied round" and assisted with feedback and comments to the AQP team.

Levels of Input and Expertise Needed for Wheelchair Service Provision

Compiled from information prepared and gathered by PMG members

Edited by Carolyn Nichols, MCSP

The specialised wheelchair service is identified by the complexity of the individual's condition and not by specific pieces of equipment. It is the complexity and severity of the person's condition, and the expertise required to assess/support and provide/maintain equipment for each individual that defines a specialised equipment service as opposed to the nature of the equipment itself.

Specialised equipment services are characterised by:

- the complexity of service user needs (complex physical/cognitive/language/sensory disability – often in combination)
- expert assessment
- user and carer training to maximise effectiveness and independence
- timely review and re-assessment for changing needs
- on-going, life-long maintenance/replacement and user support.

Specialised wheelchair services are required by people who meet the following criteria:

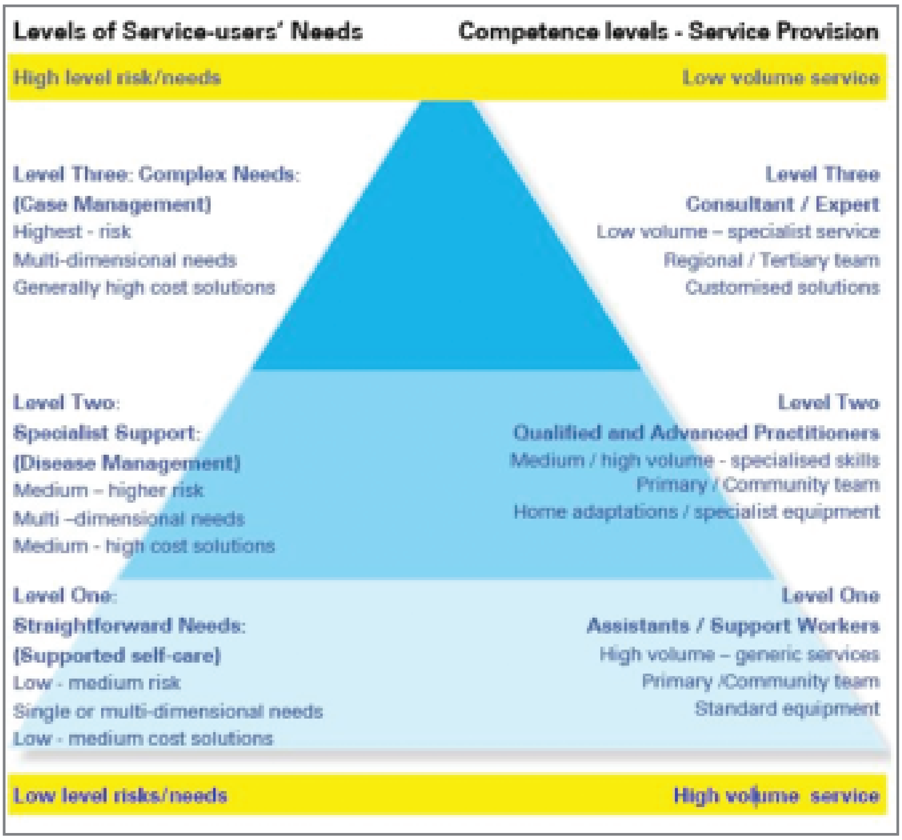
- individuals whose posture or mobility needs can only be met with a high level of specific design input resulting in unique prescriptions which may use combinations of bespoke and/or off the shelf components; consideration of static seating and 24-hour postural management systems may also be required to ensure optimal outcomes
- individuals whose posture and mobility needs may not be complex in their own right but nevertheless significantly impinge on the overall level of functional ability
- individuals who have the ability to control a powered wheelchair but are unable to use standard joystick controls
- individuals requiring multiple items of equipment integrated via the wheelchair control methods.

The above was taken from the Specialised Services National Definitions Set, Definition No.5: Assessment and Provision of Equipment for People with Complex Physical Disabilities (all ages) (3rd Edition).

Levels of Complexity combining work done by Linda Marks, Lisa Ledger, Dave Long, and others. *(Short-term/occasional users, as is currently the case, are considered 'ineligible').*

1. **Straightforward cases:** This describes individuals who have a relatively simple need who can largely be self supporting. With regard to wheelchair provision at this level, individuals could be assessed by a 'trusted assessor' with core basic assessment skills and competency in wheelchair prescription. Provision could then be through a number of options, including the use of personal health budgets or a voucher type option for use at any 'approved retailer' outlet. The need is likely to be one off, simplistic, and would not require review in a clinical sense; the individual could also be given general advice around related health aspects such as maintenance of healthy skin and good posture care.
2. **Moderate cases:** A large proportion of wheelchair users would likely fall into this category, where assessment would need to be more specialist and clinically focused, with skills around management of a condition including tissue viability, posture care and more specialist wheelchair and seating options. Individuals at this level require regular review and inter-agency liaison and involvement within a care pathway approach. A robust clinical interface is essential at this level so that timely and appropriate intervention can occur to prevent individuals moving up the 'triangle'. At this level, it is unlikely that equipment will be the only provision, but rather specialist advice, information, therapy, medical management to name a few of the related responses that may be indicated. Therefore, at this level the 'equipment' component cannot be separated from the clinical assessment and handover/delivery components. An example of this level would be an individual who uses their wheelchair on a full-time basis and requires a degree of postural support in the form of a contoured cushion and backrest. This type of equipment would need to be set up to the individual user's posture, lifestyle and mobility requirements, thus requiring a clinician to be involved at handover/fitting stage.
3. **Complex cases:** These are individuals who have

highly complex requirements and are at greatest risk to their health and well being. As in Level Two, the response here regarding wheelchair provision must be met within a specialist service and as part of the multi-disciplinary, interagency team. These individuals are at high risk of secondary complications due to their level of disability, such as pressure ulcers, contractures, chest infections and respiratory illness and may require an individual bespoke equipment solution. Regular review and a timely response are crucial at this level using a case-management type response. In this sense, 'any qualified provider' would need to be clinically focused with proven expert specialist skills and competencies within the field of wheelchairs, tissue viability and posture management.



above extracted from: Wheelchair and Specialist Seating Services: A Clinical Guide for Commissioners and Provider Services, Lisa Jayne Ledger

Example specific indicators of clients who need Level Three / Specialist Services:

- Clients with specific diagnoses who are totally dependent: cerebral palsy, muscular dystrophy, motor neurone disease, multiple sclerosis, and other progressive, deteriorating neurological conditions
- A person with a progressive neurological condition with moderate postural need who would ideally be prescribed a tilting powered wheelchair but who is unable to drive safely. Since they need to maintain independence in the day time while their carer is out at work, a normal self-propelling manual wheelchair with customised supports is prescribed. This example highlights the need of the clinician to make judgements where a number of conflicting factors exist but where, ultimately, the equipment prescribed is, on the face of it, non-complex.
- A person having a movement disorder where there are significant amounts of involuntary movement causing premature failure of 'off the shelf' equipment. This sort of prescription requires very careful consideration and experience in determining what equipment has sufficient strength and function to meet the requirements.
- A person who has a very high level of postural need normally leading to the prescription of custom contoured seating but who chooses to use 'off the shelf' equipment for functional reasons. This sort of assessment must be equally as thorough as an assessment in which the person is prescribed custom contoured seating in order to provide sufficient information for a sound, clinical decision to be made.
- A person with a moderate to low postural requirement but who has a highly complex and intricate combination of functional, environmental, and social factors for whom only a very specific piece of 'off the shelf' equipment will be appropriate, i.e. the person carrying out the assessment must be able to appraise a wide variety of options, including custom made equipment, before deciding on a prescription.
- A person having recurrent issues with pressure ulceration should be referred to the specialist service because, usually, the problems are not isolated to the wheelchair and may require changes in routine, other equipment, and nursing input.
- A person who would be adequately supported by 'off the shelf' equipment but who continues to experience significant and chronic pain.
- A person having 'challenging behaviour' where there are significant issues balancing the need for safety with the risk of applying restraint.

Indicators of Level of Input Required *(see triangle diagram on page 13)*:

Description of Indicator: Level

Time

Wheelchair is a mobility option but used <1hr /day	1
Wheelchair is main means of mobility, used every day but not all day	1 or 2
Totally dependent on wheelchair for mobility and in it all day	2 or 3

Posture

No specific postural issues	1
Requires a single commercial postural support e.g. backrest, cushion, wedge, lateral supports	1 or 2
Requires two or more postural elements which can be commercial or bespoke	2 or 3
Needs complete postural support requiring bespoke prescription	2 or 3

Ability to establish, maintain, and change position

Can change position independently	1
Can change position with occasional assistance/prompting/supervision	1 or 2
Can change position with regular assistance of one person	2 or 3
Poor ability to establish a good sitting position, even with assistance	2 or 3
Totally dependent on one or more people in order to change position	2 or 3
Spasticity and/or involuntary movements are present, causing difficulties with establishing and maintaining a good sitting position, even with assistance	2 or 3
Recurrent issues with pressure ulceration	3

Need for assistive technology

Requires basic manual chair (attendant or self propelled) only	1
Requires powered chair for mobility	2 or 3
Requires lightweight, active user chair	2 or 3
Requires powered chair and one or more additional assistive technology (AT) devices to enhance independence and quality of life	2 or 3
Totally dependent on powered chair with multiple integrated AT devices, to maintain quality of life	3

Changing needs

Static condition	1
Anticipated, predictable change requiring regular monitoring and adjustment e.g. as a result of growth, injury, surgery, lifestyle change	2 or 3
Single anticipated change but with unpredictable needs e.g. surgery	2 or 3
Continual anticipated changes, with unpredictable needs e.g. deteriorating conditions	3

Letter to the Editor
Defining Referral Complexity

Dear Editor,
With 20 years of working in both local wheelchair services and a regional specialist service, where the priority was to provide a regional service with its own identity based on patient/customer needs, the West Midlands Posture & Mobility Service has monitored the disabling pathologies that have accessed our service, and looked for trends on the levels of disability e.g. tried to map to published standards.

Trends within the Regional Posture & Mobility Services

Whilst there are trends that relate to CP, late stage MS, tetraplegic spinal injuries, head injuries, and trends that reference a request for "consultant" led MDT approach which focus on spasticity management and assessments that include more than one of our specialist clinics (within the centre we have communication aids, MS clinics, Spasticity clinics, in-patient units referrals, specialist workshop adaptations – normally a combination of seating/controls/ventilators), we have never been able to produce a document/criteria that captured the variety of referrals we have accepted.

With regional specialist commissioners capping the activity levels/funds available (it should be noted that commissioner investment has grown over the years based on the regional service business and development plans/cost pressures), and a culture of "patient care is best delivered by local services", an understanding has developed between referrers (the West Midlands Local Wheelchair Services/Rehabilitation Consultants) and our acceptance criteria, which is monitored weekly.

Birmingham Wheelchair Service

We only have 12 months data monitoring the complexity of these referrals and, as you would expect, the range of referrals covers the complete spectrum of disabilities.

Commissioners have agreed to three different categories based on provision without assessment, basic assessment and complex assessment. Again, capping activity (which I am fully aware is not anyone's, including my, preferred option) has made us focus on trying to identify trends/criteria etc, but we don't yet have sufficient data or trends to identify a robust categorising that would stand up to scrutiny/could be adapted as a national model.

Conclusion

My interpretation of the work co-ordinated by PMG would conclude that we all have the same problems. We can try to implement a model but, as soon as we do, we will need "concessions" in line with individual patient needs.

These comments are not designed to discourage anyone looking to develop criteria for "what is a specialist referral/assessment" but to register my belief that this needs "protected time" to fully complete, which I doubt any of us have, unless the work is funded.

Should funding become available I would be happy to be involved in such a project.

Regards,
Dave Harrison,
Clinical Engineering Services Senior Manager,
Manager, Regional Posture & Mobility Service,
West Midlands,
Manager, Birmingham Wheelchair Service

Stop Press!

- The announcement by Andrew Lansley about competition and AQP was delayed to December 7th 2011
- The Supply2Health website contains information about AQP: www.supply2health.nhs.uk/AQPResourceCentre/Pages/AQPHome.aspx
- The AQP Implementation Pack for Wheelchair Services is available soon.

