

Happy



Christmas

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### Cover Page:

Happy Christmas from the PMG Committee

Artwork by Phil Swann



**Guess the  
Product**

## Mitchells Marvel's

Following complaints about the high rate of attacks on women in secluded car parks, especially during evening hours, Flintshire County Council has established a "Women Only" car park in the heart of the Town Centre. Even the car park attendants are female so that a comfortable environment is created for patrons.

The car park has a web cam for further security measures. - See the snapshot taken earlier today on page 9.

For anyone who didn't  
get it - move the grey  
circles to black - eureka!

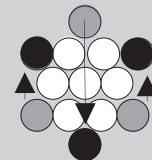


Fig 1

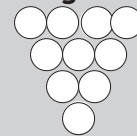


Fig 2

### Advertising costs:

Full Page: £ 300

Half Page: £ 150

Quarter page £ 100

Contact Phil Swann if you're interested

### Guess the Product:

The product featured on page 2 of volume 13 was **The Chailey Approach to Postural Management**. The prize remains unclaimed for a second edition. You must write or email to claim the prize.

The next issue of Posture & Mobility will be in **March, 2002** The deadline for this issue is the **16th of Feb**. The aim of the Posture & Mobility is to keep members in touch with current events in the world of posture and mobility and to provide the opportunity to share ideas and learn of new initiatives. Articles should be between 500 and 2000 words, photos and/or cartoons are welcome as are jokes and mindbenders etc. Please send contributions printed (Times New Roman bold 12pt) or (preferably) email them to Phil Swann or post a floppy.

The Posture & Mobility is published by the Posture and Mobility Group. The views expressed are those of individuals and do not necessarily reflect those of the Group as a whole.

# CONTENTS

## Articles

|  |                 |   |
|--|-----------------|---|
| A view of rehabilitation services over the pond  | David Calder    | 5 |
| The code of practice for the design of buildings for the convenience and use of people with disabilities | Mike Hare       | 7 |
| What a trial   | Barend ter Haar | 7 |

## Feedback Forum

|                           |                                      |    |
|---------------------------|--------------------------------------|----|
| Greetings from down under | Alison Thom                          | 8  |
| RAATE 2001                | Russ Jewel, David Long, Tony Welling | 10 |

## Regulars

|                                       |                             |         |
|---------------------------------------|-----------------------------|---------|
| Editorial Team and next issue details |                             | 2       |
| Editorial                             | Phil Swann                  | 3       |
| Letter from the Chairman              | Roy Nelham                  | 4       |
| PMG News                              |                             | 21 - 24 |
| Post Bag                              |                             | 22      |
| Notice Board                          |                             | 26      |
| Literature Review                     | Help on Standards           | 25      |
| Education and Training                | MSc in Assistive Technology | 27      |
| Advertisements                        | PMG, Delichon               | 28      |

## Editorial

Merry Christmas and a happy New Year. Doesn't time travel fast, blink and you've missed it! Many thanks to Russ Jewel who has joined the editorial team to spear head Feedback. Any budding reporters attending conferences should get in touch with Russ to offer their services. I hasten to add, I won't disband the rather effective press gang system just yet!

I have to say to any therapists or medics reading this issue who are disappointed in the predominance of engineering content, its not my fault! I can only publish what I'm given. I'm sure with all the CPD points that medics and therapists have to acquire, they must be attending something - so why don't you write them up and send them in so we can all hear about them.

I'm trying to develop a 'members movements' column to pass on news of promotions, job changes etc. in our

field. Its just a bit of gossip really so you don't have to wait till the Annual Conference to find out.

I'd like to leave you with this thought:

If half the resources that go into discussing change and re-organisation went into doing, would the NHS be in a better or worse state? Don't spend too long thinking about it, you might have missed a doing opportunity!

See you in the New Year at the Conference.

**Phil Swann**

*Editor*



### To liven up flagging meetings:

Drop meaningless and confusing executive jargon into conversation, i.e. 'if we don't jump like a grass hopper we'll never get through the hoops', lets pick it up or we'll loose it'!

## Letter from the Chairman

### National Service Framework for Children

It seems only a short while since I last wrote for the Newsletter but then with the current speed of changes in the NHS everything seems only 5 minutes ago! I have sent the article on 24 hour Postural Management I wrote in the last Newsletter for consideration in the current development of the National Service Framework for Children's Services. As this was the summary of the parallel session at the York Conference and carries the weight of opinion of all those present I hope that this will at least be read and the philosophy of considering the whole posture and mobility needs of the child incorporated. In particular, the implementation of a "statement of physical need" and establishment of case workers for the many services children need to access would be significant steps forward if they ever happen. If you visit their website at "[www.doh.gov.uk/nsf/children.htm](http://www.doh.gov.uk/nsf/children.htm)" you can see how this NSF is developing and comments received to date. You can also send your own comments by e-mail to "[MB-Childrens-NSF@doh.gsi.gov.uk](mailto:MB-Childrens-NSF@doh.gsi.gov.uk)". If you have a view on how you think children's services should be organised and delivered please use this route to communicate them. If you feel able to please support the contents of the article I sent.

### Web Site

As a result of some very useful discussions at a recent committee meeting at which Dave Calder, our web site manager, was present you should see some significant developments in the PMG web site. These are explained in an article by Dave in this issue and I would like to take this opportunity to thank Dave for freely contributing his knowledge and for his hard work in setting up, developing and maintaining our web site. Please visit it at [www.posture-mobility.fsnet.co.uk](http://www.posture-mobility.fsnet.co.uk) and give us your comments.

### Committee

It is with regret that we accepted Christine Turner's resignation from the committee. With an increasing workload Chris was finding it increasingly difficult to fulfil her role as a committee member and has decided to see if there is life outside work. On behalf of the committee I would like to express our gratitude for the hard work Chris has put into her role on the PMG committee, often leading pieces of work, and we will miss her

wise input.

This leads me onto the multidisciplinary balance of the committee to reflect that balance in the membership. We are currently heavily represented by engineers and under-represented by therapists. We also have only one medical representative. It is important that the committee fairly represents you the members and we can only do this if we have an appropriate balance of professions on the committee. Please consider this when we call for nominations for the AGM in April. See elsewhere in this issue for a reminder for nominations. There is CPD value in being a committee member and we pay expenses!

### Nottingham Conference 15th & 16th April 2002

As I write this, the programme for the conference is being finalised and I believe we have a full and interesting content on the subject of Best Practise - Risk, Consensus & Evidence. Please plan to be there to hear of the latest innovations and thoughts and to share your views as well. We are hoping there will be an opportunity to sign up to a declaration of principles for our services.

I look forward to seeing you there and please do not forget to arrange for nomination of yourself or a colleague (with their approval!) for the committee. Thank you.

Roy Nelham  
Chairman



### Don't think too long before answering these!

- Q1. You are participating in a race. You overtake the runner in second place. What do you finish?
- Q2. Where do you come if you overtake the last person?

Turn to page 14

Thanks to Jacqui Donaldson for these brain teasers



## A View Of Rehabilitation Services Over The Pond ~ Bloorview MacMillan Centre, Toronto, Ontario, Canada.

I was lucky to have been chosen to attend RESNA 2001 and luckier still to be able to spend time with like-minded rehabilitation professionals at the MacMillan Centre in Toronto. I would like to share my observations on some areas of service delivery in one of Canada's greatest successes in the field of rehabilitation. But before I do, I would like to explain how such an opportunity became available.

I work for the Rehabilitation Engineering Division of King's College Hospital NHS Trust along with a band of dedicated rehabilitation engineering professionals providing expertise to a number of wheelchair, seating and prosthetic services based in the south east quarter of England. To manage such an area we call upon a number of our staff to manage satellite RED centres where groups of our customers can be provided for. It was with great sadness that we lost one of these managers who died following a road accident during a Christmas break, leaving a young wife and daughter (that he never new).

His name was Dr Mike Hall. He worked as a Rehabilitation Engineering Manager with a full case load and had a passion for research and learning that rubbed off on those around him. His loss to us was to have a profound effect on our own attitude to continued professional development and as a consequence the Mike Hall travel bursary was formed. Funded between RED and King's College Hospital the bursary provides funding for one of our staff members to attend an international rehabilitation conference each year and then spend some time with a rehabilitation organisation local to the area in order to share experiences and ideas. On their return they impart their experiences with RED and it's customer base by holding a number of one-day seminars.

After spending a week at the RESNA 2001 conference, I headed for the Canadian sunshine of Toronto to visit the Bloorview MacMillan Children's Centre. At present the centre spans two sites that over the next few years will be brought together so that acute and community services are on a single geographical site. I must thank Steve Ryan, Director, Clinical Technology Service and all his staff and contacts for complete exposure to the services provided and the experts that provide them.



Bloorview provide a comprehensive service offering 24-hour care, clinical procedures and rehabilitation. For an overview of operations visit their web site at <http://www.bloorviewmacmillan.on.ca>. To understand service provision one must first understand how health provision works in Canada. 75% of Canada's health provision is met by government funds with the remaining 25% from those who call upon the service. This operates rather like the partnership voucher option provided in the NHS wheelchair service, the only difference is that you must pay 25% of the final bill rather than opt for a totally government funded solution. The prescription of medical equipment is organised through a province (state) run contract rather like the old NHS supplies green book. Once a solution has been provided, that solution is owned and kept by the client. If further work is required (development, repair, etc) it is funded by the client, unless additional grants can be obtained.

