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ISPO 2017

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BACPAR Conference 2017

BRITISH ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS IN AMPUTEE REHABILITATION

AUTUMN 2017 **ISSUE 48**

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THANK YOU!

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CHAIR MESSAGE

Welcome to the Autumn BACPAR Journal, seems like only yesterday the last one came out.

"Thank you" is the theme of this message!

It's getting very close now to this years conference and AGM on 16-17th November and the programme is a great mixture of platform presentations and practical elements throughout all stages of amputee rehab – wear comfortable clothes and bring a towel as you will be getting down and taking part!

Big thanks to those organising it this year, Lou Tisdale, Sue Flute, Carolyn Wilson and Kim Ryder.

I am looking forward to being able to announce a few exciting opportunities at the AGM, but no spoilers now I'm afraid – you'll just have to come along – not too late to book your place at conference.

Unfortunately Katharine Atkin will be standing down as Treasurer at the AGM. I would like to thank her for all her hard work, for bringing us into the 21st century with our banking processes and for being a diligent manager of our finances. Later in the journal you will find more information about what it involves – please consider whether you would like to take on this role, it's a great opportunity to build your skills within a friendly and supportive committee, this has certainly been my experience.

There has been a lot of work going on throughout England with the MPK's and it's been a steep learning curve for many of us but the prosthetic companies have done a great job in getting us up to speed and supporting us and our prosthetic colleagues – thank you.

Not a thank you this time but a massive congratulations to Fiona Davie Smith, one of BACPAR's research officers, for having been awarded her PhD for
"Factors that influence Quality of Life After Lower Extremity Amputation due to Peripheral Arterial Occlusive Disease"
Without these people, and many more involved on the committee and throughout the membership, BACPAR would not exist. We are a thriving Professional Network in an environment where we, and the health system, are all being stretched in so many ways and involvement in professional groups often suffers as a result.

THANK YOU TO ALL

WEDDING!

EDITORIAL

A huge thank you to Sue Flute for stepping in and putting the journal together for me this Autumn, allowing me to focus on my upcoming Big Fat Greek Wedding! The journal is a difficult task, and I thank you all for your positive feedback over recent editions.

Please continue to send content to bacparjournal@gmail.com and follow the guidelines for sending images. Please continue to send images as separate jpeg files.

With conference coming up please remember to follow BACPAR on Twitter and post, repost and like content from Conference using hashtag #bacpar17 to highlight our fantastic network to our stakeholders!

Thanks all! Enjoy Conference!

Jodie Georgiou

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ISPO CAPETOWN 2017

Louise Whitehead
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What an amazing experience! A few of your BACPAR colleagues were lucky enough to attend the International Society for Prosthetics and Orthotics World Congress in Capetown, South Africa in May 2017. 2,000 delegates, an impressive trade exhibition, networking and catching up with colleagues across the globe.....in the beautiful cosmopolitan African city.

My presentation was in the first session after the Welcome Ceremony where we were entertained by some impressive African dancers. Unfortunately there were a few technical difficulties initially resulting in the speaker before me having to say "next, next, next slide please" as the remote wasn't working. Luckily it was fixed for my presentation which went without hitch!

Inspirational talk by Giles Duley, a photographer who lost 3 limbs in a land mine explosion while he was working, taking photographs to tell the story of ordinary people in war torn areas.....

There was ample opportunity for socialising at lunch times, and on one day Laura Burgess invited all the Physio's at conference to attend a meeting to share information, exchange email addresses and the obligatory photo shoot!

The V&A Waterfront was a favourite venue for a cocktail and dinner looking out to sea and watching the sunset. A few of us visited Robben Island, where Nelson Mandela was incarcerated for part of his 25 years in prison for being a member of the ANC. Unfortunately it was a VERY rough crossing with a few folk feeling decidedly GREEN!

Wine tasting tours, safari, visit to the Townships,

Boulders Beach to see the penguins, and Cape-point

were some of the highlights out with the conference....

The best experience of the trip for me was when David Morrison, Prosthetist from Glasgow & myself hiked up Table Mountain at sunrise and were back down for lectures at 10.30 – decidedly sweaty but with an amazing sense of achievement and another tick on the bucket list....!

The next ISPO World Congress is in Japan in October 2019, followed by Mexico in 2021.....hope to see you there.

CONFERENCE REPORT 16TH WORLD CONGRESS ISPO

8-11TH MAY 2017

Helen Scott
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In May this year I was lucky enough to travel to Cape Town in South Africa to attend the 16th World Congress of ISPO and holiday for 10 days after.