Why Splitting Wheelchair Services on Grounds of Age Does Not Make Sense

***Introduction by Carolyn Nichols:** Dealing with provision for children is different, both clinically and socially, from dealing with adults – the effects of growth and motor development on ability and structural issues, dealing with families and family lives, and understanding the sorts of things that children do/or want to do. But these are not reasons for splitting the service by age; rather they are reasons for staff to be properly trained and aware.*

Outlined below are clinical and financial reasons which suggest that it is unwise to interrupt the continuity of care for those with mobility and seating needs. Any age chosen for the jump between 'paediatric' and 'adult' provision has to be arbitrary, and will not relate to developmental, clinical, or even educational, need. We are not discussing the supply of commodities, but the means for people to get the most out of life, be as productive (and cost-effective to the State) as possible, and have continuity of clinical and social care as needed. On the other hand, it is not clear what advantages there are to either the State or the individuals involved by making an arbitrary split in provision. What benefit would it give socially or clinically?

1. Stability of support. Unfortunately the majority of children who require a wheelchair for mobility will continue to require a wheelchair for the rest of their life. During their childhood years, they, and their families, will have formed relationships with the team looking after them, and many are relieved to have familiar faces around when they transition from paediatric to adult services, and every other aspect of their healthcare seems to be changing. The continuity issue is one of the most important things raised by families and service users. They are relieved to know that amongst major life changes, wheelchair and seating service relationships will be stable. The wheelchair & seating service also provides a good reference point for other community staff who take on care/treatment for the young adults moving to adult services.

2. Clinical continuity. The staff who have looked after that child will have a wealth of knowledge about their individual needs and this cannot be simply 'passed over' in a file/discussion; it takes years to build up. Continuity of care is vital for both the child and the caring staff.

3. Continuity of care and treatment. The clinical skills required for paediatric wheelchair/seating provision are similar to those required for adult prescription. However, experienced clinicians will be aware of the need for an emphasis on developmental neurological patterns, rapid growth changes and the neuroplastic implications of childhood provision. Many of these skills are transferable and will benefit adult neurological clients in improved awareness of their complex needs for equipment provision.

There will obviously be differences in approach and environment, to put the child at ease, and clearly the equipment needs to be age appropriate and adaptable for growth. These are issues already known to wheelchair services.

4. Efficiency. The critical mass of a service needs to be considered. The more cases a service sees, the broader the experience gathered, and the better the treatment as a result. A service also needs a certain number of users to cover the numbers of staff needed for administration and clinical work. If services are split into paediatric and adult, this critical mass will then only be achieved by each service having greatly increased catchment areas. This will result in greater travelling times and distances for both users and staff, creating inconvenience and reducing efficiency.

5. Cost implications. There are issues around cost if the services are split. Premises will be duplicated, staff members will be duplicated, and significant equipment costs will be incurred as equipment is changed or withdrawn on transfer of clients between services.

PMG, November 2011

Articles and Reports

Aldersea Lecture 2011: *The Chapters So Far...*

Ros Ham FCSP, MSc, DMS, Cert ED

We are publishing here the transcript of Ros Ham's wonderful Aldersea Lecture, presented at PMG's National Training Event on 15th April 2011. It is also available to watch in full on the webcasts of the NTE, which you will find in the membership section of the new PMG website.

Ros has been part of the fabric of PMG from day one, and her name pops up time and again in conference proceedings, PMG publications and meeting minutes throughout the past 20 years. She was even editor of this journal for several issues.

I met Ros at the Adelphi Hotel, Liverpool in January 2004 on my very first day as administrator of PMG. She immediately offered to be at the end of the phone for me any time I might need advice or support, and she has always remained true to her word. I hope no-one minds if I say a personal "Thank you Ros" here – it seemed too good an opportunity to miss! Olwen Ellis

Introduction

Thank you for inviting me to give the Aldersea lecture this year. As many of you know, I worked closely with Patsy (Aldersea) for many years until her retirement and continue to be in contact with her in her Lakes hideaway! I initially met Patsy when I was working with lower limb amputees and prosthetics in the 1980s and later we worked closely on the University of Greenwich wheelchair courses, co-authored a wheelchair book with David Porter, and sat on many committees together. At times we even had fun! For example, breaking into her car at Banstead, being tourists on the London Eye, having tea at the Ritz on my 50th birthday, and laughing and drinking at conferences! She was great to have as a colleague, was always generous with her time and knowledge, had time for everyone, and was never 'stuffy' or high-handed. Happy days!

Beginning

My talk was loosely chronological and I started by talking about Tanzania (ex-Tanganyika) in East Africa, the land of my birth. Following the war, my parents joined the Colonial Service and were posted to Lindi in Tanganyika in 1952. I was born there and named (supposedly) Rose for England and Lind for Lindi! (Do we believe parents or was it from Shakespeare?)

Tanganyika was a British East African territory following the First World War when the German East African countries were divided by the victorious European nations. In 1961 it became a republic and in 1964 joined with Zanzibar becoming Tanzania. It was a rural country with crops of sisal, coffee, cotton, and ground nuts.

As with all staff in the Colonial Service, you had three year tours with some local leave and then went back to the UK (by ship) for a six month leave before returning to another town and posting. During the years in Tanganyika we lived in Lindi, Mtwara, Morogoro, Kigoma and Bukoba. Towns by the sea, inland, or by lakes – Victoria and Tanganyika. Statues of famous Victorian explorers were often seen in travels about the country.

I was the youngest of four girls and we spent an idyllic life in the 1950s and 1960s. Pets, scents, experiences galore, playmates aplenty, staff to help in every way, unusual houses (some ex German Kaserhofs) to live in and not a care in the world! We all caught the usual illnesses and also some exotic ones and, on one trip with my parents down the Zambezi hunting crocodiles, I caught cerebral malaria – but survived! I was also bitten on the mouth by a friend's German shepherd dog, and almost drowned in Lake Victoria. No worries.

Ros & sisters with their Nanny (far left), Lindi 1950s

Victoria Falls.

We were schooled locally until about the age of eight and then went to boarding school in the country with every other kid in town. By the mid 1960s, independence was on its way and we all started to return to the UK for schooling, going back home for Christmas and summer holidays and staying with family for Easter. My first English boarding school was small and grim. None of the African colour and scents were there. The birds had different names, people were stern, clothes uncomfortable and it was cold. But we did have ballet and bonfire night, so it was not all bad!!

Secondary school was in Sussex in the 1960s and many of us continue to meet up; even after all these years!

Following Tanzania's independence, my parents moved to the Gilbert and Ellice Islands (now Kiribati and Tuvalu) in the central Pacific and holidays were both a lengthy travel adventure via Australia or the US and also an amazing experience in the middle of nowhere, eating coconuts with everything, fishing on the reef, making garlands, outdoor cinemas occasionally and relying on a boat from Australia for supplies every three weeks. Flights into the islands were via Fiji and took two days as the plane was small and the humidity so high that it had to take off in the early morning and stop overnight at Funafuti on the Ellice Islands for refuelling, then another early dawn start to Tarawa (the site of a major battle between US and Japan in WW2).

After that posting, we moved to Zambia in the 1970s, on the copper belt (Chingola), where my father finished his 'overseas development' days. We travelled around Zambia and South Africa; and Zambia was much more influenced by SA than Tanzania had been.

I had now moved school from Battle in Sussex to the United World College of the Atlantic in South Wales (1970). I felt very at home there as almost everyone was away from home and holidays were timetabled to be only twice a year which was a dream come true! Two years went very fast and at our 40th reunion this summer it felt as if it was yesterday! We even invited ourselves round to the ex-housemaster's house for tea. Great fun to catch up on what every one has been doing for 40 years!

Physiotherapy, Prosthetics and Research

Although I had applied to study Agricultural Botany at Reading University, my chemistry A level result was not good enough and, through chance and by looking at a booklet 'What to do with Biology', I started to look into physiotherapy schools and at the London Hospital they said they had a place starting in April 1972 – so I joined up!! Two intakes a year, 17 started, 10 finished (strict ward discipline and training, white starched uniforms, hardly any textbooks, lots of massage and bandaging and partying) and all have continued to work in physiotherapy until recent years. So different from today!

My parents at this time were still in Zambia and during the holidays I shadowed the local physio, watching her treat many skin burns following camp stove fire accidents. Eye opening.

Action Research at King's, 1980s

On qualifying in 1975, I worked in junior placements in London and Essex and, in 1982 applied for a research physiotherapist post at King's College, London. Here I continued to work for 10 years in prosthetic amputee rehabilitation (and with the visiting service from Roehampton with Dr Thornberry and Dr Luff), before moving into research and teaching, and then wheelchair and special seating as the department of Biomedical Engineering's focus changed. I was awarded a two-year Action Research Bioengineering Training Fellowship in 1985 which started me on the science of research methodology. The research led to papers and presentations, conferences and committee work and books and courses (Amputee – DSA sponsored and Greenwich University – wheelchairs), studying (MSc and Cert Ed) and writing my Physiotherapy Fellowship dissertation on Amputee Rehabilitation in 1992. I was lucky to work with many great people during this decade at King's, including Professor Roberts, Paul Richardson, David Porter, Donna Cowan, Jim Regan, Ted Mason, Dave Batty, Liz White, and I always felt the 'best' jobs include clinical practice, teaching and research. Not much chance today!

Wheelchair service

As rehabilitation and statutory provision changed, King's remit also changed and we (Paul Richardson, Dr Luff and I) started wheelchair and seating services at Dulwich in the late 1980s. It was the time when people with learning difficulties started to return to the community, so there was a steep learning curve for all of us.

Ros (far left) on lecture tour in war-torn Serbia, 1990s

After 10 years at King's, I moved to the CSP for one year and then to Newham where I spent a happy but busy five years. Seeking promotion I then moved to Camden & Islington wheelchair service but after only 12 months I saw the advert for the post of Director of Children's Services at Whizz-Kidz. Although another move so soon was not desirable, I decided this was an opportunity not to be missed and, after a three stage interview, was appointed in 1999 where I stayed for four happy and again busy years. I learnt a great deal about the charity sector, about bonuses, entrepreneurs, private jets, fundraising and completed a Diploma in Management Studies to help me in my work. (The thought of another dissertation put me off a MBA!).

I also worked briefly at Portsmouth DSC, RHN Putney and Stanmore Seating service before moving to Dorset with my husband on his retirement.

People

It was the people who made those years such fun! The clinical and administrative staff - the lunches, drinks and jokes, the courses, trips and events. The managers who 'opened doors' and gave me loads of opportunities. The colleagues in other departments who taught me so much. The colleagues in other wheelchair services who shared ideas, frustrations and daily chit-chat and also the visiting members of staff – notably the REs, students and antipodean friends. The many contractors – who up to this day I cannot understand how they can 'keep their mouths shut' when they are seeing such poor or good practice on their travels – amazing! The many dealers and suppliers who were so professional and such fun to work with and remembering the many who became friends. Also staff at MHRA who were so supportive at difficult times.

> *"If your subordinate does not like you, you won't succeed. Most success depends on colleagues, on the team… People at the top can have large egos but you must never say "I": it is always "WE".*
>
> Sir Frank Lampl (1926-2011)
> Chairman of Bovis Construction Group.

Dorset Condition Management Programme (CMP)

On moving to Dorset in 2007, there were no wheelchair jobs available and so I was lucky to be appointed as the manager of the DH/Joint Commissioning Panel (JCP) CMP project in Dorset. Learning that 'work is good for you' and about getting people with disabilities back into work was another steep learning curve, but my health psychology MSc, research and education years proved very useful. A resilient personality is the key to it all!! I also learnt what a professional organisation the JCP is and how much money they have available to help keep (or get) people with disabilities in work! Contact your local Disability Employment Adviser (DEA)!

'Retirement'

I left the NHS full-time in 2009 to take time to assist both my husband who has a long term condition and also an aging mother-in-law. I purchased a Sussex Spaniel puppy in January 2008, and have often thought that work is 100% easier, and wondered how working mothers/father ever cope doing both! I have been introduced to the countryside with gundog training classes, gardening, village hall committees, U3A, but also continue my term as the HPC rep on the MHRA Committee for the Safety of Devices and on the Purbeck District Council Standards committee as an independent member.