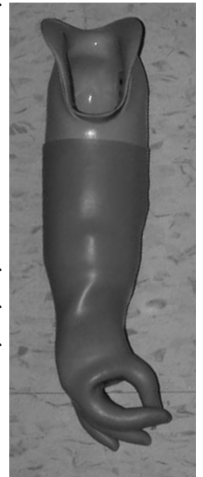
If a child requires a wheelchair and seating solution then the child (guardian) has to purchase the chair based on the prescription that the rehabilitation specialist provides (in this case Bloorview) and deliver it to the specialist so that the seating component may be provided. The seating solution will already have been approved and costed via the province run contract, so it only remains for the specialist to complete the work. Bloorview's major specialised seating solution is based on the 'Foam-In-Place' system using plywood encasement (wood's cheap in Canada!) and standard interface components. Their approach is to cast the profile needed using the standard vacuum bag process, which is then fitted to the plywood encasement forming a

mould. The mould is then poured, allowed to set and trimmed. Next the system is lined and covered using an assortment of foams and cover materials. Each system is identified (serial number), interfaced with the chair and delivered to the client. Interestingly enough, one of their main delays can occur through funding issues (funding agreement, client funding component).



The infrastructure of the Bloorview Macmillan organisation allows a healthy research programme (funding is made available via the government) to exist and have formed the Ontario Rehabilitation Technology Consortium (ORTC). The ORTC has teams focusing on Communication, Hearing, Mobility, Prosthetics & Orthotics, Psychosocial, Respiration, Seating and Vision, with close connections to manufactures and Universities. They have also identified the need to move past the concept stage of a solution and employ industrial engineers to help the transition from concept to a commercial product. A good example of this is the VASI Electric Hand for children. At the time no other prosthetic manufacturer had developed a true infant/child hand. Bloorview researched and developed the system in association with VASI (Variety Ability Systems Inc). At the heart of the hand is a programmable chip that controls the way in which it operates in line with the client's needs. The chip can be repro-

grammed allowing the development of function as the infant/child matures. It can also be transferred to the next size of limb component reducing programming and learning time. Bloorview have identified a geographical problem as to the continued support for outreach clients (just look at a map of Ontario and compare it to the size of England!) and are in the process of developing methods to use the internet to review and reprogram limbs remotely.



On visiting the Electronic Assistive Technology department I found that they were experimenting with the use of myoelectric technology to drive a powered wheelchair and control a computer.

What is hard to convey is the dedication of all the people I met within the rehabilitation field. As in this country the rehabilitation community view their work as vocational and it would seem to be a field, especially in rehabilitation engineering, that attracts like-minded people!

As part of my visit I agreed to provide a presentation on how we did things. A great deal of time was taken comparing the way in which the NHS fund the total provision (disregarding vouchers) of equipment including lifetime maintenance and how equipment ownership is maintained, so that it can be reused reducing the burden of funding and timely provision. So it would seem that the grass is not always greener on the other side - only if you can pay for it! This was best illustrated during the RESNA 2001 conference, which was held in Reno in the Nevada desert. All the hotels are 24hr Casino's surrounded by nice lawns and paved walkways. If you walk into the suburbs you are met with the poverty that exists, where there is little money for living, let alone funding medical insurance or disability aids. One Therapist told me that in the US state that she was from, you get nothing unless you are involved in an automobile accident. If you are and you require it, the insurance company would even build you a house! Otherwise you just make do!

David Calder

Senior Rehabilitation Engineering Manager,  
RED, King's College Hospital NHS Trust.

## BS:8300 Part 1 & 2

### 'The Code Of Practice For The Design Of Buildings For The Convenience And Use Of People With Disabilities.'

I have found the above British Standard invaluable when dealing with other professionals concerning environmental conditions of our wheelchair users.

This recent standard brings together a number of previous British Standards and other organisations guidance and supersedes BS 5619 and 5810.

There has been some important changes that effect the use of wheelchairs. The main one is the changes in the standard for ramps and slopes, the previous standards had given 1:12 as the gradient for all slopes, the new standard has different gradients ranging from 1:8 to 1:20 depending on the length of the slope.

Whilst all this information is not conveniently contained in any one section of the standard a trawl though it gives information on ramp widths, handrails, over ride kerbs, turning circles, door and passage widths to mention but a few.

I am often asked about these, usually in the form of a request to change a wheelchair because it will not go up a ramp or round a home. My first response is, does the environment meet the requirements of the British Standard? Frequently in these situations it does not. At first I was surprised that so few of the professionals whose responsibility it was to work out the environmental needs of wheelchair users knew so little about the standard. Now I expect the response "what standard?"

Ramps are often the most contentious part of the assessment, other people can always see when a chair won't physically go through a door,

but often cannot accept that a ramp is too long, too steep, has the wrong surface or that it needs over ride kerbs and or hand rails. It is here where my copy of BS8300 comes out.

It would also appear that whilst the wheelchair manufactures have grasped the fact that the population is getting larger and heavier, this has yet to be acknowledged by other equipment manufactures, or the increasing use of Electric Powered chairs. For example I was recently at a clients home where there was a discussion about a through floor lift. The design of their lift went back to the 1960's and was not wide enough for the users light weight chair, or strong enough to carry him and his power chair. The men from the lift firm seemed to think that his chair was exceptionally wide at 66cm and could not at first understand why he wanted to go upstairs with his power chair.

Other recent examples include:

- ❑ a purpose built school with ramps so long and steep no child could propel up them and EPICs could not get up them either, therefore they were asking for EPIOCs for every child.
- ❑ A request for a chair with a seat to ground height less than the users lower leg length so he could get his knees under a work surface, when the impracticality of this was pointed out the un abashed reply was could he have one with elevating leg rests.

If you, like me, meet this sort of thing on a regular basis and you have not already got a copy of BS8300 then it is a good buy.

I had, after reading its predecessors, produced a guide to ramps and dimensions which, I re-wrote after this standard came out. I give it out to anyone who will have one, I find it eases my work load.

**Michael Hare**

*Senior Rehabilitation Engineer.*

### What a trial?

There has been confusion amongst therapists, engineers and commercial companies as to what constitutes a trial. This has been resolved earlier this year by a joint statement from the Department of Health, through the NHS Purchasing and Supply Agency, and the BHTA.

The agreement reached is that a product can be placed for **evaluation** or **assessment** with a patient or client for up to 14 days. If the evaluation period is required to be longer than 14 days, then the supplier shall charge at prevailing commercial rates for the extended period. This length of time, i.e. 14 days, is considered to be more than sufficient to establish whether the product will be appropriate for an individual client when measured against predetermined objectives, on the one hand, and whether the user or caring staff will be able to operate the item, on the other.

**A Comparative Product Evaluation** provides for assessment against a product already in use or known to the evaluation instigator, with the aim of establishing the equivalence or relative superiority of the product or service under evalua-



tion. Again, if the period of evaluation is to be longer than two weeks, then the prevailing commercial rental charge shall be levied.

A **trial**, in contrast, will inevitably take a longer time since it will involve sufficient patients or clients to enable a statistical evaluation. The aim of a trial of a product or service is to elicit clinical information on the

performance of a product or service, and must be carried out under a clearly defined protocol. A **trial** will also entail approval by Trust ethics committees etc., and will require a Clinical Trial Certificate.

As a footnote, please remember that appropriate infection control procedures need to be adhered to when considering evaluation of one prod-

uct with more than one patient, as well as when returning evaluation items to the supplier. It is illegal, for instance, to send a contaminated item through the post or with a courier. Are you able to warrant this?

**Barend ter Haar**

*Treasurer and Membership Secretary*

## Greetings from Down Under!

How do you fancy this as the venue for the next PMG conference?

The Gondola Station sits at the top of an extinct volcano in the Port Hills, looking down over Christchurch and out to New Zealand's Southern Alps in one direction, with stunning views of Lyttleton Harbour over the other side. Somehow or other, I ended up here twice this week, firstly for the NZPEM 2001 (New Zealand Physics and Engineering in Medicine) conference, and secondly for a 24 hour postural care workshop run by Liz and John Goldsmith of Symmetrikit / Symmetrisleep fame. Isn't it funny where you bump into people?



The NZPEM conference was extremely interesting, with papers ranging from "Depleted Uranium Weaponry" to "Artificial Speech for Tracheostomised and Ventilated Patients in ICU" by Marylin Lim, which won the prize for best presentation. The views over Christchurch's estuary and coastline certainly helped to take my mind off some of my personal posture care problems during some of the more technical radiology papers in the NZPEM conference; papers like "The Coefficient of Variation of the Magnitude of EEG" were way over my head!!

The clever NZPEM people had even managed to arrange a city wide fireworks display for us during the

conference dinner - although the fact that it was held on Nov 5th may have had something to do with that!!

Later in the week, it was fantastic to experience 24 hour posture care becoming a truly international concept during John and Liz Goldsmith's workshop. John's presentation of his recent work on the biomechanics of chest distortion was particularly interesting and extremely well illustrated.

The importance of training and support for families and carers when introducing night time positioning was stressed throughout the day, in recognition of the difficulties faced by these families in carrying out all the tasks we, as professionals, "expect" of them.

Despite widespread acceptance of the benefits of the concept of 24 hr posture management, and enthusiasm from all of the therapists involved, it seems just as difficult to attain funding for anything other than wheelchair seating in New Zealand as it is in the UK. Hopefully the recent bulletin from the APCP (The Association of Paediatric Chartered Physiotherapists) on 'Evidence Based practice in Paediatrics - Hip Subluxation and dislocation in Children with cerebral Palsy' which stated:

*'Twenty four hour postural management if introduced prior to hip subluxation can help prevent subluxation and dislocation'.*



Just in case you think it's all work and no play out here, this is my current challenge!