ISPO is the International Society for Prosthetics and Orthotics, a global (almost 100 member countries), multidisciplinary organisation that aims to increase quality of life for persons who benefit from prosthetic, orthotic, mobility and assistive devices. The theme of this conference was 'Assistive Technology for all' and it was the first to be held in Africa. Over 2000 people were in attendance. The conference saw the launch of the new global WHO standards for prosthetics and orthotics developed in collaboration with ISPO and funded by US Aid. As usual there was an extensive scientific programme (57 symposia, 21 Instructional Courses and 550 free papers) with a parallel exhibition where companies, NGOs, training institutions show case their latest developments and projects.

My reasons for attending were to learn, network and contribute.

My learning
(free papers available https://drive.google.com/file/d/0B27hAGQB9HCjaFVaOVBYUlBkVnc/view)

The leap forward in the use of mobile technologies in amputee rehabilitation was evident throughout the conference but I was particularly interested in the areas of outcome measurement (OM), physiotherapy intervention and patient education.

The first session of note for me was a symposium 'Mobile technologies without borders: the global application of mobile healthcare in Orthotics and Prosthetics' chaired by Dr Bob Gailey.

Dr B Hafner, the developer of the Plus M started with an excellent overview of how administration of outcome measures is being computerised. Self-report tools are particularly well suited to this method of administration and is improving repeatability of tests, reduce staff burden and increase accuracy of data. The disadvantages are that it requires infrastructure, staff need more training, not all respondents are able to manage the interface and it may affect results.

One of the major advantages of electronically administered OMs are that they allow the collection of calibrated item banks that enable a respondent's score to be contextualised, for example, how it compares to other people with the same level of amputation. The other advantage of electronic administration is it can allow computerised adaptive testing (CAT). CAT means that the answer a patient gives to a question will trigger the next question so that they will only be presented with the relevant questions for them and a report is automatically generated on completion. An often referenced CAT tool during the conference was the Patient-Reported Outcomes Measurement Information system (PROMIS). This is a comprehensive, accurate, flexible and accessible set of tools to measure self-reported physical, mental and social health including symptoms, functioning and general perceptions of health and wellbeing in people ages 5-90 (www.HealthMeasures.net/PROMIS).

The session went on to describe the use of wearable sensors, inertial measurement units (IMUs) that are small, portable, wireless devices that can be used to feedback on patient movement, gait and activity for research and/or patient training purposes. The Re-LOAD system uses 5 IMUs – one on the sacrum, one on each thigh and shank. A couple of free papers later in the conference suggest that they provide a valid and reliable way of analysing spatial and temporal parameters of gait and also postural control strategies (papers 458 and 604).

Bob Gailey's team have been investigating the IMUs as a feedback device for patients to use in between physiotherapy sessions to continue to improve their gait. In this context the devices are being called a 'physio in your pocket'. The developers are experimenting with verbal cues and linking these with specific exercises, for example, should the fault be reduced toe load, the verbal cue would be 'roll over toe' and the exercise, forward and backward weight transference.

Other new (to me) outcome measures referenced in the conference were the:

- Prosthetics Socket Survey (PSS), a 24 item self-report questionnaire with 4 constructs, stability, suspension, comfort and appearance (paper 489).
- Heidelberg Obstacle Trail (HOLT) which is an attempt to standardise different walking conditions (12m walkway, 5 and 10 degree slopes and a 5 step staircase) in which to collect temporal and spatial characteristics of walking (paper 525)
- Use of the components of the TUG test for a falls risk assessment. Initial results indicated that the time required to complete the 180 degree turn was a significant identifier of increased falls risk with unilateral lower limb amputees (paper 451)
- Quebec User Evaluation of Satisfaction with Assistive technology (QUEST) (used in paper 180)
- Hopkins Rehabilitation Engagement Rating Scale (Kortte et al 2007 Arch Phys Med Rehabil; 88)

Another session of note was a symposium 'Supporting rehabilitation engagement after limb loss: person and context' chaired by Deirdre Desmond.

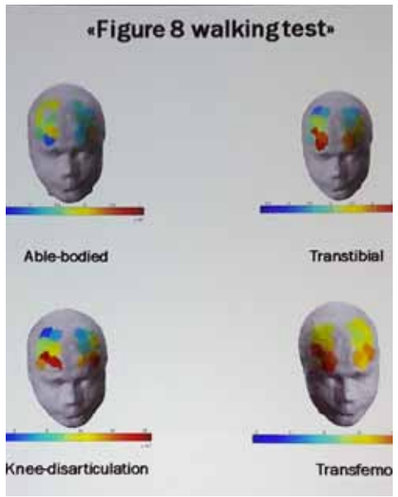
The presenters discussed the significant degree of cognitive impairment found in a prospective cohort of primary lower limb amputees both with and without vascular disease (PAD) and how levels of engagement related to overall cognitive functioning, processing speed, delayed memory and visuospatial awareness. They concluded that PAD is not a good indicator of cognitive impairment and that at least 50% of all patients should undergo a comprehensive cognitive screen to identify issues with the goal of targeting rehabilitation approaches accordingly.