I am currently 'sorting out' the many wheelchair papers and reports from various phases and am planning a publication with David Porter – so be warned!

PMG

I attended the first meeting of 'interested parties' in Sheffield in 1991, the meeting establishing PMG in 1992 in Salford, and the first PMG conference in Swansea in 1993 and continued to attend almost every one after that. I was a committee member and editor of the newsletter 2003-2006 and it is wonderful to see how it has developed in 20 years – but only due to the hard and often voluntary work of so many people. We are also so lucky to have such loyal, hardworking, stable, solid administrative support without which I think PMG would not be as strong and robust as it is today. Thank you Olwen!

My learning

- People are all important
- People catch up with you – it is a small world
- Do to others as you would want done to you
- Make the most of every opportunity – go through the open doors! Have a go!
- Keep asking yourself – How good are you? Credible? Worth it? What are you adding?
- At your peak in your 40s!
- Time goes ***FAST!*** Don't waste it!
- Approximately every 25 years things come round again!

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Development of An Objective Measurement System to Assist in Wheelchair Seating Prescription

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Abstract: *Non-ambulant children with cerebral palsy (CP) are at a high risk of developing the spinal deformity scoliosis. Supportive seating within wheelchairs is an important postural management technique to encourage healthy growth and improve function. However, currently, the process of seating prescription relies predominantly on subjective assessment by skilled staff.*

This article presents the development of an objective measurement system intended to aid staff in the prescription of seating systems for non-ambulant children with CP.

Keywords: *Cerebral palsy, scoliosis, seating system, measurement*

"Cerebral Palsy (CP) is the most common cause of motor disability in young children, it occurs in 2 to 3 per 1,000 live births" (Cans. 2000).

In the case of severe CP, non-ambulant individuals are at a higher risk of developing contractures, restricted lung function and spinal scoliosis, particularly during growth periods. Within the UK the primary, non-surgical treatment is 24 hour posture management; this involves passive and active movements along with use of support systems. Wheelchair seating support is an important contributing factor to posture management; however this process currently relies predominantly on the skills and subjective assessment of those prescribing the seat.

Purpose of Research

The purpose of this research was to develop a device to provide objective, quantifiable seating measures to assist in the process of seating prescription. This article describes how relevant stakeholders were involved in the device development to ensure the equipment was useful and appropriate. An initial specification was derived from stakeholder feedback, and a prototype system was developed to assess the spinal curvature of non-ambulant children with CP while seated. The spinal assessments were carried out utilising surface topography technology along with X-rays.

Following this study the device specification was further developed and a Seating Measurement System (SMS) was designed and manufactured to conform to this specification. A more comprehensive clinical investigation was carried out with able bodied and non-ambulant children with CP to compare seating parameters. The final system provided measures of spinal curvature and back shape, pressure and force distribution through the seat, along with an assessment of upper limb function.

Research Methods

To discover what was needed from a system to measure seating parameters, a range of suitable stakeholders were involved throughout the development process, utilising a 'User Centred Design' methodology. These stakeholders were divided into groups: *'Clinical', 'Seating', 'Technical'* and *'Carers and Children'*.

The clinical stakeholders involved paediatricians from the Leeds area along with additional academic clinical staff. Seating stakeholders included the physiotherapy and engineering staff in Seacroft Seating Services, Leeds, along with some wheelchair companies including Otto Bock Healthcare plc and Consolor Ltd. Active Design Ltd, Birmingham, provided some components for the research and were involved in numerous extended discussions. Technical stakeholders included engineering staff from within the school of Mechanical Engineering, University of Leeds, associated with the *Next Generation Health Care Devices* group along with medical photography and radiology staff within Leeds General Infirmary (LGI). Stakeholders within the carers and children group involved able bodied and non-ambulant children with CP along with their respective parents, guardians or alternative care givers.

Initially stakeholders were involved in interviews and discussions to identify the most important parameters that should be considered during seating prescription. Although each group had varying priorities, all groups desired a method to monitor scoliosis. Currently the gold standard for the assessment of spinal deformities is the X-ray (Levy. *et al.* 2006). The MacKeith consensus on 24 hour postural management of children with CP recommends that spine X rays should be considered for children with CP in GMFCS group IV and V who are still non-ambulant at age five years (Gericke. 2006). However, frequent exposure to radiation has associated health risks, therefore stakeholders preferred a method of spinal assessment during seating prescription that did not use X-rays.

Surface topography is a non-radiological method of assessing spinal curvature. By projecting structured light patterns onto an individual's back surface, and taking digital images, a 3D map of their back can be derived. If adhesive markers are placed onto the individual's spinous processes an estimation of their 3D spinal curve can be produced.

Initial Clinical Investigation – Assessment of surface topography

An initial clinical investigation was designed to assess if surface topography was an acceptable alternative to spinal X-rays for non-ambulant children with CP. A modular seating system was developed conforming to requirements presented by the stakeholders. A Quantec Scanner (a surface topography system) was in clinical use within the LGI for standing patients, and the seating system was developed to interface with this existing

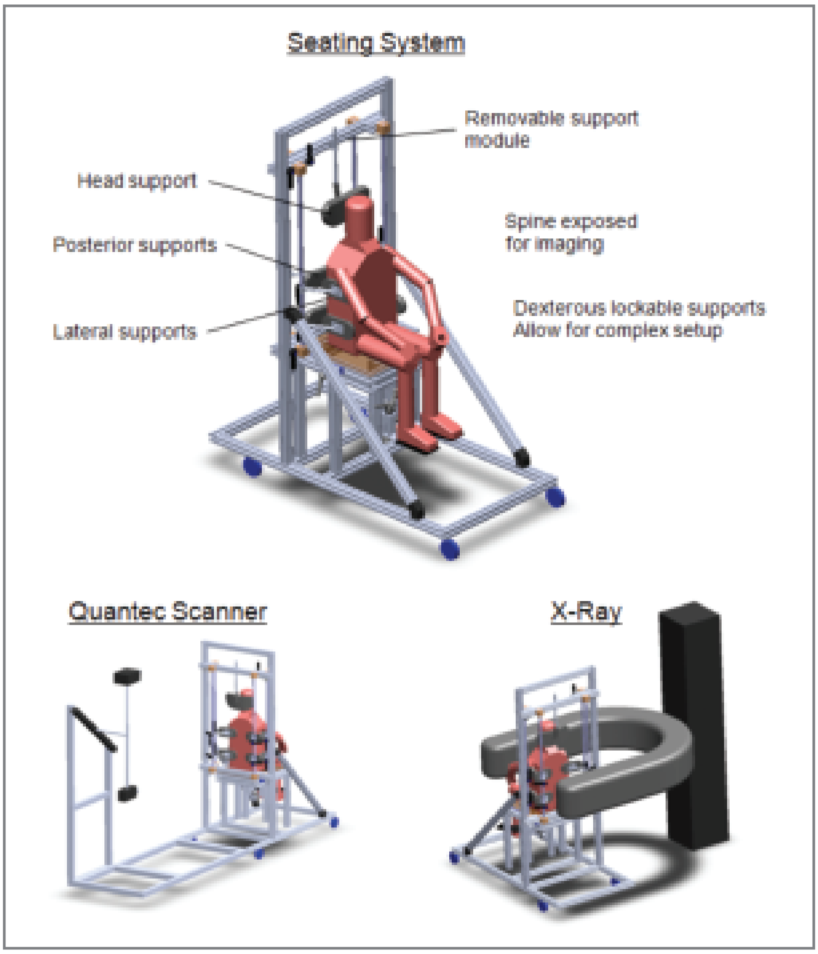

Figure 1: Seating system along with Quantec Scanner and X-ray

system along with the X-ray. This required the seat to be designed to support the individual with their spine and some of their back exposed for imaging. To accommodate children with different spinal deformities the seat provided posterior and lateral torso and pelvic support using easily adjustable, lockable mechanisms. The seat could also accommodate children with windswept hips using adjustable foot supports.

Children were provided with comparable seating support within both spinal imaging systems in order for the result to be compared. The Cobb angle is a measure of lateral spinal curvature taken from anterior-posterior X-rays; this value was compared against the equivalent Q-angle taken from the Quantec Scanner for each child. 18 children with CP within GMFCS IV-V (non-ambulant), aged 5-11 years old, were successfully assessed in both spinal imaging systems. To assess the comfort level of children, and the appropriateness of the seating and imaging process, a questionnaire was provided to the carers and children. The seating system within the X-ray and Quantec Scanner is shown in Figure 1.

Results

With appropriate postural support it was found to be feasible to perform both spinal assessments while individuals were seated. Results indicated that surface topography could provide a similar measure of lateral spinal curvature to X-rays where the differences between the measures were comparable to the variance observed for intra- and inter-observer X-ray studies. 65% of children showed a scoliotic curve in the X-ray examination (scoliosis defined as a Cobb angle greater than 10°), 85% of children had a Cobb angle below 28°, and one child had a 73° Cobb angle. Details of the results from this study are presented in Sadani. *et al.* 2011.

System Development

Based on the results of the initial clinical investigation, surface topography was accepted by stakeholders as a more appropriate method of spinal assessment than X-rays during seating prescription. Stakeholders were involved in further discussions to identify additional important seating parameters and to gather feedback from the initial trial. The device specification was developed to improve the usability of the system, reduce the efforts involved to adjust equipment, and to reduce the time taken to set up the seat.

Clinical stakeholders identified the Quantec Scanner as ‘not user friendly’, the system required the user to manually select markers on the back, and this resulted in excessive amounts of time to process images. The ISIS2 (Integrated Surface Imaging System) was adapted for use in this research (Berryman. *et al.* 1998). This surface topography system was similar to use as the Quantec Scanner; however the individual’s spinal image could be processed in under a minute. Back markers are selected autonomously and the output file is more detailed and presented with a colour coded scale.

The presence of pelvic obliquity, windswept hips or scoliosis can affect pressure distribution through the seat base. Asymmetrical high pressure can result in the development of painful pressure ulcers, therefore, during the seating prescription process staff try to minimise this pressure asymmetry. To assess pressure distribution through the seat, the system was designed to incorporate a Force Sensing Array (FSA); this equipment is currently used in some seating clinics.

Within a wheelchair torso supports may be used to correct a scoliosis while attempting to maintain or promote function such as arm or head control. The appropriate forces required by these supports are unknown and there is little research to identify what might help, or cause discomfort to the individual. To assess the forces required to improve posture or correct a postural scoliosis, low profile load cells (force sensors) were integrated into each torso support.

Promoting independence is an important factor in wheelchair seating, therefore postural support that may encourage hand and arm function is beneficial. To assess upper limb function a joystick and computer game that had previously been developed within the University of Leeds as a research based rehabilitation tool for children with CP (Weightman. *et al.* 2008) was utilised. This provides a functional score based on the time taken to follow a path and the accuracy of the movement.

The final Seating Measurement System (SMS) is presented in Figure 2. This incorporated:

- Modular supports to correct seated posture and scoliosis.
- ISIS2 – a surface topography technology providing information of the spine posture.
- FSA – a pressure sensor to provide information of pressure distribution through the seat base.
- Instrumented supports to provide information of force distribution through torso supports.
- A joystick and computer game to assess upper limb function.

Second Clinical Investigation – Use of SMS with non-ambulant children with CP

A second clinical investigation was carried out to assess if the use of the SMS was feasible with non-ambulant children with CP. Initially four able-bodied children aged 5-12 years old were recruited to assess if the system conformed with the device specification and to provide baseline data of normal seating. These children were provided seating support to accommodate their posture; initially their pressure force distribution and spinal image were recorded while stationary. The children were then asked to use the joystick and computer game while the same measures were recorded.

Following the successful assessment of able-bodied children, six children with CP GMFCS IV-V aged 5-12 years old, with the cognitive and sensory ability to use the joystick, were recruited through the NHS. These children were assessed with varied amounts of postural support to assess differences to their seating parameters and function. The same procedure used with the able bodied children was repeated three times for each child. Initially support was provided to accommodate the child's natural seated posture and any deformity (if present). The clinician then provided optimised seating setup based on their judgement alone, attempting to correct posture while maintaining minimal forces. Lastly each child was provided with the maximum amount of supportive forces to correct posture without causing discomfort.