*(Pictures courtesy of kitesurf.co.nz and Anabatic.kitesurf.nz websites)*

So far, my understanding of the Biomechanics of Kite Surfing goes something like this:

$$\frac{\text{wind strength}}{(\text{depth of water})^2 \leftrightarrow (\text{competency of user})^3} \propto \text{size of bruise on backside!}$$

You will have determined from the equation above that these pictures are not of me...maybe next year!! If anyone wants to get in touch, my email address is Alison.Thom@Talk21.com)



## RAATE 2001 ~ 'Bringing AT Professionals Together'

### 5<sup>th</sup> & 6<sup>th</sup> Nov. ~ Botanical Gardens Birmingham

#### Welcome Address

Chair:  
Alan Turner-Smith

Once the more seasoned RARE/RAATE campaigners had managed to get used to the exhibition and lecture rooms being swapped around, there was a double-barrelled start to the conference. Alan Turner-Smith chairing the session in which **Professor Martin Ferguson-Pell** started with a very interesting and thought provoking talk on the future of AT in the UK and USA. The presentation is available for all those interested at the following site: [www.cdri.ucl.ac.uk](http://www.cdri.ucl.ac.uk)

He introduced the subject with a neat definition of disability: 'The gap between a persons capabilities and the demands of the environment'.

**Disability: 'The gap between a persons capabilities and the demands of the environment'**

The problems Wheelchair Service's currently face was explored, namely attempting to strike a balance between meeting the needs of a huge number of relatively simple clients and a small group of very complex individuals. He indicated that such is the size and reach of the industry that it is fundamental to a healthy society. Additionally as all figures indicate that there will be a huge growth in the number of people who require care over the next 40 years that the aim should be to reduce the level of care an individual needs, reducing cost and increasing independence. If we think that we are over-run with work now, unless things change it can only get worse as the numbers requiring equipment increase. Professor Ferguson-Pell highlighted the fact that such will be the impact of the 'age crunch', that countries who do not manage it well will find it hard to manage, therefore placing those who do at an economical advantage.

Putting the problems into clearer perspective is the current research project that Professor Ferguson-Pell is involved with highlights that if assessing for equipment required by a client, irrespective of cost, the National Health Service can, on average, only provide £1 in every £3 required.

#### Globalisation of the Industry:

While in some cases this is an advantage e.g. lower costs, wider product range, globalisation of the industry, especially wheeled mobility is frequently US centred. This has a number of obvious disadvantages:

- ☐ US cities are generally newer than those in Europe and are therefore more accessible. This could lead to equipment being designed to cope when conditions are ideal, something which is rarely the case in the UK.
- ☐ There is a greater separation between the users and the manufacturers, resulting dilution of feedback.
- ☐ Safety standards may differ e.g. in the UK it is a legal requirement to have headlights on an outdoor power-chair which can travel over 6 mph, this is not the case in the US, potentially resulting in the equipment being unavailable.
- ☐ Rip off UK, a lot of the equipment is priced at £1 = \$1.

## Service Development

Chair:  
Donna Cowan, Chailey  
Heritage Services

**Mark Hawley** from Barnsley District General Hospital provided the delegates with an insight into the evaluation of an Electronic Assistive Technology (EAT) service. A number of reasons to evaluate any service were provided and it was a surprise to find very few delegates use outcome measures at all in their departments. The speaker alluded to the fact that although they had devised their own, for comparisons between different studies, a standard technique should have been used. The study showed that the provision of appropriate EAT increased the amount clients could do independently and reduced their reliance on their carers. Another interesting outcome was that/ of the clients reduced the amount of respite care they were receiving. An interesting fact considering the content of Martin Ferguson-Pell's opening address.

Since the devolution of the services, the field of AT has seen a dramatic increase in the number of individuals issued with AT. However despite the large numbers, there is little guidance in the way of best practice and as a result services vary dramatically from one to another. **Elizabeth McClemont** explored the issues that need to be considered if the provision of the AT equipment is to be successful.

An interesting outline of the small AT team at King's was provided by **Sarah Vines**. She included two interesting case studies which illustrated the model to which the department works. The relative advantages of having such a service at a local level were also explored. In the future, the service hopes to extend the scope of the types of equipment offered and skills available.

## Computer Access Instructional

Caroline Gray, ACE Centre,  
Oxford and Helen Petrie,  
City University

In the first half of the presentation, **Helen Petrie** considered computer access for the visually impaired. She started by clarifying some terms and common misconceptions. The visually impaired have little or no useful vision. Nine out of ten people who are considered legally blind have some useful vision. Eight out of ten visually impaired people are over sixty. Only one in ten of them can read Braille. To the visually impaired, a screen reader is invaluable. A screen reader doesn't just read text on the screen of a computer - it gives the visually impaired person control over the computer functions represented by the images on the screen.

Helen noted that a computer mouse is almost impossible for most visually impaired. She described two of the better tactile mice, the screen rover and Logitech's games mouse. Most visually impaired people can type. Shortcut keys can be a fast and effective means of controlling windows programs but require a good memory. Special keyboards are available for Braille input.

Helen discussed means of representing the output. For some partially sighted, screen magnification may be all that's needed. Braille displays are ingenious but expensive. By contrast, several systems that synthetic speech is readily available at low cost. The visually impaired can learn to process up to 500 words per minute. However, speech cannot give an overview of the control panel.

**Caroline Gray** then used case studies to outline means of enabling computer access for people with physical difficulties. These included the touch screen, the light roller ball, keyboards with guards, colour-coded or on-screen, prediction software, and voice feedback and voice recognition. She noted that voice recognition systems could be trained to understand speech that was difficult for the natural ear to comprehend. Caroline emphasised the importance of good supportive seating. She looked forward to some of the new technology such as eye control and brain activity sensors.

### To liven up flagging meetings:

Use a large cucumber to point at your presentation slides.



## Powered Mobility Instructional

Colin Clayton, Great  
Ormond Street Hospital and  
Paul Nisbet, Call Centre,  
Edinburgh

**Colin Clayton** started by noting that users of powered mobility ranged from occasional elderly users and short-term recuperating users to full-time long-term users with complex seating needs.

He described the main components of powered vehicles, the motors, batteries, wiring, and control system. He demonstrated the common configurations for the control system and joystick, with an integral, remote or attendant joystick. He noted that Penny & Giles or Controls Dynamic supplied almost all controls in the UK. In the US, Invacare made and supplied their own control system, currently at mark IV. A short discussion developed on the merits of the different systems available.

Colin demonstrated use of the proportional joystick to control speed and direction. He showed how the joystick position, shape and responses could be varied to suit the user.

Colin and **Paul Nesbet** outlined alternative inputs to the joystick such as the finger 'pot', switches and sensors. Then, a volunteer from the audience drove a Jazzy, first using a proportional control at different settings, then with a bank of switches and finally a single switch and a direction scanner. Paul drew attention to the slower less smooth responses with switches. Paul went on to describe systems to control the direction of the wheelchair, notably the SMART wheelchair and the Chailey SCAD and track systems.

The session ended with some impressive film of children using switches and a new direction scanner. It demonstrated the power of the technology to give users mobility and control over their environment.

## Equipment and Development

Chair:  
Dave Calder, Kings College  
Hospital

**Martin Wozencroft** presented a number of very interesting and involved case studies to highlight the importance of interfacing the equipment with the user. He indicated that the ergonomics of the system are all important, whether the individuals function is impaired, or not, to ensure that the equipment is best used and maximum function is achieved.

A very daring, but well executed presentation was performed by **Simon Fielden** and **Philomena O'Toole** from the West Midlands Rehab Centre. Phil is a woman whose physical disability does not stop her from enjoying an active, full, and busy life. She needs to be able to use her wheelchair, complete with Communications module, with mouse emulation operated by foot switch, the latter is also used to drive the powered wheelchair. This complex system was interfaced to a mobile phone network for the sending and receiving of text messages. This was proved by a real time demonstration.

It was admitted that this was a service development that was difficult to fund and resource. The RE time input was given out of the engineers own time. It has, though, caused reflective thought on how services cater for this level of need in the Birmingham area. A very interesting, thought provoking presentation, from Phil, her system, and her support team.

**Richard Bates** introduced the use of an eye mouse (or eye gaze mouse) to many of the delegates. This is where the eye is illuminated by Infra Red light, with the reflection being traced, with the resultant data input to a mouse emulation programme. The result is claimed to be almost instantaneous movements on screen. He demonstrated that while the eye mouse takes significantly longer to learn (by about a factor of 10) the end outcome (78%) was almost as efficient as a hand mouse (83%) and more than a head mouse (85%). However, due to the relatively low numbers produced the cost of the eye mouse would be prohibitive to the majority of the population.

The design of an Omni-directional powerchair, currently being developed at BIME was outlined by **Chris Gibbs**. The presentation of this project was preceded by a brief over view of the problems currently found with powered wheelchairs. The space needed to complete manoeuvres, variety of surfaces; the motions of the powered wheelchair when operating were all considered.

The design proposed was one where the driving wheels were mounted such that they could rotate about the vertical mounting axis, to allow the wheel to drive at angles different to the longitudinal axis of the chair/frame. It was claimed that this would allow the chair to drive sideways, after driving forwards. There would, I feel be a delay in the smooth transition between driving directions, as the castors would need to rotate to the new direction. This could cause the chair to run at an angle of less than 90° to the original direction, unless there was a facility for the motors to effectively register this. It was said that servo type motors were used for the driving wheel mountings. This should therefore be able to minimise this effect. Overall, this was an intriguing presentation showing a novel new type of powered wheelchair drive train.