The session went on to discuss the evaluation of the 'Promoting Amputee Lifeskills' (PALs) online programme of 8 lessons. The investigators used the PROMIS measure to evaluate outcomes and initial results suggest that the PALs programme significantly improved patients self-efficacy and led to positive changes in levels of anxiety and depression. Access to the website (www.palsamputeelifeskills.org) is free from this Autumn.

There were several free papers reporting benefits of microprocessor knees (133, 150, 153, 180). Of note was paper 180 that reported a multicentre, comparative, randomised, crossover trial to investigate if patients of K1 and 2 activity levels could benefit from the microprocessor knee, the Kenevo (designed for single speed walkers). 27 patients were evaluated and there appeared to be a significant reduction in the TUG, an increase in the global LCI score (self report community mobility) and there were slightly fewer falls when patients were using the Kenevo. There was also an indication that changing componentry could result in patients changing from K2 to K3.

As a clinician working with patients newly fitted with a microprocessor knee I am frustrated by the difficulties surrounding measurement of the very apparent reduction in cognitive load associated with using these devices compared to mechanical knees.

Dual task testing seems onerous and not entirely straight forward. Towards the end of the conference I enjoyed a symposium chaired by Nerrolyn Ramstrand, 'The use of brain imaging technology to study cortical brain activity during prosthetic ambulation'. They asked the question 'can walking with a prosthesis ever be automatic i.e. have no frontal activity?' Using functional near infrared spectroscopy (FNIRS) superficial brain activity can be monitored during functional activities. The group investigated cortical activity during walking of normals, different level amputees and transfemoral amputees using mechanical versus microprocessor knees. Results showed an increase in frontal activity with higher level of amputation and also moving from mechanical to microprocessor knee.



I was delighted to see our physiotherapy colleague Dr Bob Gailey had been invited to present a keynote speech on 'Evidence-based Prosthetic care: using data to demonstrate the value of a profession that cares'. As usual he gave an energetic, entertaining and informative presentation. He is in the process of computerising the AMP and clarified some aspects that I have been unclear on:

- Balance component should always be done with the patient standing in front of a walking frame
- The nudge should be firm enough to raise the patient's toes
- The minimal detectable change value is 3.4
- Deficiencies highlighted using the AMP should be used to guide exercise intervention and he has a whole programme worked out.

Networking

Laura Burgess organised a lunchtime meeting of all the physiotherapists in attendance at the conference. Laura updated everyone on the plans for a new ISPO data base to be a multidisciplinary CPD resource. There will be a therapy and probably an osseointegration group. She is looking to collate e-learning materials. The next ISPO world congress is in Japan in 2019 followed by Mexico in 2021.

I took the opportunity to inform everyone regarding the WCPT Amputee Rehabilitation Network, its website with links to educational resources and details to join the Linked-In discussion page. ISPO is keen to strengthen links with WCPT. I also did a bit of SPARG promotion. Julia outlined BACPAR's recent activities.

My contribution

I organised an Instructional Course 'Gait training requirements for the transfemoral amputee: prosthetic knee considerations with Carolyn Hirons, Clinical Specialist Physiotherapist, Pace Rehabilitation and David Morrison, Lead Prosthetist, Westmarc. It was scheduled for first thing on the Thursday morning after the conference dinner the night before and it was described in the programme as 'an update on Prosthetic and Orthotic services in Myanmar'. However, despite this, we had approximately 30 people in the room none of whom left! The full talk will be available via a link that Laura Burgess is organising. Feedback was positive, people enjoying some in depth physiotherapy treatment ideas from basic to more advanced skills and a review of prosthetic componentry from an independent, practising prosthetist.

I co-authored a paper 'Prosthetic limb use: one year follow up of patients with a transfemoral amputation' which was ably presented by Louise Whitehead.

I also chaired a very interesting free paper session 'Measuring Outcome'. Myself and my co-chair (from Myanmar!) did well keeping the session to time as we had some technical problems and lively discussions.