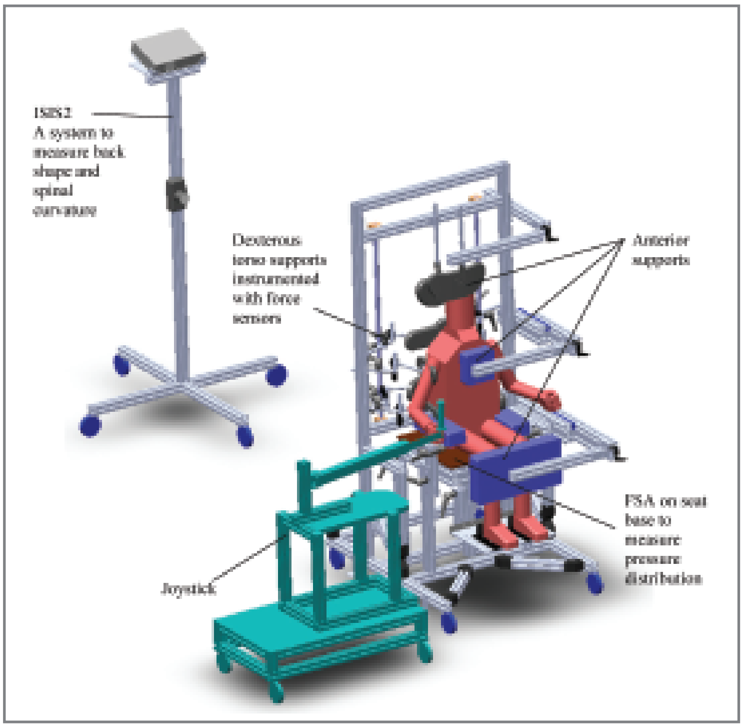

Figure 2: The Seating Measurement System Second Clinical Investigation – Use of SMS with non-ambulant children with CP

Results

This study was a pilot study to assess the feasibility of measuring seating parameters for non-ambulant children with CP and the results have yet to be published. By providing adequate postural support it was feasible to measure spinal deformity, force/pressure distribution and upper limb function for non-ambulant children with CP while seated.

Results indicated that the differences between able-bodied and children with CP can be subtle. In the CP group, the results suggested that a reduction in flexion may cause weight distribution to move anteriorly. The sample size for this study was small, therefore all the clinical findings presented are speculative without a large-scale clinical study.

The device developed in this research provides a method of delivering objective and quantifiable measures for assessing seating prescriptions. It has the potential to improve clinical care for severely disabled individuals and consequently reducing the prevalence of life threatening scoliosis for non-ambulant children with CP.

Stakeholders associated with this project were involved throughout the process, and this facilitated a beneficial advance in the development of a pragmatic, user-friendly and useful solution in this field.

Future Development

Future development of the SMS will require a large scale clinical trial involving non-ambulant children with CP along with a number of able-bodied children. This study may be useful to identify parameters associated with poor seating posture and how disabled and able bodied seating posture and ability may differ. The SMS was not used to assess pelvic obliquity; to provide detailed analysis of the relationship between seated posture and pelvic obliquity it may be possible to integrate the SMS with routine pelvic X-rays in future trials.

References

Berryman F, Pynsent P, Fairbank J, and Disney S. 2008. A new system for measuring three-dimensional back shape in scoliosis. *Eur. Spine Journal.* 17:5, 663-672.

Cans C. 2000. Surveillance of Cerebral Palsy in Europe: a collaboration of Cerebral Palsy surveys and registers (SCPE). *Developmental Medicine & Child Neurology.* 42, 816-24.

Gericke T. 2006. Postural management for children with cerebral palsy: consensus statement. *Developmental Medicine & child Neurology.* 48:4, 244.

Levy A, Goldberg M, Mayo A, Hanley J and Poitras B. 1996. Reducing the lifetime risk of cancer from spinal radiographs among people with adolescent idiopathic scoliosis. *Spine*. 21:13, 1540–1548.

Sadani S, Jones C, Seal A, Bhakta B, Hall R, Levesley M. 2011. A pilot study of scoliosis assessment using radiation free surface topography in children with GMFCS IV and V cerebral palsy. *Child: Care, Health & Development*. In Press. Published online: 9 Aug 2011. DOI: 10.1111/j.1365-2214.2011.01292.x

Weightman A, Preston N, Holt R, Allsop M, Levesley M and Bhakta B. 2008. Engaging children in healthcare technology design: developing rehabilitation technology for children with cerebral palsy. *Journal of Engineering Design*. 21:5, 579-600.

Measuring the Impact of Wheelchair Basketball for Disabled Children

Jennifer Howitt Browning, Programme Coordinator, Motivation Charitable Trust, Brockley Academy, Brockley Lane, Backwell, Bristol, BS48 4AQ

Abstract: *After one year of wheelchair basketball training and competition with the Bristol-based South West Scorpions, parents of children with physical impairments were asked about changes they had seen in their child since he or she joined the wheelchair basketball club. Overall, parents identified a number of positive changes, most notably an increase in self-confidence (100% of participants), development of leadership skills (88%,) and improvement in health and fitness (88%).*

Keywords: *Wheelchair basketball, sport, self-confidence, fitness, children, Bristol*

Scorpions club members in action at a recent training session (Photo: David Constantine)

We often assume that playing sport is 'good' for disabled children. The media is full of reports about inspiring Paralympic athletes who have achieved success in their sports, or heart-warming local sports clubs that give children a place where they feel they belong. Yet, rarely do we assess what exactly is 'good' about playing sports for these children, and just how effective it is.

As a first step towards answering these questions, *Motivation*, a Bristol-based disability organisation, initiated a project with the local *South West Scorpions* wheelchair basketball club. The project included weekly training sessions for children led by a qualified coach, a programme of matches with other youth clubs in Britain, and an outreach programme to find other young people with physical impairments and invite them to join the club.

At the end of the first year of the project (after over 30 basketball training sessions and 11 matches), parents were asked to fill out a survey about changes they had seen in their child over the past year since he or she had joined the Scorpions. The results of the survey are summarised below:

Increased self confidence	100%
Improved attitude about own disability	75%
Improvement in attitude/behaviour at home or at school	38%
Increased independence	63%
Development of leadership skills	88%
Improvement in health and fitness	88%
Improvement in balance or coordination	75%

Clearly, the most significant impact of the club was increased self-confidence, reported by every parent as a positive change in their children's lives. One parent elaborated on this point, writing, *"Involvement in sport has given [my daughter] her life back. She now feels there could be a future out there for her."*

Interestingly, however, only 75% of parents linked this increased self-confidence to an improved attitude about the child's own disability. While for many of the children this was an important factor (including less self-consciousness about wheelchair use or prosthetics), in most cases the parents viewed self-confidence as relating to the child's general outlook on life, and not just to their own impairment.

In the area of health, a significant majority also reported improvements in health and fitness (88%) and balance and coordination (75%). This improvement was also noted by the coaching staff, who noted marked improvements in speed and endurance, and improvements in hand-eye coordination which were particularly noticeable in children with cerebral palsy.

Improvements in independence, while not as significant as other impacts, were still reported by a majority of parents (63%). For children with physical impairments, who often rely on their parents for personal care or worry about new or challenging situations, this can be an important step towards adulthood. As one parent of a child with spina bifida explained; *"The club has added considerably to [his] growth this past year…teaching him to take responsibility for handling himself whatever the demands or challenges."*

Overall, the results suggest that parents of disabled children observed a significant number of positive benefits for their children. While more research is needed to examine how exactly these changes occur, and how to maximise their impact outside of the sporting environment, there is already a strong case for advocating for an increased provision of sports opportunities for young people with physical impairments.

In many cases (as has been the case for the *South West Scorpions*), a major challenge is a lack of referrals into the clubs by medical professionals. Even though clubs now exist in most communities across the UK, often children and their parents are unaware of these opportunities. It is in this area that health professionals could play a vital role in improving outcomes for their service users by building a relationship with local wheelchair sports clubs and referring wheelchair users to these clubs.

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New Year's Resolution!

January 1st 2012: Renew PMG Membership

This is a reminder to go online as soon as possible in January to renew your PMG membership for another year.

go to ***www.pmguk.co.uk/benefits-of-being-a-pmg-member.html***

PMG membership subscription is still only £25.00pa.

It is particularly important to renew early if you are planning to go Warwick for the NTE in April, so that you are eligible for the discounted delegate rate. Bookings for NTE are opening early in January 2012.

Check the PMG website home page for details:
www.pmguk.co.uk/national-training-event-2012.html

Improving Wheelchair Performance – The WheelSAS Project

Guy Smallman, Commercial Development Director,
Health Design & Technology Institute (HDTI),
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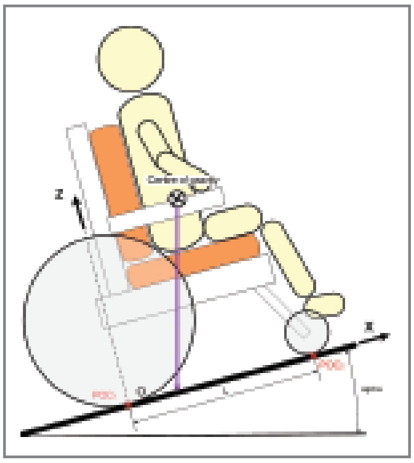
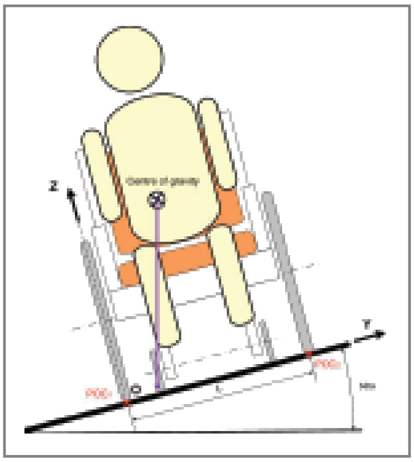
HDTI, in collaboration with The Faculty of Engineering & Computing and Coventry School of Art & Design have been awarded funding from the National Institute for Health Research under the Invention for Innovation (i4i) scheme to develop a system for measuring and improving wheelchair performance. Specifically, the Wheelchair Stability Assessment System (WheelSAS) will predict the stability of scooters and wheelchairs with four and six wheels. The issue of stability is of crucial importance in allowing a user to get the most from their wheelchair, whilst maintaining safety. Stability problems can arise, for example, after modifications to the wheelchair, and the installation of additional equipment that changes the original position of the centre of gravity.





The project involves prescribers, suppliers, wheelchair users, the Medicine and Healthcare Products Regulatory Agency (MHRA), and leading wheelchair manufacturers. It will employ user-centred design principles in order to ensure the product has the best chance of being taken to market.

The project also involves three NHS organisations as partners: West Midlands Rehabilitation Centre, Kings College Hospital NHS Foundation Trust and Betsi Cadwaladr University Health Board. These partners all have expert knowledge of developing prototype systems along with experience in meeting the needs of wheelchair users – invaluable resources in a project of this kind.

The project has just commenced and will last three years, after which it is anticipated that a commercial partner will be sought to take the final product to market.

For further information on this project, please contact Dr Dimitar Stefanov from the Faculty of Engineering and Computing who is the Principal Investigator: d.stefanov@coventry.ac.uk or Simon Fielden, Project Manager: hdti.info@coventry.co.uk.

Posture & Mobility Group

will hold its

Annual General Meeting

on **13th April 2012** *at* **Warwick University**

Information will be provided shortly about the nomination process for the 2012/13 Executive Committee.

Please contact *olwen.ellis@pmguk.co.uk* if you have an item for discussion at the AGM.