## AT for older people

Chair:  
Alan Turner-Smith, CoRE

### Dr. Donna Cowan:

The research team comprises Kings College London Institute of Gerontology, the University of Reading and Kings College London CoRE. This project has been running from Oct 2000 and will finish December 2002. It is looking at the application of AT which will enable older people to stay in their existing homes. The key areas for research are:

- ☐ strategies for AT providers
- ☐ how users view and use AT
- ☐ guides to relevant AT
- ☐ assessment of adaptability of existing homes
- ☐ costs and benefits
- ☐ policy implications

The focus is on older people using housing providers (housing associations and local authorities) as opposed to owner occupiers and is on traditional, new and emerging AT.

Work is in progress with providers who have identified ten houses to be audited and people with AT to be interviewed. The audit includes plans of layouts, photographs, existing AT in use, locations of windows, doors and sockets, and access to local amenities.

The analysis involves developing user profiles, adapting houses to suit these profiles and analysing interviews. So far 50-75% of audits/interviews have been completed. Some of the findings of the audits are that electrical installations are often inadequate (e.g. number and placement of sockets), window operating facilities are poorly accessible, and there is a wide variation in providers with respect to experience of AT, procurement, assessment and communication between OT and housing.

Findings from the interviews show that again there is a wide variation in provision across the country with often-patchy prescriptions, however responses have also been very positive. Often AT equipment has not been removed once it is no longer required which raises the question over what to do with respect to re-cycling/refurbishment.

The final report and guidance notes will give an up to date picture linking housing types with older peoples' needs and the available technology with an appraisal of costs. A web site has been developed: [www.equal.ac.uk/AT](http://www.equal.ac.uk/AT).

### **Maggie Ellis:**

This project is designed to allow "metastable" elderly people to continue to live safely in their own homes by the application of speedily retro-fitted AT adaptations. "Metastable" has been defined as being normally able to cope with everyday living, however where routine is broken, for whatever reason, assistance may be required to prevent serious injury. This assistance would come from Financially Encouraged Trained Supporters, or FETS.

The principle of the system is that together with the user, potentially dangerous situations can be diffused without recourse to a third party. To achieve this the system negotiates the user to remove the risk by analysis of data received from numerous sensors which monitor events such as doors and windows being open or shut, taps left running, gas left on, chair/bed occupied for long duration, etc. Only if negotiation fails does the system call for help. The FETS would gain access to the house with a special key which would only operate the door lock once the system has identified a problem thereby removing the possibility of unwelcome guests. If the FETS fail calls are re-routed to a central call centre.

There are of course civil liberties issues, liability and insurance issues and the "Big Brother" threat to be tackled. The project has one year left to run.

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### **Jeremy Linskill:**

Community equipment services are currently under review, relationships are being developed between health and social services to develop joined up working, and there are rapid technological developments. It is anticipated that the "Homes for Life" policy will lead to the development of flexible and barrier free houses capable of responding to the needs of the elderly, vulnerable and disabled.

The example of dementia was given and how safety/security issues must be addressed without infringing rights. Examples of memory and orientation AT devices which might be used in this application are automated reminder systems and control systems for medication. SMART homes are now beginning to filter down from the commercial and "life-style" home markets into the arena of care for the elderly and the disabled. They use hard wiring as well as wire-less installations to link systems together rather than working in isolation. An example is turning the lights on to assist in finding the bathroom at night and turning them off should the occupier forget on return to bed.

"Integrated technology provision underpins integration of persons into the community."

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### **Roger Orpwood:**

The project has been developing new devices to allow people with dementia to stay in their own homes for as long as possible.

Sensors interact with support devices to assist with activities/safety features such as safe usage of cookers, prevention of fires, detection of falling & night time wandering, detection of bathroom flooding and inappropriate personal washing water temperatures, use of medication, leisure activities, forgetting keys, etc. The technology can also be used to locate objects such as a purse. Issues with these ADL's were identified and prioritised by interviews with carers and the outcomes designed to mimic the actions of a live in carer. The modifications involved are not obtrusive - the house will look like any other house.

Q1. If you said first you are wrong. If you overtake the second place you finish second!

Q2. If you answer second to last you are wrong again. You can't overtake the last runner because he wouldn't have been last would he?



## Environmental Controls Instructional

Donna Cowan, Chailey Heritage and Alan Woodcock, North Thames Regional Environmental Control Services

Donna Cowan, in the first part of the session, gave a thorough and well-structured overview of the provision of environmental controls. She noted the systems varied from an instrument as simple as a TV remote, or a door intercom, to complex control systems with scanning input. ECS commonly alleviate conditions such as MS, MND, CP, arthritis, and head or spinal injuries. The functions of the end actuator units fall into the subgroups of security (e.g. door lock releases), communication (telephone), leisure (TV) and comfort (e.g. lighting and heating).

Donna considered the different models for provision employed in the UK. She noted the consequential variation in supply. She recognised the valuable role of Social Services. There was potential for combining systems if there is collaboration between agencies. The five manufacturers and their ranges were briefly described.

In the second part of the session, Alan Woodcock then presented items from ECS from the different ranges, including scanning control units. Their design and input and relative merits were considered. Small differences in the design could make for large differences in their effectiveness.

## Professional Issues

Chair:  
Alan Lynch, Medical Devices Agency

The recent explosion in development and availability of ICT has resulted in a dramatic increase in possible applications in AT and Rehabilitation, from the use of mobile phones and television to telemedicine and telecare. **Dick Curry** reminded the delegates however that the use of ICT is only one part of a number of areas in the care of a client, such as physical visits and home adaptations.

**"The use of ICT is augmentative, never a replacement."**

Dick Curry also bemoaned the price of the SMART homes, highlighting that if they are to be of any real use in care in society they need to be closer to £10,000, not £500,000. He also indicated a web site of interest: [www.doh.gov.uk/scg/ictolderpeople](http://www.doh.gov.uk/scg/ictolderpeople)

**Roy Hodgkinson** outlined what the British Healthcare Trades Association (BHTA) are and what they do. They have a registration procedure, which includes professionals working in the private sector signing up to a personal code of conduct and demonstrating relevant job competencies. There will be three levels of competency, each with specific entry requirements.

**Jeremy Linskell** and **Simon Fielden** outlined the challenges facing Scientists, Engineers and Technologists in the field of AT. The importance of Rehabilitation Engineers signing up to the voluntary national register of Clinical Technologists was stressed. If it follows the same route as the Clinical Scientist State Registration then if (when) it becomes compulsory all those who have not registered may not be allowed to work unsupervised. They also expressed a concern that departments get too hung up on concentrating on getting waiting lists down, when more focus should be on improving the quality of the service offered. There seemed to be a strong feeling from both the speakers and the delegates present that in order for the industry to be heard, a single voice is required for all disciplines involved.

### To liven up flagging meetings:

Leave long pauses in your conversation at random moments, then just as someone else begins to speak, shout **'I AM NOT FINISHED!'**

## Users And Carers

Chair: Katie Price, Great  
Ormond Street Hospital

### **Martin Anderson:**

This research has essentially two questions:

- 1) how families of children with severe physical disabilities support AT utilisation and what the impact is of AT use on family life,
- 2) what people do with AT that changes their life and how they describe those events.

Observations were made on a summer group for families and children using technological devices. Findings were:

- ☐ a lack of information about AT and concerns about it's funding,
- ☐ a variable level of provision across the country,
- ☐ positive views on technological outcomes but concern that technology could be seen as "care" i.e. without human involvement, and
- ☐ a concern that it could become a burden to family life.

It was clear that outcomes are dictated to some degree by the family expectations/perceptions at the start of the programme. Work continues with further data collection in progress and recording of stories told by families.

### **Catey Mulcahy:**

There are many people and many services which the physically disabled child will come into contact with such as clinical, educational, residential, equipment, etc. This project aims to find out how children who access the postural management programme at Chailey Heritage feel about their equipment and whether they feel they are making decisions. The research is qualitative and uses a series of case studies involving child led play and stories. Conversations and reflections are recorded on audiotape for further analysis.

Physical disability creates a physical emphasis. We have a statutory duty to consult the child about the service we are providing (see the Children's Act, the UN Convention on the rights of children, and chapter 10 of the NHS plan all of which place an emphasis on consulting the individual concerned). It would be fair to say that consultation is happening with respect to AT but is minimal. We are unlikely to be expert on each child and so are we really doing what the family wants? Physical impairment compromises communication and dependency influences views - it can be difficult to criticise a service you are dependent on.

Work continues on designing appropriate communication methods which identify the child's experience, ascertains the child has an understanding of what is happening and that they are involved in the decision making process with respect to their health and treatment programme.

### **Janet Scott:**

A selection of comments to and from communication aid users highlights both a lack of awareness and the realisation of just how important communication is. AAC (Augmentative and Alternative Communication) is used to supplement, augment or support other more usual forms of communication should these be impaired. AAC can be used to facilitate expression, to aid comprehension and to represent meaning. In order to be effective in using an AAC device there must be operational, linguistic, social and strategic competence. Of course changes in attitudes towards those with communication impairments are just as important in order for the operator to command the deserved respect.