Summary

Despite the conference theme being 'technology for all' it is clear that the biggest advances in P&O involve electronic technology that by its very nature and expense cannot, at the moment, be available to all. However, for those of us who can access the latest technology in terms of prosthetic componentry, IMUs and CAT for OM we are nearing a time in healthcare where the additional work required to measure the outcomes of our intervention and to carry out some of the repetitive training required to teach new skills should become less onerous. The resulting data should be more readily available and what it means in terms of true change relative to a minimal detectable change value, the wider population of amputees and indeed, 'normals' should be immediately clear. How patient data is safe guarded is a whole other subject that I did not hear discussed at this conference but will imagine becomes a 'hot topic' very soon. Brain activity as an indicator of the reduced cognitive load when amputees use MPKs versus mechanical components looks like it has potential to prove the difficult to win cost-benefit argument of prescribing these very costly components.

I was again disappointed by the difficulty I experienced accessing the electronic conference programme including the free paper abstracts and had to resort to visiting the speakers room to access the paper copies for the session I chaired. It made it hard to plan which sessions to attend. Hopefully, by next conference this will be more slick and user friendly for an old codger like me (Louise won't have her patience tested quite as much)!

This was my 6th ISPO world congress and for those of us lucky enough to work in amputee rehabilitation I cannot recommend it highly enough as a learning, motivating and sociable experience. Put it on your 'to do' list and go!



ISPO 16TH WORLD CONGRESS IN CAPE TOWN, SOUTH AFRICA

8-11TH MAY 2017

Carolyn Hirons
www.pacerehab.com

The International Society of Prosthetics and Orthotics (ISPO) holds World Congress every 2-3 years. This is a meeting of all disciplines involved in the rehabilitation of people with mobility needs across the world. Throughout the 4 days, concurrent sessions run in 7 topic areas; prosthetics, orthotics, education, P&O in developing countries, seating and wheelchairs, paediatrics and P&O evidence.

I was an abstract reviewer prior to the conference and attended as a delegate, presenting a poster and an instructional course.

This report highlights the sessions that were most influential to my clinical practice.

Eva Proebsting – Long-term damages after lower extremity amputation, a systematic review
Eva works for the Otto bock Research and Education department. Amputees have a higher risk of degenerative problems and she presented a systematic review of the many papers related to this. There are a list of conditions affecting amputees related to degenerative problems, such as 56% have low back pain (55% in transtibial and 69% in transfemoral), compared with 28-39% of the able population. She described the reasons for this being altered gait, loss of limb balance, leg length discrepancy, and scoliosis. The better the prosthesis, the less risk of osteoarthritis in the hips and knees. Poor muscle rotation at the hip affects osteoarthritis at the knee, as the knee is a poor torque absorber.

Itzhak Siev-ner – Using the C-Mill to enhance gait training and evaluation of microprocessor-controlled knees
Use of advanced prosthetic technology requires advanced training techniques and analysis. The C-Mill is a treadmill that uses visual and acoustic cues, which are projected onto the treadmill belt for training. Patients can practice challenging scenarios in a safe and controlled environment as there is an overhead harness. The belt captures stance characteristics and can be used as an aid to physiotherapy. For example there can be stepping accuracy, obstacle avoidance, changing speeds, adjustment and control specifics, and multi-tasking. It is a very expensive item but could become routine use, just like virtual reality training. https://www.motekforcelink.com/product/c-mill/

Daniel Heitzmann – Stair climbing in transfemoral amputees
The Genium X3 and the Rheo XC are exceptional prosthetic knees that allow leg-over-leg stair climbing. Many transfemoral amputees do step-by-step or take two steps with the sound leg, but there is a high prevalence of osteoarthritis in the remaining knee and hip of the sound side. The author had a cohort study of 12 subjects. He used a force plate on the step and measured different phases: weight acceptance, pull up, forward excursion, foot clearance, foot placement. The results showed that there was an increased peak moment and power in the knee and hip on the sound side which was the same amount of peak force regardless of whether they took one step at a time or two steps at a time. Normal subjects really use a push-off from their trailing ankle to propel up the stairs. The clinical conclusion was that step-by-step was better than two steps at a time for lessening wear and tear on the remaining joint.

How to measure for a flexion contracture and align a TF prosthesis - Otto bock
The presenters described a modified Thomas test: with the flat hand under the lumbar spine on a firm surface, do not allow pelvic tilt, feel when it starts to tilt and stop, this is the static starting point to optimise dynamic alignment of the prosthesis.

Measure the angle as soon as the pelvis starts to tilt, do not pull the other knee in as this will cause posterior pelvic tilt. To check if the socket flexion is right, do three steps marching on the spot with eyes shut and see where the prosthetic foot lands. If stops anterior to the remaining foot, there may be not adequate flexion in the socket
Always follow the Otto bock rules for setting up their knees for height, knee centre and reaction force positions at the knee, hip, ankle and foot. Need to get the weight lying correctly through the remaining anatomical joints to prevent wear and tear.