Seating for Activity

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Abstract: *When looking at a broad spectrum of people seated in their wheelchairs or other seating systems, it quickly appears that their systems have often been designed with the view that seating is a passive function. In this article, based on the view that sitting is an activity which, in turn, should allow activity, aspects that are frequently overlooked are highlighted. This is by no means a comprehensive guide to seating, but hopefully will seed some different approaches to these challenges.*

Sitting is an activity and seating should allow people to *do* things. No-one sits in a 90-90-90 position for long if they can help it. In fact no-one sits in any one position for long if they can help it. Seating provided for people in wheelchairs should be no different in design objectives, from any other seating – except that wheelchair users often have less choice as to where and how they sit. What we need for eating at a table tends to be somewhat different from what we want to relax in to watch television.

Positioning

We are all indoctrinated with starting our seating plans with the pelvis. Although a balance of flexibility and stability at this 'base' can be important *(see later)*, other aspects of positioning are of equal or greater importance. For example, without our head in the right position, all else becomes difficult or impossible. On top of this, positioning to optimise and/or maximise our Zone of Control *(Fig. 1)* should be a key aim, the Zone of Control being the areas we can access within the limits of what selected parts of our body can access.

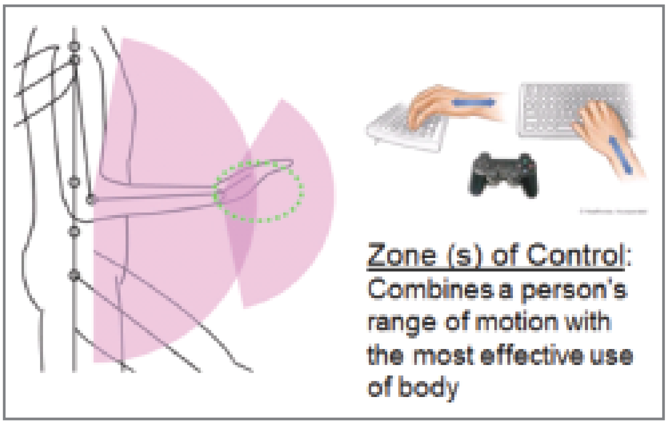

Figure 1. Zone of Control

Don't assume. Don't guess... The importance of assessment

Without a proper assessment of a person's needs from a lifestyle point of view, and their physical potentials (e.g. joint flexibility, range of movement, etc indicating the Zones of Control for that individual) through a proper mat-based examination, it is impossible to be assured that the right seating is being prescribed. From the client assessment will come a list of what the client needs. Each need leads to setting objectives to manage that need (some of these will be anatomical needs, while others will be functional, and these may be in conflict with each other). The properties of the solution need then to be set, and in the case of conflict may call on some compromises to be decided upon. Finally, once we know these properties, only then can an appropriate product be specified and selected. Table 1 *(overleaf)* is an example of this process (adapted from a presentation made by Waugh at the International Seating Symposium in Nashville, March 2011). In this example, for this one symptom alone, without investigating by a proper assessment, assumptions could have led to a wrong prescription.

In assessing a person, observation is vital. Time is never on anyone's side, but watching what people do and *why* takes time, but is worth the investment since observing gives very important clues. Using one's hands to feel how someone responds to touch, support, or directed pressure all provide further important guidance. Some people seek these tactile clues, while others avoid them. Many wheelchair users have not lost their 'primitive' reflexes – there are situations where good seating will limit the reflexes setting in, and others where the reflex might be used to the individual's advantage.

Assessment tools

The therapist needs to make full use of assessment tools to prescribe appropriate seating equipment. A tape measure and goniometer are starting tools but, bearing in mind that seating is an activity, further tools should be used to assess what is going on within the seating system while the individual is carrying out normal day to day activities.

A pressure mapping device is invaluable for assessing which activities increase and which decrease the risk of tissue damage, and which interventions in the seating system will increase the risks, and which will ameliorate

PRESENTING SYMPTOM	**knees are held tightly together in bilateral hip adduction, and the client is therefore at risk of pain and possibly hip dislocation**		
SOURCE OF PROBLEM	***OBJECTIVES (general goal and specific objective(s))***	***PROPERTIES***	***PRODUCT (or product options)***
Client 1: Low muscle tone, sitting on soft, sling seat	Provide increased stability in buttocks/thighs to maintain alignment	Provide increased stability in buttocks/thighs to maintain alignment	Adjustable air-foam cushion with solid insert
Client 2: Very tight hamstrings/ limited knee extension, not accommodated on 240° (60°) leg support hangers	Accommodate hamstring tightness: support in 280° thigh/leg angle	280° seat to leg support angle	Angle adjustable foot supports mounted on 270° (90°) leg support hangers
Client 3: Active hip extension/ adduction movement pattern with spasticity	Block active hip adduction (plus reduce overall tone)	Padded surfaces medial to both distal thighs/knees with flip down mount	Flip down medial knee support

Table 1. From Client to Product: demonstrating how one symptom may result from many sources, how the source and relevant objectives must be identified, and how the properties of the product and the product itself will vary depending upon the source.

them. A pressure mapping device shows you forces and positional distortions that you cannot see with the naked eye. Each person's 'butt print' is as individual as their fingerprints.

A pressure mapping device is also useful in setting up a wheelchair, for example to help with judging the optimal set up of foot supports to ensure that as much pressure as possible is redistributed along the thighs and away from the bony elements of the pelvis. Experience has shown that seating pressure distributions are very different when, say, an individual is self-propelling their chair as seating positions are adjusted to take account of differences in left and right upper arm strengths.

Monitoring an individual's dynamic performance in a manual wheelchair over time can be done using a device such as the SmartWheel, and the information gathered can provide evidence as to the best ergonomic set up for propelling a manual wheelchair. Moving the seat back/axle forward *(Fig. 2)* can make a great difference to an individual's Zone of Control accessing the greatest arc possible along the wheel rim. Results of trials using the SmartWheel have shown that a solid back is more effective than a canvas back in allowing transmission of propelling forces through the wheel rim.

It is important for individuals to learn the most efficient techniques of propelling their chairs, thereby reducing repetitive strain injury at the wrist and rotator cuff injury at the shoulder. This should be done as early as possible after the first manually propelled wheelchair is

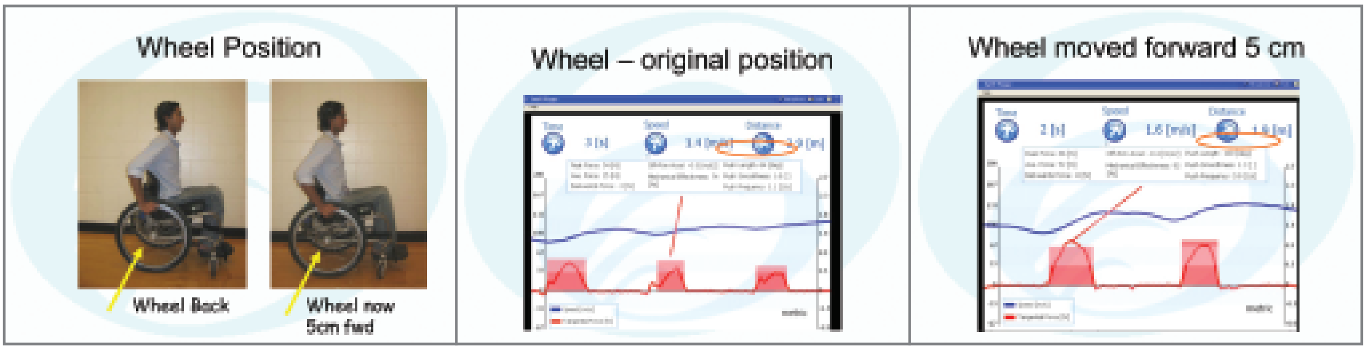

Figure 2. Effect of moving axle 5cm forward

delivered, before bad habits start. A tool such as the SmartWheel can provide feedback for the learner, and compliance with training is enhanced since people in general, and men in particular, seem more prepared to believe data on a computer screen than the word of a therapist, it seems!

Calling a spade a spade, or a support a support

What we call a part of a chair will reflect our view of its function. We have taken over expressions from the transport and furnishings industries, where components have been designed with other outcomes prevalent. Most of the elements on a wheelchair offer support, and are not just 'rests' – nor should they be restraints. If you consider the horizontal element on the side of a chair as an arm support, rather than an armrest, you are more likely to consider its position, its shape, and its materials, and therefore the potential benefits to the user. Consider this viewpoint for each part of the body and the respective supporting piece on the chair, be it for the back, arm, calf, foot, etc. Also try to encourage your colleagues to get out of the habit of calling these items rests.

What goes around the head can be a very different matter, since there are head rests, head restraints, and head supports. Each has a very different purpose, and has different implications in considerations of the crashworthiness of a seating system. Few designs have been able to provide more than one of the three functions in the one design, and the suitability of a chosen design for any individual person needs to be assessed for that individual alongside any weaknesses, anticipated activities, required functions, and attendant risks.

Keeping it simple

Having carried out our assessments, we need to consider where and what supports should be provided. Support is needed in seating in appropriate places to provide stability, extended reach, safety, and comfort. The skill comes in providing this support in the simplest way so that it is enabling rather than restricting, with a minimum of intervention.

While we consider the pelvis to be the base of all seating, it is the orientation of the head that is most important for most normal functions. Our world is built around vertical gravitational based axes in one direction, and horizontal axes at right angles to the vertical axes. Getting one's head to line up with these axes is therefore functionally important, for self esteem, communication, feeding, saliva control, breathing, and performing day to day activities. In addition, for optimal function, your head needs to be forward of the pelvis for eating, manual chair propulsion, or toilet activity, but the reverse may aid communication or relaxation. How many seating systems allow for this choice of head positioning?

The position of the head is critical for different aspects of sight. For example, only the central 20º of our visual field is good for colour vision *(Fig. 3)*.

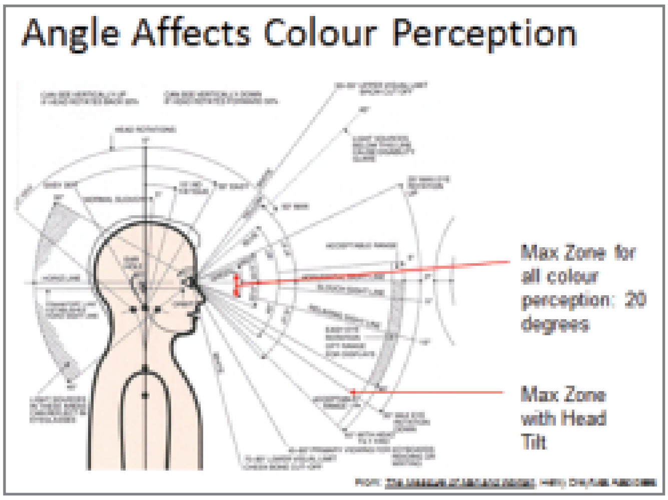

Figure 3. Aspects of the visual field

Good seating should facilitate the optimisation of the head's position and orientation. Therefore the frontal axis of the pelvis may not necessarily be in line with the frontal axis of the head or shoulders for optimal function.

Rigid stabilization of the pelvis should be avoided. Instead, the pelvis must be permitted to move in harmony with the rest of the body. Like a large ball, the pelvis has the potential of displacement in all three axes. This can be a 'good thing' in that this flexibility is the body's way of accommodating distortions elsewhere, and in this case can be worked with. Equally, this can be a 'bad thing' in that displacement in the vertical plane offers obliquity, in the frontal plane 'rotation', and in the sagittal plane offers posterior or anterior tilt. Assessment needs to ascertain what is cause and what is effect, so that appropriate seating interventions can be put into place to 'correct' what is 'correctable'.

If we view the pelvis as a ball, how best would we stabilise a ball, or a pelvis, on a flat surface? The answer, as elsewhere *(see Fig. 4 overleaf)*, is Three Points of Control. We can control movement in lateral directions by the sides of the seat, or by use of lateral supports. In the rear direction, a 'block' (4) behind the Posterior Superior Iliac Spines (PSIS) (6) at the rear top of the pelvis will help control posterior rotation, but without some control to stop the pelvis being pushed forward, this 'block' will have limited benefit. For most people, ensuring that there is a small pre-ischial ridge (2) in the cushion resists this forward movement – keeping the height of this ridge anterior of the ischial tuberosities to no more than 5 mm is important to provide pelvic control without creating a potential pressure point. These simple approaches to pelvic control are often sufficient to avoid the need for secondary supports.