Janet is the Chair of Communication Matters, see [www.communicationmatters.org.uk](http://www.communicationmatters.org.uk)

## 'General Practice is a Specialism.'

Ann Stead

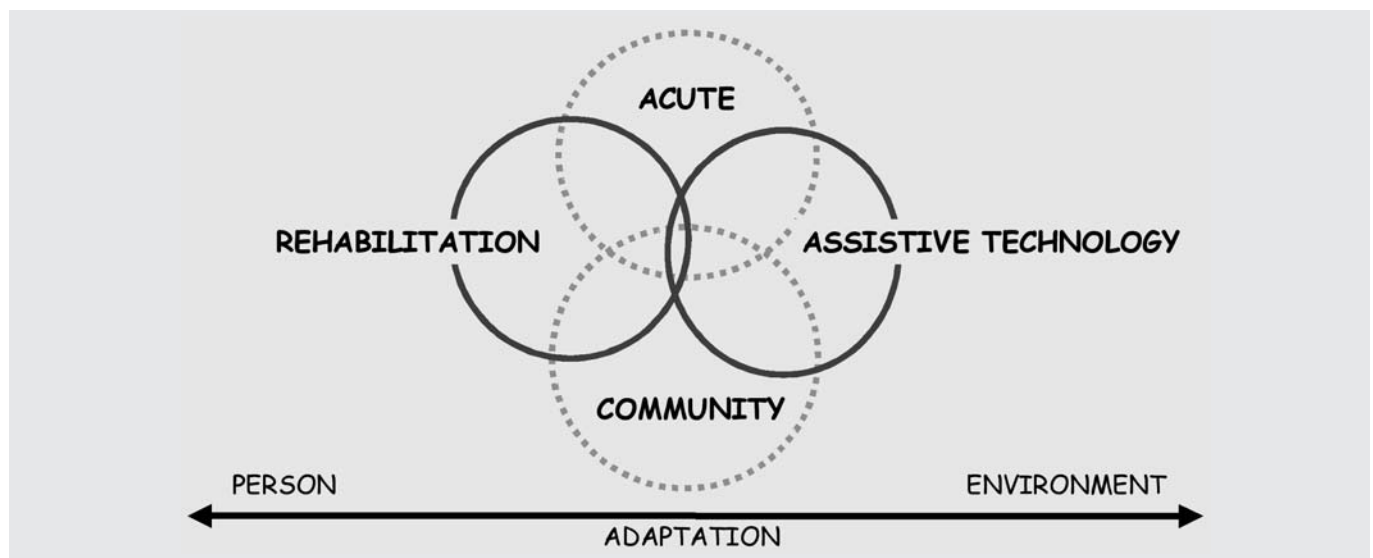
With a large number of the delegates feeling worse for wear from the conference dinner, the perfect tonic was provided by Ann Stead. Continuing the theme of the opening plenary session she provided an insight into the future of AT services in the UK. An outline of a typical service was presented, what it does and where it fits in was investigated. Of particular interest was the contrast in demands drawn between primary, secondary and tertiary services. Primary services have a much larger client base, require a much wider knowledge base and have to act as a gateway to the other services, whereas tertiary services have to deal with a large number of Health Authorities, each with different needs, policies and funding. Ann also explored whether Wheelchair Services should actually be mobility services. If you are assessing for a wheelchair, the chances are the client will be issued with a wheelchair, rather than any other AT. The structure of the establishment in this case could be limiting the performance of the clinician.

"Bad or inappropriate equipment disables people, the standard of AT equipment in the UK is sad."

A case study of a client going through the various processes at a tertiary centre highlighted the demands facing the client and such an organisation. The future of AT services is one of integration, but above all:

- ☐ Recognition
- ☐ Strategy
- ☐ Investment
- ☐ Standards
- ☐ Agreed eligibility criteria

An example of what Ann is aiming for at Oxford was investigated (see diagram below), highlighting the emphasis on integration of the services and establishing a clear structure to meet the continuum of need.



In summary, in order to reach the goals that we set for the service we want to provide we need:

1. **Someone with authority to change things**
2. **Have a vision that all stake holders agree to**
3. **Set people free to work towards the vision**
4. **Investment**



House keeping was carried out after the plenary session and it was announced that there were two winners of the **Ron Salt award**: **Tony Stockton** from York Wheelchair Service and **Katrina Hudson** from The Royal Hospital for Neurodisability - neither of whom were present!

## Policy and Safety - Question and Answer Session

Chair:  
Simon Fielden, West  
Midlands Rehabilitation  
Centre

A presentation by **Alan Lynch** of the Wheeled Mobility department of the Medical Devices Agency (MDA) opened the session; this was followed by questions from the floor. The speaker first explained that, after changes currently underway, all areas of Assistive Technology would be covered by a single department within the MDA. He went on to stress that the MDA's role is not restricted to one of policing, but includes managing Adverse Incident reporting and action, providing advice and guidance, interpreting and reviewing European Directives, involvement in activities relating to relevant standards and product evaluation. Details of these activities can be found on the heavily revised MDA website ([www.medical-devices.gov.uk](http://www.medical-devices.gov.uk)). In response to a later question, the speaker also suggested checking the website for details of the planned revision of the Medical Devices Directive, currently underway.

Moving on to Adverse Incidents, it was emphasised that an adverse incident is not restricted to failure of a device. Adverse Incidents may relate to instructions, servicing, maintenance, usage, environment, training, inappropriate management procedures e.g. when to replace or scrap equipment, or incorrect prescriptions. There have been very low levels of reporting on pressure relief cushions, postural supports and seating units and Electronic Assistive Technology - it was the speaker's opinion that these products are unlikely to be near perfect. It is more likely that many Adverse Incidents go unreported. Summarising the results of Adverse Incident reports, it was stated that about half result in no action or inconclusive investigations, while approximately 12% result in a redesign. It was suggested that problems in the area of Assistive Technology may be exacerbated by a lack of "clean paper starts" to designs and increasingly unrealistic expectations. Finally, the poor traceability of some equipment in use was noted, leading to problems when recalls or updates are required, so that users of equipment requiring modification remain at risk. The speaker pointed out that services providing equipment must do all they can to ensure traceability in order to limit their liability.

## Virtual Reality

Chair:  
Paul Nisbet, University of  
Edinburgh

**Gary Derwent** introduced the concept of Virtual Reality (VR), its various forms and its limitations. It was surprising to hear of the many and varied applications it has been used for, from pain relief to helping people overcome phobias.

**"VR is a computer stimulation of an environment with which a user can interact"**

A study was carried out at the Royal Hospital for Neurodisability in London to investigate the efficacy of using VR as a training tool in powerchair driving and assessment. The layout of the corridors and rooms was reproduced on the computer and the individual was able to control the chair via a control knob. A hierarchy of routes was devised and different levels of assistance, such as arrows to guide the way are used to tailor the program to users of all abilities. Unfortunately it appeared as though there were more problems than solutions. In the small study the time taken to perform a task was longer in VR and more collisions were noted, possibly as a result of the fact there

are 'no consequences' if you 'virtually crash'.

Haptic (tactile, proprioceptive feedback) VR is an area which is currently being investigated as a way of allowing individuals with visual impairments to enjoy the advantages of VR.

The equipment consists of a stylus connected to a machine which is able to vary the resistance of movement of the pen, creating the sensation of touch. **Helen Petrie** indicated that the approach worked surprisingly well for small objects, but larger ones were harder to recognise. The system is currently used by surgeons (in conjunction with a display) to practice certain surgical procedures.

**'VR is a technology waiting for an application.'**

## Trade Presentations

### SRS 100

**John Shermer**, presented the SRS 100, a device that can be used in up to 200 switching applications. The output signal, to receiving devices can be

- ☐ radio, where line of sight is not possible
- ☐ infrared, where line of sight is possible
- ☐ other hardware configurations using a relay system.

This diverse, and intelligent system is not suitable for all ECS clients, due to the number of outputs, and the complexity that this may bring. It has a wide range of input devices able to connect to the main system. The graphical interface is said to be easy to use. It can have a "click and drag" input screen, similar to a computer desktop. It is claimed to have lower maintenance cost and comes complete with set-up software.

John reported that it is among the first of a new range of products, which are able to link to third party products e.g. GEWA. This product would seem to be highly adaptable in meeting: basic, complex and multi user requirements. The visual interface is accessed either by remote device, or by shielded keys on the face of the unit.

### Radiate

The essence of this presentation was a service that allows a video and audio link between a deaf person, an interpreter, and a person who does not understand sign language. This service developed due to a lack of interpreters available for "use". It was said that there are only 899 qualified interpreters in the U.K. It has been estimated that there are approximately 140 deaf people to 1 interpreter.

The presentation consisted of the interpreter being in another part of the hall, and the deaf presenter signing into a videophone. The image was viewed, as the presenter was signing, and then broadcast back as an audio message.

This innovative presentation sought to show the possibilities of the system, e.g. being with your bank manager, and needing to explain why the overdraft had become so high! The videophones are available for hire or purchase, for a cost. Large institutions should consider seeking a trial, as this seems to hold real promise of communication for deaf people.

## Mobility

Chair:  
Colin Clayton, Great  
Ormond Street Hospital for  
Children

This session was opened by a presentation on factors affecting tissue viability by **Dan Bader**. Users of AT are often at high risk of pressure induced tissue damage. Their response to localised high pressure stimulus is compromised by limited mobility, impaired sensitivity and soft tissue that is more vulnerable than normal to pressure-induced damage. Previous work has shown that pressure measurements alone are not sufficient to identify potential areas of tissue breakdown. The use of transcutaneous blood gas monitoring in patients with spinal cord injuries was described, and in particular the use of sweat analysis was considered as a more widely-applicable method requiring less expensive equipment. It was reported that in cases where the transcutaneous partial pressure of oxygen (TCpO<sub>2</sub>) fell to 60% of the unloaded value (i.e. no pressure applied), the lactate levels in sweat were representative of the TCpO<sub>2</sub> levels.