Don't over-secure a joint as this will affect the gait pattern. If the knee alignment is right but the security is not there, then try a different foot.

Also look at stride length and use slow motion on the phone app to diagnose movement.

Anat Kristal (PhD Student from Israel) – Outcome measures
Can you apply the same test to all people? Anat's PhD study examined how evidence can support our services. The purpose of an outcome measure is to use common language, assist in prescription, measure change, and document services, determine current function and predict outcome. Outcome measures can be self-reported or progressional report and the strongest are performance-based observation. So which outcome measure should we use? What are we wanting to test? Is it reliable and valid? Is it easy to use? Is it cost-effective? Commonly used outcome measures include:

- PLUS-M (Hafner et al 2016).
- LBP Disability Index (Fairbank J 1980), not amputee-specific.
- Performance-based measures - give precise instructions to the patient in order to be reliable + repeatable.
- Six minute walk test at comfortable walking speed with aids.

Using the six minute walk test, the following were average walking distances for different levels of amputees: K1 = 50 metres, K2 = 190 metres, K3 = 300 metres, K4 = 420 metres, K5 = 600 metres. To walk more than 600 metres is classed as normal population. The two minute walk test and the timed up and go are also relevant. There are inhibitors to the six minute walk test, related to residual limb strength and that of the sound side. If a timed up and go is more than 12 seconds, you are likely to fall over.

During normal everyday function we sit to stand more than 50 times a day, we take turning steps 40% of the day and continuous walking for 75% of the day.

Interpreting results of outcome measures is important and skilled.

Amputee Mobility Predictor – Bob Gailey
In the USA people are seen one hour three times a week for physio's standard appointments. This is a 20 item test that helps determine what aspects of movement need addressing in rehabilitation. If there is a change of 3 ½ points in the score this means a significant change in performance.

He demonstrated the exercises specific for amputee prosthetic rehabilitation. Rhythmic stabilisations in various positions with difficulty, including unstable surfaces. Work on extensors, trunk rotators, PNF, upper limbs, aim to connect the limb segments. Use our balance strategies that are ankle and hip, we need to keep within our base of support and step continuously.

Strong indicators for successful prosthetic use are: One leg stance test and ability to stand from sitting unaided. Other areas to work on include the core, use of mirrors, engage muscle activity, loading, slowly reducing the base of support and increasing the difficulty, challenge the visual and vestibular systems and proprioception, look at compliant and non-compliant surfaces. Imagine a marble as your centre of mass in the pelvis for translations. Use a weighted ball standing exercises, stand on a mat or balance board. Braiding helps reduce hesitancy and falls and ramp walking, as it uses the hamstrings. Use the hands on the pelvis for rotation in the longitudinal axis. Have eyes closed before picking up off the floor. These exercise are on Physio Tools.

Further exercise suggestions are lunges are good for reaching to the floor. Use theraband to get resisted toe load and pelvic rotation.

Service Effectiveness

EBAR stands for Evidence Based Amputee Rehabilitation Programme. Bob Gailey described what exercises to do to achieve the items and tasks in AMP. In the USA, achieving these goals affects individual insurance funding for the amputee. There is a great need to be effective at every appointment. Outcomes can be used to measure an individual's progress but also demonstrate the effectiveness of a whole service.

The L test uses the best of two or the average of three to move to both the sound and amputated sides.
Use a timed up and go, a mean of three attempts.
The six minute walk test and the two minute walk test, are they different? The two minute walk test gives the ceiling effect for K3 and K4 users. A 35 metre change in the 2MWT and a 45 metre change in the 6MWT mean there has been a significant change in ability.

If you ever get the chance to hear Bob Gailey – you must go.

Empowered Wheelchair Use

This session looked at a questionnaire and training programme called Wheelcon which is used to measure confidence in wheelchair use. It is a seven item questionnaire looking at skills, use and practicing as a wheelchair user. It asks questions in six areas and themes:

1. Negotiating environment.
2. Activities in wheelchair.
3. Knowledge and problem solving.
4. Advocacy.
5. Managing social situations.
6. Managing emotions.

There are different versions of Wheelcon for different wheelchair users – manual, powered etc., adult and paeds. There is a long version, 64 questions, and a short version of 21 questions.

For example, with the physical environment theme it looks at how users manage their wheelchair in small spaces, a ramp, short grass, and looks at tasks like transfers, meal preparation, folding and unfolding. The problem solving section looks at how users might mend their chair. Advocacy is aimed at whether users can get changes made within the community. Social strategies and beliefs and emotions address things like anxiety and nervousness of being beyond the home.