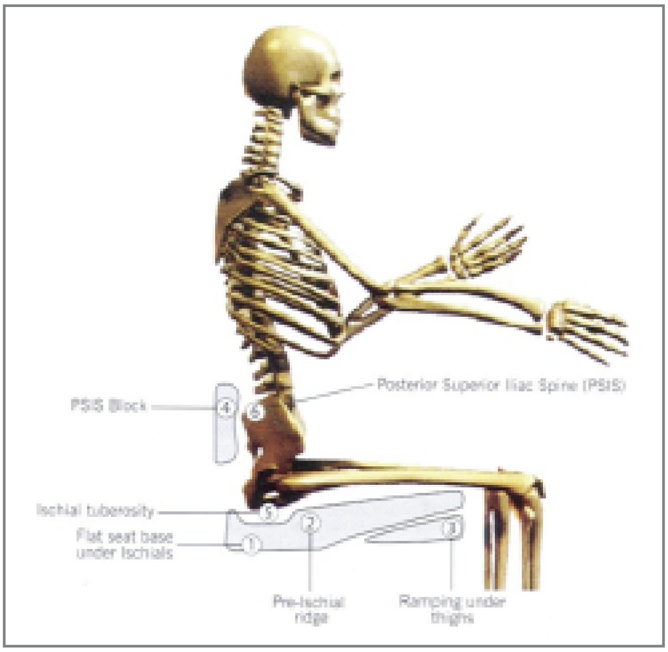

Figure 4. Pelvic stabilisation

Symmetry

Textbooks tend to illustrate and thus, by implication, push the case for symmetry and 90-90-90 positioning, but how many people are fully symmetrical, or sit symmetrically? In fact for those, for example, with athetoid CP, an asymmetrically locked position may be the best means to bring function to the use of their hands. We need to achieve a realistic balance, allowing asymmetry where it will provide greater functionality, but not creating a position that turns what was a flexible asymmetry into a permanent malformation.

One area where 0/90º is not advised, is the angle of the femurs from the pelvic midline: here 5º either side of the midline is the natural angle *(Fig. 5)*.

The Zone of Control

As described above, the Zone of Control is the specific area within the client's range of movement where they are most able to perform tasks or functional movement. This range can vary considerably from client to client, depending on the equipment and diagnosis. Diagnoses impact users differently – a C4 quadriplegic will have a much more limited zone than a paraplegic *(Fig. 6)*. It's important to explore both the potential size of the user's zone and the most effective use of the body within that zone by providing the most suitable equipment (please also consider that a user may have more than one zone).

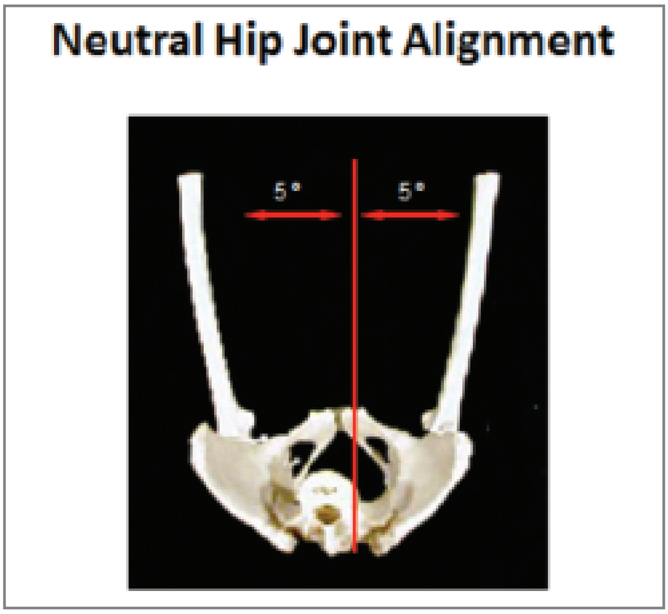

Figure 5. Appropriate femur angles

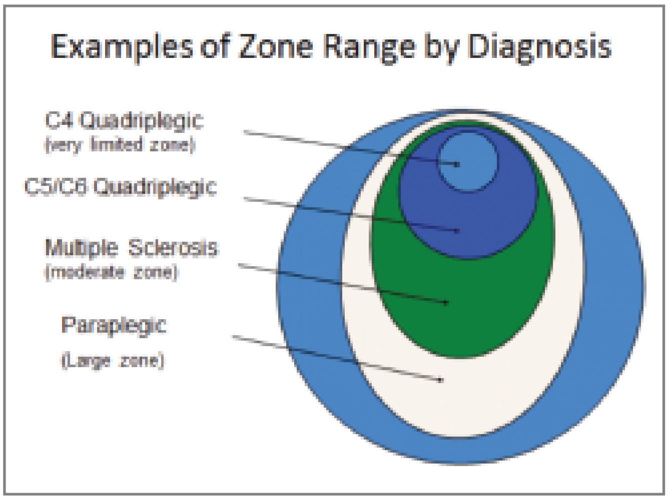

Figure 6. Impact of diagnosis on Zone of Control

Dynamic seating

As stated at the beginning, sitting should be viewed as an activity, and activities are by their nature dynamic. Where the user needs a secondary postural support, ideally this should provide stability balanced with permitting maximum function by optimising the Zone of Control.

At the pelvis, the angle of the pelvic belt is critical: if the belt is placed too high up the pelvis *(Fig. 7)*, even with a PSIS block (which is usually absent in canvassed back seating) it provides a high risk of damage to the soft tissues of the abdomen, does not discourage posterior pelvic tilt, and allows for ‘submarining’ where the belt can end up higher up the body (the exception is when one is trying to correct anterior tilt, when pulling back on the ASISs is beneficial, but there you need a four-point belt with the extra straps fixed to the seat rail, to stop the belt riding up into the abdominal tissues).

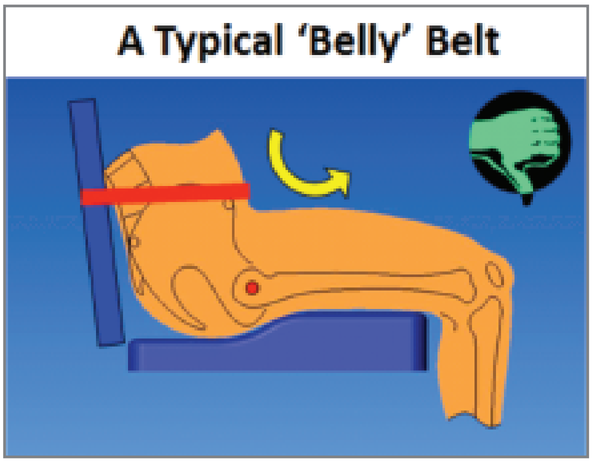

Figure 7. Inappropriate pelvic belt position

Frequently seen is a 45º belt position *(Fig. 8)*. This tends to occur due to this being the easiest place to attach the belt without the user being at hand to make the most appropriate decision, and because this is associated with commonly experienced restraint belts in cars and aircraft. As can be seen below, this does not do much for positioning. The user can still slip back into posterior tilt. Submarining is still possible with damage to the abdomen. Axelson & Chesney (1995) have reported accidents and incidents occurring from such inappropriate placement. They also point out that the length of the belt is shorter in the position indicated in Fig. 9 than in Fig. 8, and thus there is less room for movement by the user.

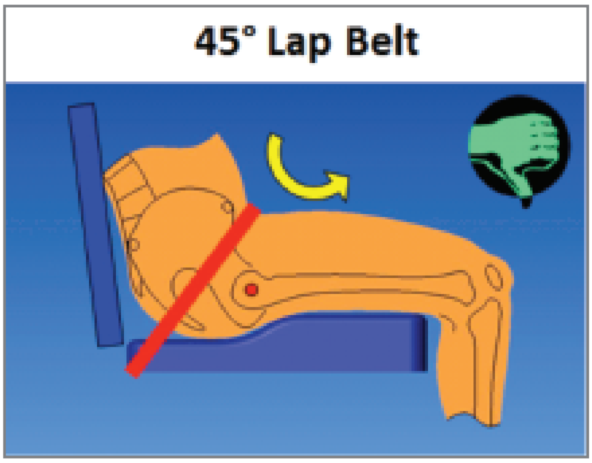

Figure 8. Restraint belt position

The *proper* positioning location of a belt to control for posterior pelvic tilt, and to position a person in their chair for maximum functional reach, and minimal risk of submarining, is to have the belt fixed anterior to the greater trochanter *(Fig. 9)* (try this with a colleague, using a belt held at 45º across your lap, and see how easy it is to slip forward/submarine, and how much less forward reach you have, as compared with the same belt held with the same force in front of your trochanters). Note that not only does this allow for greater reach, but in doing so allows for offloading of the ischial tuberosities, leading to less risk of tissue breakdown in this area.

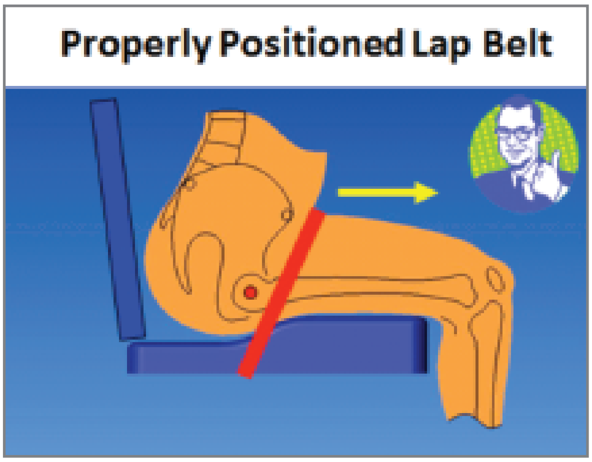

Figure 9. Appropriately positioned lap belt

Dynamic upper body positioning

Within the principles outlined above, allowing maximum reach for maximum function is the ideal. However, muscle weakness may mean that an individual getting into a reach position may have problems returning to a neutral balanced position. Dynamic secondary supports are valuable aids in this respect, where a degree of elasticity will assist the torso’s return. The design of the exoskeleton construction of the Hip Grip is one example of an innovative approach to giving dynamic stability while increasing function. The Hip Grip has been shown in clinical trials to increase reach in the forward, sideways, and downwards directions.

For slightly more restricted dynamic movement, anterior devices such as shoulder ‘harnesses’ made from elasticated materials can allow some forward movement, without the torso being able to fall too far into the hands of gravity.

Outside the dynamic activities, the choice of positioning of torso supports can be assistive or restrictive. Back pack positioning of harnesses will hinder access by the arms, but may aid respiratory function, for example. The top of the harness should be extended horizontally behind the individual towards its fixation points on the back support: avoid the straps pulling downwards since this will only pull the individual downwards.

Appropriately placed lateral supports can help straighten up the spine, and thereby aid physiological functions such as respiration, digestion, etc. Here the Three Points of Control become important again: find the vertebra at the apex of the curvature of a flexibly scoliotic spine, and trace the rib at that point out to the lateral periphery. This is the point at which the first lateral should be placed to start pushing the spine back into position along the lever of the rib. Two other laterals should be placed on the other side of the body, one as close to 5 cm below the axilla as possible, and the other at the ischial crest of the pelvis. The wider the 'base' of this triangle, the more effective will the lateral supports be. The greater the degree of scoliosis, the more important it becomes that the pads of the lateral supports can be adjusted to line up comfortably with the contours of the torso.

References

Axelson PW & Chesney DA. 1995. Potential Hazards of Wheelchair Lap Belts *Proceedings of the RESNA '95 Conference* 15, 314-6

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Thanks to the likes of Tom Hetzel, Leslie Fitzsimmons, Bart van der Heyden, Menno van Etten, Kelly Waugh, Jean Minkel, Matthew Kosh, Allen Siekman, and the many others who have given me insights into aspects of good seating.

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Sharing Best Practice

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There are times when listening to others present at study days and conferences, I feel motivated and inspired.

And there are other times I think, "ummm I know lots about that and could have presented the subject myself!" At these times, I feel slightly disappointed for not having put myself forward.