**Josephine Durkin** from Chailey Heritage Clinical Services went on to describe the development of a clinical tool for the assessment of childrens' ability to use powered wheelchairs. Support in the literature for providing powered mobility from a young age was reported; it was proposed that more young children could be prescribed powered wheelchairs if a more suitable means of assessment existed. A two-stage experimental design for a qualitative, observational study was described. The subjects for the first stage were normal children, while the second stage would focus on children with disabilities. A standard powered wheelchair, equipped with track-following and object avoidance technology had four video cameras mounted on it to record the childrens' progress. The initial stage assessing normal children had shown that the appearance of the wheelchair was very important, as was the time needed for the children to feel safe and establish a routine. The results will feed into the second stage, which will result in a child led assessment tool, as well as being used to provide training guidelines for clinicians, teachers and parents.

The powered mobility theme was continued by **Paul Nisbet** from The Communication Aids for Language and Learning (CALL) Centre in Edinburgh. He reiterated the importance of mobility for early education and development, especially for the development of fine and gross motor control, sensorimotor function and the ability to explore and develop confidence. It helps to avoid what was described as "learned helplessness". The CALL centre assesses and supports equipment, loans and provides training in the use of equipment such as special keyboards, mice, switches and communication devices, conducts R&D and provides information. This helps to overcome the problems of lack of resources such as staff, skills and equipment to encourage the use of such devices. In comparing a similar service in Australia, where instructions were provided on videotapes to overcome the vast distances involved, it was emphasised that any provision of equipment must assume a long training time to allow the user to become familiar with it. The CALL Centre loans equipment for periods of between two and twenty-four months.

Continuing to focus on mobility, **Samuel Lesley** from the University of Cambridge demonstrated a novel ergonomic manual wheelchair for hemiplegics. The wheelchair was the result of a student project undertaken by **Lucy Porter**, supervised by the speaker. The design allows both wheels to be driven from a single rim, with steering achieved by foot-steering the castor on the unaffected side. The foot steering mechanism can be engaged or disengaged according to the pressure of the foot on the footplate, thus allowing the castor to be spun around to reverse. A patent has been applied for in respect of the gearbox in the hub that allows transmission of torque to both wheels but allows them to rotate at different speeds.

**Andrew Frank**, who gave a review of a powered indoor and outdoor wheelchair service, concluded this informative session. The review was conducted because of the poor understanding of the follow up needs of these wheelchair users. After a series of telephone enquiries into users' progress and experiences, users were seen in clinic. It was found that in some cases users were reluctant to attend and transport to and from the clinic was often a problem. It was also reported that it was difficult to fund any requirements for improvements identified, as priority was given to providing wheelchairs for new users in order to reduce waiting lists. The results clearly showed the need for follow up assessments; there were cases where problems were found with the chairs themselves, with inadequate or inappropriate seating provision and in five cases with ability to control the wheelchair. In four of these cases the chair was changed and/or further training was provided and the user then demonstrated the ability to control it satisfactorily. Reports from staff in other centres indicated that they routinely followed up the wheelchairs provided by their service.

## Equipment and Development

Chair:  
Helen Petrie, City  
University

Functional Electrical Stimulation (FES) was introduced and its uses discussed by **Ian Swain**. FES is the use of an extrinsically produced electrical signal which elicits a nerve impulse, causing the contraction of a muscle. It can be done with both upper and lower motor neurone damage, but the strength of the contraction and therefore the functionality of the system is greater when upper motor neurone damage is apparent. The technique can be used for: wrist and finger extension, pacemakers, cochlear implants, phrenic nerve pacer to give just a few examples.

Salisbury District Hospital have been running an FES clinical service now for a number of years and have also carried out a great deal of research into the field. Of particular interest is the dropped foot stimulator, this consists of an electrode attached to the skin over the common peroneal nerve and a pressure switch on the contralateral heel. When the individual walks the switch is activated when the contralateral heel touches the ground, therefore dorsiflexing the foot for the swing phase. It has been shown that this technique when used with clients with dropped foot can:

- ☐ Increase walking speed by 27%
- ☐ Reduce effort by 30%
- ☐ Reduce spasticity
- ☐ Reduce anxiety and depression (HAD score)



A useful web site for more information can be accessed at: [www.salisburyfes.com](http://www.salisburyfes.com)

A fascinating case study was presented by **Rick Houghton** from the Mary Marlborough Centre. After encountering problems with a particularly athetoid child with cerebral palsy, Rick designed a dynamic interface for the seating and wheelchair. This essentially allowed the seating to move within a controlled distance in the antero-posterior plane. After fitting the system, it was noted that areas that had previously been sore due to rubbing from the seating started to heal. The system will also dramatically reduce the mechanical stresses on the structure of the wheelchair and seating.

**Stephen McKenna** outlined the uses of gesture recognition as an AT for computer access. It can also be used as part of a supportive environment for the elderly by visually monitoring activity patterns and inactivity. The system essentially provides peace of mind, without obtrusive human presence.

A very interesting session was concluded with **Jane Seale** talking about a study being carried out at Kings College London. They are utilising older people in focus groups to drive the design process. It was noted that the three main problem areas were bending, reaching and climbing stairs and what they wanted was more information regarding the technology available and where to get it.

## Annual General Meeting at York 2001

### 21-03-01

#### **01AGM.1 Apologies for Absence**

None.

#### **01 AGM.2 Minutes of previous meeting**

Proposed C. Turner Seconded P. Aldersea, agreed *nem con*.

#### **01 AGM.3 Matters arising**

None.

#### **01 AGM.4 Chairman's report**

See page Volume 13 page 24.

#### **01 AGM.5 Treasurer's and membership Report**

There has been a substantial increase in membership. The current figure is 530. The Annual Conference 2000 had 265 delegates and for 2001 412 delegates attended (break even figure of 300).

Expenditure was clarified

- a) Travel expenses are reimbursed to committee members
- b) the cost of producing the Newsletter
- c) Extra meetings

Income over expenditure is now into 5 figures. The figures given are not yet audited and corporation tax had to be added.

Report proposed by R Luff, seconded by R Parison

#### **01 AGM.6 Constitution**

The following changes to the Constitution were proposed, discussed and agreed.

Add a clause 3.3

- 3.3.** are appointed representatives of user's organisations; or of societies judged appropriate by the Committee on behalf of the membership.

**Reason:** This addition is to clarify that users are currently represented on this professional group by their representative organisations rather than by individual membership.

Change 5.1 to increase the committee members to a maximum of 15. Remove the last sentence of 5.3 and add it at the end of 5.1. 5.1 now reads;-

- 5.1.** The Committee will comprise not more than 15 members who may serve for a maximum continuous tenure of three years, ending with the third AGM following their election to the committee. The Posture an Mobility Group seeks to encourage a mix of skills and disciplines on the Committee by nomination and the democratic process.

**Reason:** The increase in number to 15 is to enable the formation of working groups within the committee to undertake the increasing workload and specific pieces of work. The move of the last sentence is to place it more appropriately in this paragraph.

Add Honorary Secretary to 5.3 which now reads;-

- 5.3.** The Committee will elect the Chairman, Vice Chairman, Honorary Treasurer and Membership Secretary and Secretary from the Committee membership.

Reason: The Secretary was omitted from the original version.

Change the first sentence of 5.4 to read:-

**5.4.** The three year tenure of Committee members shall be extended in the case of the offices within the Committee - Chairman, Vice Chairman, Treasurer and Membership Secretary and Secretary - by the length of tenure of that office which shall be a maximum of three years before re-election to that or to another office.

**Reason:** Officers are usually elected to their office within their three year Committee term rather than at the end of it. This change is to ensure that the expertise and experience of the officers is not lost to the committee at the end of their term of office so that they may support the new office bearers. Also, to reduce the risk of a large number of retirements at one time from the committee as the membership tenure gets out of phase by the office bearing tenure. This change will thereby facilitate an improved committee retirement planning process.

The first sentence of 5.8 should now read:-

**5.8.** Requests for nominations shall be circulated to the membership prior to the AGM.

**Reason:** The present wording is too prescriptive of the method of communication to members and is grammat-

ically incorrect.

The last sentence of 5.8 should now read

**5.8.** Votes must be returned in person no later than 2 hours prior to the AGM or by post to arrive 5 working days before the AGM.

**Reason:** With the growing membership numbers more time is needed to collect and count voting papers.

Following the discussions about pursuing charitable status for the PMG and the agreement to go ahead the revised constitution required for this process was presented. This contained the same elements as the newly voted constitution rewritten to comply with the Charity Commissioners requirements. This new format Constitution was adopted by a unanimous vote with one abstention.

#### **01 AGM.7 Charitable status**

Explained by Barend-ter-Haar and agreed with 1 abstention that the committee should pursue the matter further.

Further to this would membership agree to revised constitution in accordance with charity commissions requirements of a constitution. Agreed by a majority

Next years conference and AGM will be held 15/16 April 2002. The title will be "Best Practise Consensus and Evidence"



#### **Calling all therapists**

I have been on the posture and mobility group committee for several years and during all that time have as a therapist been in a minority, with only two other therapists on the committee. Pleasant company though engineers can be, I feel that the balance on the committee needs changing, it is vital that we have fairly equal representation from all areas, so why aren't you coming forward?