This outcome measure correlates with the Bartel Index and the Hospital Anxiety and Depression Score. The short form scores 1 to 10 with two sub-scales and the long form scores 1 to 100. Everyone has free access to this Wheelcon questionnaire and it has been developed by Dr Millar.

Wheelchair training is about self-efficacy is self-confidence in skills, a self-belief.

EPIC wheels programme is designed for older adults. It is delivered at home, a home programme. A device sits on the lap as the user practices the individual moves. It is recommended that new users practice once to twice a day, three to five times a week. In all there should be 600 minutes of training, 10 hours. The trainer can monitor through the programme whether users are actually practicing the programme.

Individuals are set up to meet their skill goals. Some basic achievable tasks and then some more challenging tasks. Older adult models are used in the visual programme so that they can believe they can do it themselves. Verbal encouragement from family members is really important and a good relationship with their trainer. Incorporate a care-giver and give them some training also.

Skill mastery barriers are things like emotional and psychological activities such as fear. You need to manage safety, expectations, feedback, exertion level and fun. All ideas to get anyone engaged with the programme. Provide own wheelchair early and not at the end of their stay. Success breeds success, so give successful experiences.
The training programmes are called WheelSe or WheelSe-U.

My contribution to congress

I presented the instructional course alongside Helen Scott, physiotherapist and prosthetist David Morrison, who both work for NHS Scotland at Glasgow Limb Centre.

The session was entitled 'Gait training requirements for the trans-femoral amputee: prosthetic knee considerations'. Helen examined normal gait and how to train people to use mechanical free knee prostheses, and David compared the features and characteristics of different types of prosthetic knees. I examined the impact of prosthetic use on people's normal motor skills and how to teach someone to use a microprocessor controlled knee.

My poster was a case study about the rehabilitation journey of a young gentleman with bilateral transfemoral amputations following a road traffic accident.

Carolyn Hirons www.pacerehab.com (on right) - with thanks to BACPAR for the travel bursary award which helped to fund this trip. I had additional financial support from Ossur UK, Private Physiotherapy Educational Fund and the International Society of Prosthetics and Orthotics UK.

PIRPAG MEETING HAROLD WOOD REGIONAL LIMB CENTRE 28/09/17

Hayley Freeman
Senior Physiotherapist at Gillingham DSC

PIRPAG decided to still meet up, despite IRPAG being cancelled, to allow some Peer Review/Clinical Supervision. It was decided amongst ourselves that we would all benefit from a session discussing our MPK pathways and how it is implicating our practice.

The agenda was to discuss:

1. Outcome Measures.
a. What ones are used.
b. Techniques for each.
2. MPK Pathway Approach.
a. What pathway each Centre follows.
b. MDT input at various stages.
c. Physiotherapy input at various stages.
3. Case Studies from each Centre.

There was at least 1 representative from Gillingham, Brighton, Harold Wood, Bowley Close, Stanmore and Roehampton Regional Limb Centres.

We quickly realised, comparing Centres, that each of us use a slightly different approach to OM's. All centres were using the advised Core OM's but the timed walks varied between 6 and 2minutes, completed indoors and/or outdoors. The additional OM's being used varied between centres but we discussed heart rate monitoring and video footage in some more detail. It was also realised that the Initial OM's were being completed at various stages of the pathway by different members of the MDT. We all took different things away from this discussion, myself, realised at Gillingham we need to use video footage more as a form of comparison for stairs, slopes and gait pattern.

Again, each Centre had a different pathway from how patients were selected to MDT approach of completing the paperwork to how many/often physio sessions were offered. We all shared what paperwork/system's each Centre was using which was useful. Although we all followed a slightly different pathway, ultimately the end result was the same, yet we did all take away some useful ideas/changes that we could implement in our own Centres.

We all shared some of our own MPK patient experiences and difficulties where we were all able to help problem solve and respond to in a constructive way, especially with complex patient's.

It was unanimously agreed that today's session was beneficial for all and we all gained some additional information/ideas to implement in our own Centres.

Peer Support at its best!

CLINICAL GUIDELINES FOR PRE AND POST-OPERATIVE PHYSIOTHERAPY MANAGEMENT OF ADULTS WITH LOWER LIMB AMPUTATIONS – 2ND EDITION

WHAT'S DIFFERENT AND WAS IT A "NICE" EXPERIENCE!?