There are also times when I have been asked to present and I perhaps think "but I don't know enough to present to an audience." At times like this, these thoughts should move me into action, to consider submitting more articles and abstracts for presentation.

I am sure you all, like me, have moments of both inspiration and trepidation. It is hard to keep positive thoughts and feelings fresh, and continue to feel motivated about the work we do every day, especially if you are working in the current NHS climate.

It is very easy to become complacent about the value of our work, however simple it may seem. But, we all do valuable work for our clients and services, and most are very modest about this, feeling it is *just our job*.

I believe everyone reading this will be able to think of one clinical case, or service development topic, that is inventive or innovative: or of an unusual clinical condition that would be interesting and informative for others. I know from the feedback at NTE that case study presentations are really popular and are an excellent way to share good ideas and innovation.

Free papers and posters are not just about research or number crunching. It is important for us as professionals to share good practice and to be proud of the contribution we make in our work. Clinical case studies are a really good way of doing this and an excellent way to reflect positively on our practice.

As a committee we like to have lots of abstracts from which to choose a selection for the NTE delegates, but often we struggle because of the low numbers of abstracts submitted. Remember you don't have to submit as an individual – you can submit and present as a team if this is more appropriate.

There are a number of other benefits to presenting a free paper:

- the increase in networking with others who hear your work
- the value for your CPD portfolio and personal CV
- and, of course, the chance to win a prize at NTE!

Come on, get thinking, get writing and submit your abstract via: www.pmguk.co.uk/call-for-papers.html

Trouble Spending Your Book Token?

Joanne McConnell, Occupational Therapist, Business Manager, Otto Bock,
32 Parsonage Road, Englefield Green, Egham, Surrey, TW20 0LD

Abstract: *This a guide on how to spend your book token at NTE 2012. I have been told that some of you have struggled in previous years and ended up wasting a free £25 token. There are hopefully a few suggestions here that you will find useful and may not have thought of...*

Keywords: *book token, NTE*

One of the many benefits of being a member of PMG and attending NTE is that you get a free £25 book token, but it seems not everyone realises this! Hard to believe I know. The token is given to all current member delegates along with dinner tickets etc at registration for the conference.

The token can be spent at the book shop in Warwick Arts Centre up to the value of £25 on specified books (sadly no longer on cookery books or the latest Jilly Cooper best seller – of course I never did that!). The specified books are all placed in a prominent area by the tills and labelled into topic areas. Your book token can also be used to purchase books from the exhibition stands.

Obviously some of the text books are very pricey, and the £25 you hold in your sweaty palm may not go far, so here are some suggestions to consider:

1. Combining tokens with colleagues to buy a worthwhile text book for the office shelf. This has the added bonus of benefiting colleagues who have been unable to attend NTE.
2. Buying a non-academic book. There are inspiring reads about disability, one such, at only £7.99, I have reviewed for this issue of the journal. There is a whole selection of this type of book – they are really refreshing reads and you could buy a few with your £25 token.
3. Buy a poster or anatomical model. The bookshop sells educational posters of legs and arms and spines and other relevant bodily parts! These again could be useful for the wall in your department, or maybe your teenage child would find them useful? There are also 3D skeletons for sale at various prices.
4. Donating your purchase to others. In the therapy section there are boxes of flash cards with treatment ideas for stroke patients, paediatrics etc. Even if you don't have a need for such things yourself, you could donate them to the local special school or Community Development Centre next time you are in for a clinic. Surprise them with a gift – it has cost you nothing, but may mean a lot to them and possibly build a bridge or two! This idea of donating to a CDC or special school is worth considering if you work in a commercial job too; it is nice to make a gesture like this that will benefit others, and it costs you nothing apart from five minutes out of your lunch or coffee break at NTE.
5. Buy publications from an exhibiting company. There are some companies with excellent publications for sale on their stands. Again you may need to combine your token with that of a colleague and take the book back to your department to share.

I hope this has given you a few ideas if you're struggling to spend your token at NTE – there aren't many things in life for free, so why let this pass you by? And don't forget, the journal team would love to hear about your NTE book, so please consider writing a review for a future issue. You can download the book review template from the PMG website

www.pmguk.co.uk/pmg-journal-submitting-an-article.html

and send your review to Fiona Eldridge of the editorial team: fiona.eldridge@centralsurreyhealth.nhs.uk

NB If you have suggestions for books that should be available to purchase at NTE 2012, please let Craig Egglestone know as soon as possible, so that he can request it to be ordered in by the bookshop in time: Craig.Egglestone@stees.nhs.uk

NAEP Conference 2011

Gail Russell, PMG Executive Committee Member
Email: gail.russell@nhs.net

Abstract: *The National Association of Equipment Providers (NAEP) annual conference was held on the 21st, 22nd and 23rd June 2011. The "theme" this year was "The Big Picture – Do You Feature". The emphasis of the programme was to capture the essence of topical issues and themes which impact upon equipment provision and associated subject areas.*

Keywords: *Equipment provision, integration, NAEP*

I attended the NAEP conference on behalf of PMG, because Claire Wright, our chair, was unable to attend due to prior commitments. In this article I will cover some of the key sessions which I attended over the two days.

The opening addresses were made by Jean Hutfield, NAEP Chair, and Sir Bert Massie, OBE, Conference Chair.

Frank Gardner OBE, the BBC correspondent, was the keynote speaker. He held the audience's attention with ease and was really quite an inspiration, and I could have dedicated the whole of this article to him! Having been shot at short range six times whilst on an assignment in Saudi Arabia, Frank is now dependent on a wheelchair. He was invited to talk about his experiences of equipment provision. It was interesting to hear how he had walked out of his family home one day for a BBC assignment, and the next time he saw his home was when he was taken for a home assessment with the OT, only to face the challenges of being wheelchair dependent in a three storey Victorian house. He described the rehabilitation process and how he had tried to overcome the trauma of the event, and gave a great account of his experiences with different health care professionals. I definitely need to buy his books!!

Brian Donnelly launched the *Community Equipment Code of Practice Scheme (CECOPS)*. This is a framework for procurement and provision of community equipment services across England; it sets out standards and guidelines for organisations in providing quality, safe, legal and efficient services, ensuring the right outcomes for service users. More information can be found at www.cecops.org.uk. At this stage, they are guidelines for reference only and aimed at commissioners, health care professionals, schools, care homes and hospitals etc.

In my wisdom, I decided to attend the workshop on *Wheelchair Provision*. This was an interactive session which, unfortunately, became an opportunity for people to criticise local wheelchair services. The aim of the session was to look at service delivery, and the general consensus was that wheelchair services could be delivered as equipment services are. In my view this is not the case for anything over and above the standard wheelchair, and I therefore found myself becoming rather vocal during this session. I was in a definite minority and needed to explain the challenges we face in wheelchair services in terms of more complex patients.

I attended a clinical workshop with Bart Van der Hayden, who as usual was animated and engaging throughout the session. It was interactive which gave us the opportunity to discuss 24 hour posture management and wound care within different settings. We had the opportunity to discuss our own experiences around issues with posture management and pressure care, particularly within care homes. It became apparent during this session that the provision of posture management equipment varies greatly throughout the country, with some areas not having access to such equipment at all.

Another workshop *Enabling Efficiency and Integration through Social Enterprise – Social Enterprises and Trading Arms* was run by Gary Wright, Director of Business Development, *Essex Cares*. This was an interesting session and was aimed at answering questions around Social Enterprise. *Essex Cares* itself is a Social Enterprise trading company, which was created by Essex County Council to modernise and transform service provision across a wide range of health and social care work-streams. It was a topical session given the issues around *Any Qualified Provider (AQP)*.

Wendy Garcarz is the managing director of *4 Health Ltd*, an organisational development consultancy specialising in sustainable change through workforce investment. She delivered a presentation on *The Big Society – The Big Debate*. She talked about the four pillars of *The Big Society*, and the political slant on this and the *Big Idea*.

She made reference to http://38degrees.org.uk the social action group that enables people to act together to create change, using members' sense of social responsibility to act not just talk. In terms of service delivery, Wendy made the point that we are *The Big Society*, given our knowledge and experience around managing complex conditions and the associated challenges associated. She urged delegates to use NAEP as a voice to be heard and basically "use it or lose it". I think this is something we can all identify with given the recent issues with AQP.

So, to end, I think it would be rude of me not to mention the gala dinner. *The Big Picture* theme was continued, and some delegates dressed up as movie stars and characters. I was kindly invited by Diane Hargrove and Philip Charlton-Smith from Sumed International to sit at their table, and the food and the company were great. The live band was *Fake That* who really were very good and got everybody dancing.

Attending the NAEP conference gave me more insight into the delivery of equipment services and how they are being affected by new approaches. I would like to thank Claire and NAEP for giving me this opportunity.

Book Review: "Looking Up"

Author: Tim Rushby-Smith

Publisher: Virgin 2008

Review by Joanne McConnell

Target Audience: *All people associated with disability, either as a clinician, a carer or as a disabled person. A feel good book that makes you look at the life you have and live it.*

Recommended experience level of reader: *This is a book recommended for all levels of expertise and for everyone who works within the field of disability.*

Overview/Summary: *I picked up this book at NTE 2011 as one of those recommended reads for sale in the bookshop. I was looking for a non-academic book or two to spend my token on. These words on the cover tempted me to pick it up and buy it: "A humorous and unflinching account of learning to live again with sudden disability".*

My simplest summary would be that I was not disappointed; in fact I struggled to put the book down once I had started reading. I found it an incredibly humbling read, even after nearly twenty years of working as an OT and mostly in the field of posture and mobility. I was surprised by the depth of detail given by the author, about how the simplest of tasks had to be totally relearnt, and how he had to find the strength from somewhere to carry on with a life littered with constant challenges both physical and emotional.

Don't be put off by the idea of this read being a busman's holiday; it left me feeling that I always wanted to make that extra special effort to ensure every little difference counts for this group of clients.

The book takes the reader on a journey from the author's accident, to A&E, through surgery, and then onto Stoke Mandeville spinal unit where his tough package of rehabilitation begins. The fact that Tim (the author) was about to become a father for the first time when he had his accident makes the read even more emotional and very human.

There are so many graphic descriptions of how he learns to manage his most basic bodily functions again, and the irony of him learning these functions for the second time. Just as his baby is going through normal development, Tim is going through very abnormal redevelopment.

I really felt like I knew Tim after reading this book and I now read his Blog; it's great to find out how he is living his life today.

Some of the best bits for me were about him getting his first wheelchair and the journey to learn the wheelchair skills he needed to become an active user. This part of the journey was a real challenge for him: he describes how he had to wait in the system for the chair he needed to live his life, meanwhile being loaned various chairs off the ward. This situation is a reality we all recognise, but hearing it from Tim's perspective made the system seem even more inadequate.

There are so many laugh-out-loud bits in the book too – it really isn't a depressing read. On the contrary it's often uplifting and very informative.

I have been flicking through the book again trying to find some favourite quotes, but there are so many! This is probably the one that made me think the most though, and made me look at my own life a bit closer:

Chapter 27 Car park rant: "one day, God forbid, you might suffer a spinal cord injury, because it can happen to anyone, at any time, doing anything. It could be a sports injury, a car accident, a slip in the shower? You could have a spinal stroke. A sharp pain and you lose the use of your legs. If that day comes and you find yourself in a wheelchair, you may look back and wish you had revelled in, celebrated the use of your legs, maybe even parked a little further away, just to enjoy the walk. Instead you park your lazy backside in a disabled bay. What a waste!".

Another stage I admired a lot was the section in which Tim describes learning to use callipers to stand. He explains that this was a difficult choice that required a huge amount of dedication, effort and pain, but he was motivated by not wanting his daughter only ever to see him as a seated adult in a chair; he wanted her to see him standing in his full six foot four of glory. He compares his experiences learning to use the callipers with his daughter learning to stand and cruise around the furniture; the irony of these moving descriptions is at times heart breaking.