Therapists have an opinion on the way forward, but if you want it heard then you need to be represented.

The committee is extra work, but it has many positive benefits both for you and your service. It gives you good contacts, and broadens your views which may make you look again at your own practise and therefore leads to benefits for your clients.

It is excellent for CPD but on a lighter side it is sometimes fun and always an enjoyable and rewarding experience.

So if you are interested, ask someone to nominate you and come on board. If you want any more information please ring me on 01723 367649

Julia Cunningham

## PMG NEWS

**Membership database**

The PMG committee is considering the most useful way in which we could aid networking amongst members. One means is to publish a membership list.

When you join the PMG you are asked to let us know whether you are unwilling to have your details passed to other members. The specific statements you are asked to consider are:

1. I do not give permission for my details to be stored electronically by the PMG
2. I do not wish my address and details to be included in the published membership list
3. I do not wish my private address to be included, but you may include my work address on the list
4. You may publish my details in the list, but I do not wish to be part of a list rented commercially

There are tick boxes after each statement for you to tick off if you wish that specific exclusion to apply to you. At least once a year you are resent the form in case you wish to change the options, or to let the Membership Secretary know changes in your address or bank account for standing orders.

The PMG now has more than 600

members with new members joining each week. Any printed list will therefore become immediately out of date. We therefore are considering putting up a membership list on the PMG website ([www.posture-mobility.fsnet.co.uk](http://www.posture-mobility.fsnet.co.uk)) to include those members who have not asked to have their addresses withheld. We would aim to include e-mail addresses where we have that information.

We are still discussing how the listing on this database should be sorted. Geographically by, say, County, may be of use, or would you prefer by specialty? Please would you let us know through any member of the committee.

Now that the Data Protection Act has changed, we no longer need to seek your permission as to whether your name is held on a database, provided that we do not store any personal or financial information. However, a few of you have asked that we do not store your details electronically. You risk being omitted from mailings etc if you do, since someone has to remember to go through manual records each time. I would ask you to reconsider your position in this respect to make the tasks of the administrators of the PMG a little easier. As professionals, your work addresses are generally known anyway, and are available from professional list brokers.

**HELP - therapists required**  
(for the committee!)

With the resignation of Christine Turner we are less represented by therapists than is appropriate. We have Elizabeth White (OT) and Julia Cunningham (PT) and one vacancy and would like another therapist to join them.

We also have 5 rehab engineers co-opted at the last AGM who need to be voted on in their own right - or not as you decide. They are doing a good job and have specific responsibilities around the organisation of the next conference. In addition, we have 2 committee members retiring, both engineers, so it is an opportunity to address the therapist/engineer balance of the committee.

**Please consider standing for election to your committee.** We meet approximately 10 times a year in London, but both frequency and venue are subject to review. The PMG pays for expenses incurred in attending and any other expenses incurred doing PMG work. Being a member of the committee of this national organisation also contributes to your CPD which is, or will be, necessary for maintaining registration to practise.

All the committee are now on e-mail which greatly assists in completing tasks and communicating with each other. I hope that this also will lead to a reduction in the number of meetings we hold without compromising on the progress we want to make. **Please arrange to be nominated or nominate a colleague** with their agreement. Job share may be possible!

Bye Bye to **Alison Thom**, Clinical Engineer at Rookwood. Alison has now taken up residence in New Zealand - which by all accounts sounds very dull, the difficulty is deciding whether to go kite or land surfing, skiing, climbing, mountain walking, you get the picture! You can see an article by Alison on page 8.

Well done to **Colin Plumb**, who is making the move from the 'Big Smoke' to fresher climes as the new Wheelchair Service Manager at Plymouth. Colin was working for Kings Healthcare as Rehabilitation Engineering Manager.

## PMG Website: [www.posture-mobility.fsnet.co.uk](http://www.posture-mobility.fsnet.co.uk)

The PMG web site has been a great success and as you read this even more information is being added (Guidelines, Conference details, Contacts, Other links, etc). So how do you keep this ever growing font of knowledge in the front of your mind? Here are two ways of doing so,

### **Make [www.posture-mobility.fsnet.co.uk](http://www.posture-mobility.fsnet.co.uk) your default Browser page.**

You can change the settings that carry you to a web site every time you open your Internet Explorer. This is how to change your default settings in Windows 9x and Explorer.

- 1) With your computer switched on and the windows desktop on the screen (this is the first windows screen that you normally see with lots of icons).
- 2) Right click (mouse) on the 'Internet Explorer' icon. This opens a small menu window.
- 3) From the small menu window select 'Properties' by left clicking. The 'Internet Properties' window will open.
- 4) Left click on the 'General' tab at the top left of the 'Internet Properties' window. Just to make sure that the general settings page is being displayed.
- 5) In the 'Home page' segment of the page you will see a field called 'Address:' it is this web site address that is shown when you first open Explorer.
- 6) Left click into the 'Address:' field and delete the web address shown. Do not worry, you will not hurt anything!
- 7) Type into the box everything shown on the next line using the same lower case text,

**<http://www.posture-mobility.fsnet.co.uk>**

- 8) Left click on the 'Apply' button at the bottom of the 'Internet Properties' window to save the new default setting.
- 9) Left click on the 'OK' button at the bottom of the 'Internet Properties' window to close the window and return to the windows desktop.
- 10) Well done! You have now set PMG to be your default web site!

### **Make sure that you can view the PMG web site off line.**

You can save on your phone bill by having your computer update and save a copy of the PMG web site so that you can view it even when you have disconnected your modem (phone link to the www).

- 1) With your computer switched on and the windows desktop on the screen (this is the first windows screen that you normally see with lots of icons).
- 2) Left click on the 'Internet Explorer' icon. This opens your Browser.
- 3) In the address field at the top of the screen enter 'http://www.posture-mobility.fsnet.co.uk' (without the ' ') and press the 'Enter' key on the keyboard. You will now navigate to the PMG Web site.
- 4) Once the PMG web site has been loaded (the opening screen takes a little while to fill! Sorry about this, I am working on speeding it up!) Left click on the 'Favourites' menu at the top of the screen. This opens the 'Favourites' menu.
- 5) Left click on the 'Add to Favourites' option at the top of the menu. This opens the 'Add Favourites' window.
- 6) Left click the 'Make available offline' tick box so that a tick appears in the box.
- 7) Left click on the 'New Folder' button. This opens the 'Create New Folder' window.
- 8) In the 'Create New Folder' window type 'PMG' (without the ' ').
- 9) Left Click the 'OK' button to create the PMG directory and return to the 'Add Favourite' window. Note, the PMG directory should be highlighted in the 'Create in:' box. If it is not Left click on it now.
- 10) Left Click the 'OK' button in the 'Add Favourite' window. Your browser will now synchronise your saved web pages with those on the PMG web site. If you set your default web page to that of the PMG's then your computer will automatically synchronise with the PMG site each time that you go online.
- 11) For more information regarding favourites (favourites in the USA) and browsing offline please refer to your windows help files.



## Literature Review

### Help wanted to find way through the maze!

Over the last twenty years or so the work by various committees has produced, and is still producing, families of standards in wheelchairs, transportation, and seating. Anyone who has tried to use these standards will have found that just as they are getting into one standard set of tests, that they are referred to another standard for part of the test. They then go to that standard to find themselves referred to another standard, and so it goes on in a frustrating maze of officialdom. The next challenge is to find which has been updated to provide the most recent version.

Alan Lynch is very keen to hear from those who have used the standards, for ideas how many of these standards might be merged together into a smaller number and therefore more manageable groupings. Initial suggestions were to separate manual from electric wheelchairs, but then many tests are the same for both types of chair. Another suggestion has been to put all static tests together in one standard and the dynamic tests in another. What do you think? Can you come up with a better suggestion? Please contact Alan at the MDA with your ideas.

For your information, various of the principal ISO standards in the different families are listed in the central box.

NOTE: The asterisked parts of the standards are in the work programme, and are at various stages in the voting process, but have not yet been fully approved as standards. Others from the published standards are at varying stages of revision.

|                  |   |
|------------------|---|
| <b>ISO 6440</b>  | <b>Wheelchairs - Nomenclature, terms and definitions</b>  |
| <b>ISO 7176</b>  | <b>Technical systems and aids for disabled or handicapped persons - Wheelchairs</b>                                       |
| Part 1           | Determination of static stability   |
| Part 2           | Determination of dynamic stability of electric wheelchairs  |
| Part 3           | Determination of effectiveness of brakes  |
| Part 4           | Energy consumption of electric wheelchairs and scooters for determination of theoretical distance range                   |
| Part 5           | Determination of overall dimensions, mass and turning space   |
| Part 6           | Determination of maximum speed, acceleration and deceleration of electric wheelchairs                                     |
| Part 7           | Measurement of seating and wheel dimensions   |
| Part 8           | Requirements and test methods for static, impact and fatigue strengths  |
| Part 9           | Climatic tests for electric wheelchairs   |
| Part 10          | Determination of obstacle-climbing ability of electric wheelchairs  |
| Part 11          | Test dummies  |
| Part 13          | Determination of coefficient of friction of test surfaces   |
| Part 14          | Power and control systems for electric wheelchairs - Requirements and test methods  |
| Part 15          | Requirements for information disclosure, documentation and labelling  |
| Part 16          | Resistance to ignition of upholstered parts - Requirements and test methods   |
| Part 17*         | Serial interface for electric wheelchair controllers  |
| Part 19          | Wheeled mobility devices for use in motor vehicles  |
| Part 20*         | Determination of the performance of stand-up type wheelchairs   |
| Part 21*         | Electromagnetic compatibility of electrically powered wheelchairs and motorised scooters - Requirements and test methods  |
| Part 22          | Set-up procedures   |
| Part 23          | Attendant operated stair-climbing devices   |
| Part 24*         | User operated stair-climbing devices  |
| Part 25*         | Requirements and test methods for batteries and their chargers for powered wheelchairs and motorised scooters             |
| <b>ISO 10542</b> | <b>Technical systems and aids for disabled or handicapped persons - Wheelchair tiedown and occupant-restraint systems</b> |
| Part 1           | Requirements and test methods for all systems   |
| Part 2           | Four-point strap-type tiedown systems   |
| Part 3*          | Docking-type systems  |
| Part 4*          | Clamping-type systems   |
| Part 5*          | Systems for specific types of wheelchairs   |
| <b>ISO 16840</b> | <b>Technical systems and aids for disabled or handicapped persons - Wheelchair Seating</b>                                |
| Part 1*          | Definitions of body and seat measures   |
| Part 2*          | Test methods for devices intended to manage tissue integrity - Seat Cushions  |
| Part 3*          | Postural support devices: test methods for static, impact and repeated load strength                                      |
| Part 4*          | Seating devices for use in motor vehicles   |