Sara Smith
Guidelines Co-ordinator

In 2012, following BACPARs AGM, the decision was taken to update the first edition of the Clinical guidelines for pre and post-operative physiotherapy for adult lower limb amputees (2006). As guidelines co-ordinator, I sent out an invite to BACPAR members to ask for volunteers to help with the updating process. I had an excellent response and in early January 2013 the first Update group met to start the process. The group consisted of a mixture of clinicians working in the acute setting, those who had been involved in the last guideline and those in the recent update of the prosthetic guidelines. Initially there were 16 in the group who were all part of the early review of articles and updating of the evidence, but due to work and other commitments, 4 needed to finish their contributions and 12 continued with the updating process.

The Process

This followed the same pathway as the update of the BACPAR prosthetic guidelines completed the previous year.

This involved considering the following to see if they were still valid and if any changes were required

- Was an update required at all – was there any more evidence to support an update
- Aims and objectives of guidelines
- The scope of the guidelines
- The Clinical question
- Methodology of Literature search
  - Inclusion and exclusion criteria
  - Search databases
  - Key words
  - Article selection
  - Critical appraisal using CASP
  - Classification of included articles
- Updating the recommendations with any new evidence
- Consensus process – Delphi
- Use of audit tool
- Internal and external feedback from peers and stakeholders
- Plans for ongoing review and further updates
- Health benefits, side effects and risks of guidelines
- Dissemination and Implementation processes
- Barriers to implementation

All the past guidelines developed by BACPAR had been endorsed by the CSP, but this was no longer the CSPs practice and I was advised to contact NICE and apply for their accreditation of our process. There were several mandatory criteria which were stipulated by NICE to achieve their accreditation, which were in addition to the previous process.

New processes

1. Patient inclusion in the guideline update group, and throughout the process of updating the guidelines.

To achieve this a patient was co-opted onto the guideline update group and supported the work through feedback on the work done and suggestions on how to improve the guidelines from the patients perspective. They were involved in the initial review of the existing guidelines and in the ongoing update and the review of the new updated guidelines, as well as the development of the new Public information leaflet.

2. Patient involvement throughout the process, in reviewing the existing guidelines and in the updated version.

This was achieved by the use of Regional reps who approached their user groups and individual therapists who approached patients to be part of the process.

These patients were initially sent questionnaires asking for feedback on the 1st edition of the guidelines and whether they knew of them and found them useful. From this work and in conjunction with advice from the patient representative on the update group, it was clear that a specific patient information leaflet about the role of physiotherapy following lower limb amputation was required. This was a new development for the guideline process.
Patients were further involved once the recommendations had been updated following the critical appraisal of literature. The same process of identifying patients was used and the updated recommendations were sent to these patients with a questionnaire to complete. Again the feedback from this exercise supported the development of a specific patient information leaflet.

3. Demonstrating lack of bias or conflict of interest

The GUG needed to develop a Conflict of interest policy that would cover not only this set of guidelines, but any future new guidelines or update of existing guidelines. Using the NICE conflict of interest policy, we were able to develop our own policy and all members of the GUG and any stakeholders who were approached in reviewing the guidelines were asked to sign a declaration of interest, to demonstrate no conflict and potential bias.

As part of the application process to NICE, a GAP analysis was completed to ensure we met all 25 of the criteria, and further work was done to provide evidence that the process met these. The application for accreditation was completed in Sept 2016. In Dec 2016 following internal and external review by NICE, 19 of the 25 criteria were judged as "Fully met" and 6 as "partially met". Further evidence was gathered and provided for the accreditation advisory committee to review and make their final decision. Amanda Hancock and myself were invited to attend the accreditation advisory committee meeting in Jan 2017 to answer any clarifying questions.

On Jan 25th 2017 NICE confirmed their accreditation of the process with the new criteria fulfilled –

NICE has accredited the process used by the British Association of Chartered Physiotherapists in Amputee Rehabilitation. Accreditation is valid for 5 years from 10 January 2017 and is applicable to the guideline processes described in 'Clinical guidelines for the pre and post-operative physiotherapy management of adults with lower limb amputations'."

This is a fantastic achievement by the update group and for BACPAR, as it is the first physiotherapy network to have a guideline accredited, and as NICE are no longer going to be accrediting further guidelines, will now be the only PN guideline to achieve this.

So what is new in the updated recommendations?
The guidelines themselves have been separated from the process document, which provides clinicians with all the recommendations and the evidence that supports them in one manageable document.

15 new articles were appraised as either supporting current recommendations or supporting new recommendations. In addition to this, the following 3 BACPAR guidelines and 1 Occupational Therapy evidence based guideline are also referenced as supporting evidence of recommendations:

- Guidance for the prevention of Falls in lower limb amputees
- Risks to the Contra-lateral foot of lower limb amputees: A therapists guide to identification and management
- Guidance for the multi-disciplinary team on the management of post-operative residuum oedema in lower limb amputees
- Occupational Therapy with people who have had lower limb amputations: Evidence based guidelines

Some of the recommendations have the amended sign due to changes in the wording or order within the section. Some have the amended sign but appear unchanged and have no new evidence. This reflects the removal of old and outdated evidence.