I would urge you all to read this book and would be shocked if you didn't get something from it, not just on a professional level but also on a personal level. I know I did. I am hoping that Tim goes on to write a follow-up but, in the meantime, I will keep checking his Blog…

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A Dedication to Michael North (1940-2010)

Jenny North, Radcliffe Rehab
www.radclifferehab.co.uk

It is with great sadness that we announce the anniversary of the death of Michael North, MD of Radcliffe Rehab. A lovable and charismatic character known for his genuine kind nature and colourful ties, Michael was a pioneer in the transport of wheelchairs and modular seating. Michael was a friend of PMG for very many years, and his presence will be greatly missed at the NTE…

Our condolences to his wife Jenny and the Radcliffe Rehab Team.

Monica Young, member of PMG Executive Committee on behalf of PMG

Michael's father was an engineer and, as a young boy, he would watch his father take a car engine apart and then put it back together (once every component had been thoroughly cleaned!). His father also took him to his first Grand Prix when he was eight years old, sparking an interest in motor racing that culminated in an amazing collection of motoring books.

Michael served an engineering apprenticeship at the Atomic Research Centre in Risley, Cheshire. After his apprenticeship, still in his early 20s, he went into the navy to gain experience of heavy engineering, sailing around the world, with his home port being New York. This started a life-long love of travelling, meeting people and experiencing different cultures.

Michael started his business career working in research and development for a company making medical autoclaves and went on to sales of medical filtration and equipment. In the 1980s he ran a consultancy, supplying and equipping hospitals in the Middle East.

In 1993 Michael and his wife Jenny founded Radcliffe Rehabilitation Services, based in Brackley, Northants. As a member of PMG, Michael very much supported the initiatives of the Group and the company has exhibited at almost every conference over the past 18 years. Michael took a particular interest in the issues of transporting wheelchairs in vehicles and contributed to the various meetings and developments.

The company's core product, the *Shadow* wheelbase, has been sold throughout the UK and, over the years, Michael developed the range including power and heavy duty options and a wide range of accessories. As well as being distributors for the *Netti* wheelchairs, the company's product portfolio now includes comfort positioning chairs, slings and bathing/showering products.

Michael and his wife Jenny were together for forty years and Jenny is continuing to run the business they started together.

PMG's Small Research Study Funding Scheme

Two new research studies have been offered funding from PMG for 2011:

i. ***Specialist seating and wheelchairs: what matters to young people?***
Research undertaken by Gillian Taylor through Oxford Brookes School of Health & Social Care, and Action for Children, Penhurst School.

ii. ***A prospective case series to investigate current practice in the physical management of people in Low Awareness State (LAS) and its impact on the pattern of limb and spinal deformities in people in LAS.***
Research team of Rasheed Ahamed Mohammed Meeran & Ramakrishna Gundapudi working through the Physiotherapy Department at Holy Cross Hospital in Haslemere.

These two new studies bring the number of PMG funded research projects to fourteen. The small research study funding scheme was set up in 2005 and since then a total of £70,000.00 has been committed through the scheme. You can read about the funded studies on the PMG website:

www.pmguk.co.uk/pmg-funded-projects.html

Some of the projects do not yet have their final reports posted there, either because they are temporarily halted, or still in progress. The following have had their studies or related papers published in peer reviewed journals:

David Punt on wheelchair navigation in patients with unilateral neglect, published in the *Journal of Neurology, Neurosurgery and Psychiatry. Spring 2008.*

Lorna Tasker on the use and validation of a laser scanner for computer aided design and on manufacturing of wheelchair seating, in the *Journal of Medical Engineering & Technology. Aug-Oct 2011.*

The next deadline for submission of outline proposals for funding in 2012 is
December 31st 2011

For further information and to submit proposals online, go to
www.pmguk.co.uk/pmg-research-funding-information.html

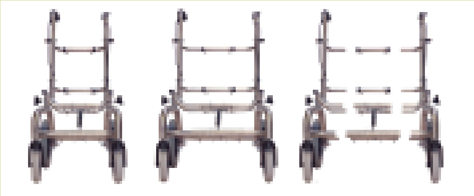
PMG will be 20 next year!

Come and join the birthday celebrations at the 2012 National Training Event in Warwick Arts Centre

11th to 13th April 2012

Check website for latest programme details ***www.pmguk.co.uk/programme.html***

Bookings open on 3rd January 2012 ***www.pmguk.co.uk/booking.html***



Society for Research in Rehabilitation, Summer Meeting 2012

hosted by PMG Research Committee member, Dr David Punt

July 4-5, 2012
Leeds Metropolitan University

Day 1	Day 2
ATRAS: ***Assistive Technologies for Rehabilitation*** ***of the Arm following Stroke:*** ***feeding back from a NIHR programme grant*** **Prof Ian Swain** **Dr Damian Jenkinson** **Prof Anand Pandyan** **Prof Jane Burridge**	***From Sports Science to Rehabilitation:*** ***Experimental and Clinical Studies in Imagery*** **Dr Paul Holmes**, Institute for Performance Research, Manchester Metropolitan University **Dr Magdalena Ietswaart,** School of Psychology and Sport Sciences, Northumbria University ***Getting Lost in Translation*** **Dr Richard Greenwood,** Acute Brain Injury Unit, National Hospital for Neurology and Neurosurgery **Prof Jane Burridge,** Faculty of Health Sciences, The University of Southampton ***On the Road: Exploring issues relating to Driving and Disability*** **Dr Hannes Devos,** Department of Rehabilitation Sciences, Katholieke Universiteit Leuven **Dr Andrew Paton**, Ford Motor Company Limited

See www.srr.org.uk for more details

Apply for a bursary

NTE 2012

Warwick University, 11th-13th April 2012

The PMG bursary fund is offering **3 grants** in the form of full attendance fee, and **4 half bursaries** for the 2012 National Training Event

Closing date for applications is January 31st 2012

For further details and to apply online go to

www.pmguk.co.uk/bursary-criteria.html

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Please contact
olwen.ellis@pmguk.co.uk
or call 0845 1301 764 or
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Final Call for Papers

National Training Event (NTE)

11th to 13th April 2012

Warwick Arts Centre, University of Warwick

We wish to invite you to participate in the 2012 NTE, and to join us in celebrating Posture and Mobility Group's 20th birthday!

Abstracts are invited for Free Papers (for both platform and/or poster presentations)

Deadline for submitting abstracts is 31st December 2011
For further information and to submit your abstract please go to
www.pmguk.co.uk/call-for-papers.html

Opening dates for delegate and stand bookings will be posted on the PMG website

www.pmguk.co.uk/national-training-event-2012.html

PMG contact: **olwen.ellis@pmguk.co.uk**

Tel: 0845 1301 764

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*These sets of screws come with the belt

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The Evoflex™ belt can be mounted on the canvas mounts of many wheelchairs with the Mounting Bracket Kit - black powder-coated steel brackets that are slimline, quickly-adjustable, and the best solution where there is limited fitting space on a wheelchair frame or the tubing is too large.

Description:	Code:
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The former generation Avantgarde2 has been on the market for eight years, which is a reasonably long period for a high end active wheelchair. The technology proved to be both functional and reliable, but the design proceeded to slowly slip out of fashion and, as time evolved, we discovered many details which could be improved upon, and it is these details that led to the commencement of the Avantgarde3 project.

The Avantgarde series has always been, and will continue to be, aimed towards active users who require a well-fitted, functional, reliable product to suit their individual needs. The modular design of the three new models allows a wide range of fittings, for people with neurological diseases to spinal cord injuries. The goal is to offer the right product to every manual wheelchair user, in a high quality and modern design.

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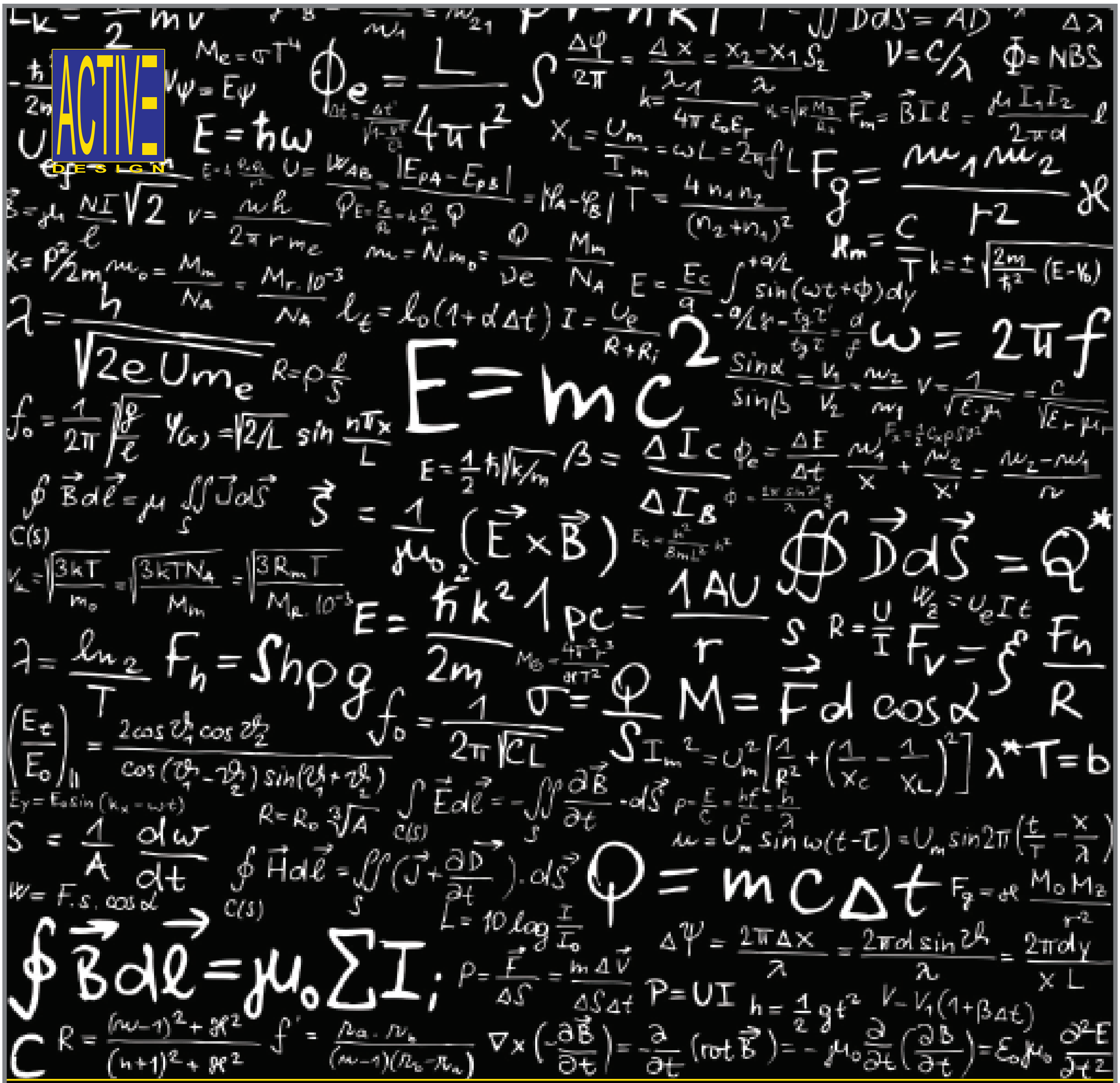
Avantgarde 3 Series 1

The Avantgarde3 product line is designed for various conditions. It is a multi-tool, allowing the therapist to select and supply a wheelchair to suit each individual. The Avantgarde3 product range, due to the large selection of additional options available, is even suitable for progressive conditions.

The number of possible fittings is extensive; when we multiply all sizes with all options and every possible wheelchair combination, there are more than one million different ways to build an Avantgarde3. This high multi functionality is unquestionably one of the product's strongest points, partnered with high frame stability, easy handling and excellent quality.

A unique selling argument for the Avantgarde CLT is its capability to be produced as a partly bespoke custom built chair: for experienced users with a non-changing disability, e.g. spinal cord injuries. This permanently welded version offers a design as elegant as the adjustable version, but with the added benefit of a further weight reduction reducing the overall weight of the chair by a further 1kg.

For further information on Otto Bock's range of innovative solutions that restore mobility, please visit www.ottobock.co.uk



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