## Notice Board

| Date              | Location       | Title   | Contact   |
|-------------------|----------------|---|---|
| <b>March 2002</b> |                |   |   |
| 5 - 6             | Vancouver      | Pre-symposium Workshops                               | <a href="http://www.sunnyhill.bc.ca">http://www.sunnyhill.bc.ca</a>                                 |
| 7 - 9             | Vancouver      | 18th International Seating Symposium                  | <a href="http://www.geocities.com.UBCinterprof">http://www.geocities.com.UBCinterprof</a>           |
| 21-23             | Manchester     | BAPO  |   |
| <b>April 2002</b> |                |   |   |
| 15 - 16           | Nottingham     | National Conference of the PMG                        | tel. 01223 882105   |
| <b>May 2002</b>   |                |   |   |
| 8 - 11            | Leipzig        | Orthopaedie + Reha-technik<br>Trade Fair and Congress | Barry Bebington tel. 01708 229354   |
| 14-16             | Birmingham NEC | Naidex and Kidequip                                   |   |
| <b>June 2002</b>  |                |   |   |
| 20 - 22           | Donington Pk.  | Mobility Roadshow                                     |   |
| 23 - 28           | Stockholm      | The 13th World Congress of OT's                       | Sweden tel +46 8 783 8000<br>fax+46 8 667 7509 <a href="mailto:info@adforum.se">info@adforum.se</a> |

## The World of the Web

As a WWW surfer (not the wrestling) I come across many sites related to the rehabilitation business. It is amazing what you can find by simply searching on key words such as 'wheelchair' or 'amputation'! Try it and see. What I would like to share with you here are some of the more memorable sites that I have visited that you may find interesting.

The **www.msnbc link** is extremely interesting as it talks of a powered wheelchair that can stand up! The chassis of the wheelchair can stand on and drive on just it's rear wheels (this is with someone sitting in the chair) and can drive and maintain balance! The video is a little long but demonstrates the ability of this concept chair with the use of a wheelchair user putting it and

herself through some interesting trials. The concept has been taken up by Johnson & Johnson of the USA and the chair is going through FDA testing prior to being offered to the market. Cost will be in the region of \$25,000 (about £18,000). My guess is that it will be some time before we see it on the NHS PASA (Purchasing And Supplies Agency wheelchair contract! Visit [www.wheelchairjunkie](http://www.wheelchairjunkie) it gives hope to all those people (including prescribers) who underestimate the strength of some of the wheelchair products being marketed today (BS 7176 has nothing on what these people are putting their chairs through). It also demonstrates that there are few true boundaries that should hold down a wheelchair user that prevent them from investigating not only their environment, but themselves as well. Well, it made me sit up and think!

<http://www.wheelchairjunkie.com/> Pictures of people doing some crazy stuff in powered wheelchairs. Opens your eyes to the possibilities of suitable wheelchair access!

<http://www.flofitmed.com/fl02010.html> Another super duper cushion?

<http://www.iwa.ie/> Home page to the Irish Wheelchair Association. This site provides good links and information.

[www.posture-mobility.fsnet.co.uk](http://www.posture-mobility.fsnet.co.uk) Been some further updates with some more in the pipeline.

<http://www.wheelchairbike.com/> If you have not seen this device it fits onto the front of the wheelchair allowing the occupant to propel the wheelchair using their legs.

<http://www.kipr.org/robots/tm.html> Tin Man wheelchair 'Robotic' control

<http://www.ai.mit.edu/people/dmiller/robots/TM4.4.qt> This is a video of one of the robotic chairs in action.

<http://www.msnbc.com/news/285231.asp> This is an article on a powered wheelchair that can balance on its rear wheels (also drive in this position). It takes time to load but its worth it when you see the prototype in action.

<http://www.beachwheelchair.com/> Wheelchair designed for use on soft sand beaches.

<http://www.gbwwra.org.uk/> Site of the Great Britain Wheelchair Rugby Association.

[http://www.cis.upenn.edu/~venkat/wheel\\_noframe.html](http://www.cis.upenn.edu/~venkat/wheel_noframe.html) Ideas and pictures / video on all terrain wheelchairs.

<http://www.lslha.nhs.uk/groups/lrscg> URL for the London Regional Specialist Commissioning Group

## Education & Training

### New MSc in Assistive Technology

#### Introduction

The Centre of Rehabilitation Engineering at Kings College, London has recently launched a new full-time and part-time Masters Programme in Assistive Technology. This programme offers a multidisciplinary educational experience that is both academic and vocational in nature. The main aim of the new programme is to produce AT specialists who are able to develop and apply assistive technologies with an understanding of the needs and desires of older and disabled people.

The multidisciplinary nature of the course means that the target student population for this Masters Programme are those who have a background in the fields of occupational therapy, physiotherapy, physical science, engineering, medicine, social work, therapy or education.

#### Course content and delivery

Students will study nine modules (see Figure 1). All students will complete five compulsory modules covering core subjects that are required regardless of the specialist area that the student may eventually enter. These modules will give students a thorough understanding of AT and its application, encourage an interdisciplinary team approach to AT provision and awareness of the multi-agency nature of current provision methodology. Following the compulsory modules, students will be able to choose three out of five specialist options to study. Each option will provide the student with in depth understanding of the theory behind the design and application of AT. Each option will also include a one-week fieldwork placement at an

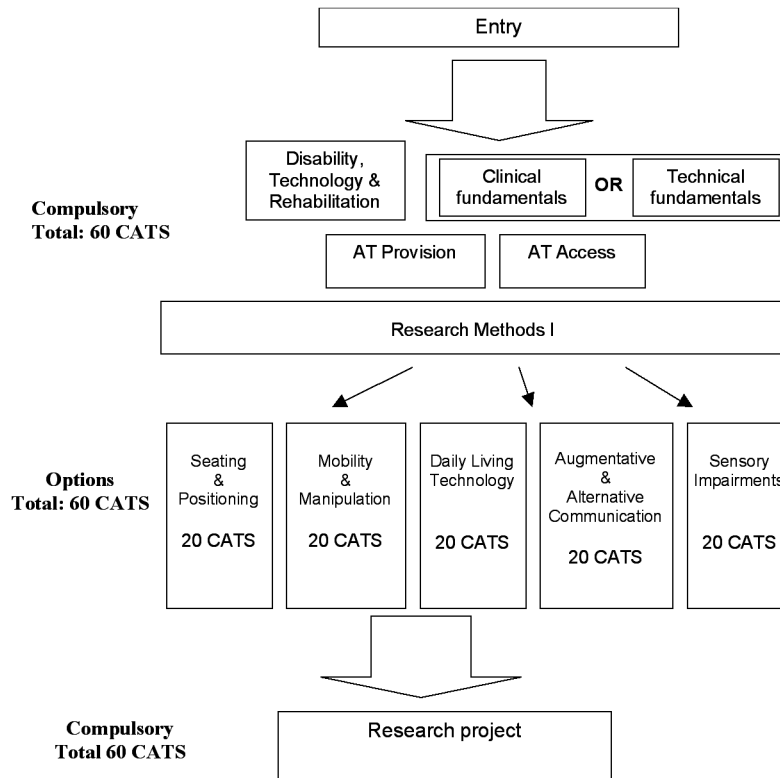


Figure 1: MSc in Assistive Technology Syllabus.

approved centre or industrial collaborator. All students will also be required to conduct a research project as part of their Masters studies.

#### Funding and Admissions

In recognition of the need to increase the skills of those working in the field of assistive technology, the EPSRC (Engineering and Physical Sciences Research Council) has awarded the Centre of

Rehabilitation Engineering a four year grant. Part of this grant will be used to offer bursaries for those who gain a place on the course. More information on the course, bursaries and application can be obtained from the CoRE web site at [www.kcl.ac.uk/core](http://www.kcl.ac.uk/core).

#### Dr Jane K Seale,

*Co-ordinator of Masters in Assistive Technology*

*Centre of Rehabilitation Engineering*

*Department of Medical Engineering and Physics*

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*Denmark Hill, London, SE5 9RS*

Tel: 020 7346 1653 Email: [jane.seale@kcl.ac.uk](mailto:jane.seale@kcl.ac.uk)



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