The introduction to each of the six sections incorporates the new evidence that relates to the relevant recommendations

Sections 2, 4 and 6 are the areas where new evidence or new guidelines were appraised that supported the existing recommendations or created new recommendations. These outline new evidence since the 2006
Guidelines around Falls, Care of the remaining limb, Phantom pain and Oedema control, many of which we are familiar with but are now incorporated within the pre and post op guideline recommendations.

In addition there is new evidence that supports the seated stair handling method or backward chaining as a method not only for getting up from the floor but for unilateral amputees to use to ascend and descend the stairs.
There is also new evidence supporting the importance of clinicians treating amputees having a good understanding and knowledge of cognitive impairment and its impact on amputee rehabilitation.

The use of "Good Practice Points" has been continued from the prosthetic guideline update, and all points were agreed using the Delphi process. Clinicians can audit their service against these points using the updated audit tools. These have been updated to reflect the changes to the recommendations and arranged to enable clinicians to audit different aspects of their service more efficiently.

The new public information document is available for clinicians to give to amputees and carers to outline the physiotherapists' role following amputation surgery. This will be available on the BACPAR website to download and print.

So what's next?
The exec will be considering the next guidelines to be updated. They will also be considering applying to NICE to consider accrediting the process used for the pre and post-operative guidelines as the process that will be used for all BACPAR guidelines. If successful this would ensure all BACPAR guidelines going forward would carry the NICE accreditation.

I had a fantastic team to work with, whom I would like to acknowledge here:
Amanda Hancock, Amy Jones, Anna Rose, Carla Shaw, Claire Norman, Clare Moloney, Fiona Gillow, Gemma Springate, Hannah Slack, Heather Pursey, Heidi Baker, Lauren Newcombe, Sarah Verity and Tim Randall. We had great support from the Exec and from Karen Clark who worked with Tim on the prosthetic guidelines. I would also like to acknowledge all those BACPAR members who took part in for the Delphi process and the peer review process; you will find your names in the appendices 10 and 15a.

The new guidelines were sent out with the last Journal (Spring 2017) and we hope that they are already being put to use. I am already aware of audits that have been completed using these guidelines around the country which is fantastic to hear about.

We hope the guidelines will continue to provide you with the evidence you need to support your services, and the physiotherapy you deliver to your patients

BACPAR BULLETIN

The following roles are up for election at this year's AGM. Being part of the exec committee is a great opportunity allowing networking on a national scale and the opportunity to shape amputee rehabilitation care and education nationally.

BACPAR would like to say a huge thank you to Kat Atkin for all of her hard work as BACPAR Treasurer who now wishes to step down from after many years of being part of the executive committee in various roles. Amy Tinley's role as BACPAR Secretary is up for re-election after its first term.

Application forms can be found on the BACPAR website, please complete this before the BACPAR Conference and sent to bacpar.secretary@gmail.com.

Below is some information on the roles:

Honorary Treasurer
- Keeps the BACPAR accounts
- Pays all guest speakers, invoices, stationary and travel expenses etc
- Liaise with membership secretary re membership fee payments.
- Organises the annual audit of accounts and presents a report at the annual AGM

Honorary Secretary
- Relays information from CSP to members and from members to CSP
- Acts as a communication link between BACPAR and outside organisations
- Prepares agendas, books rooms, takes minutes at meetings and circulates any relevant information the committee
- Manages bursary applications

CLINICAL GUIDELINES FOR PRE AND POST-OPERATIVE PHYSIOTHERAPY MANAGEMENT OF ADULTS WITH LOWER LIMB AMPUTATIONS

BACPAR WEST MIDLANDS' REGION AUDIT RESULTS 2017

Introduction

In Spring 2017 the BACPAR West Midlands Regional Group (those present at the regional meeting 27th April 2017) agreed to carry out an audit using the tool provided following the publication of the second edition of the Clinical guidelines for the pre and post-operative physiotherapy management of adults with lower limb amputations; Audit and Implementation Guide.

Method

The offer to participate in the audit was shared with WM BACPAR members that did not attend the meeting through an emailed update of the outcome of the meeting disseminated on the 29th April 2017.
The audit had the potential for returns from Vascular Hubs (7) and other amputating hospitals (1), DSC Satellite Clinics (4) and DSCs (3) at which WM BACPAR members were working.

Completed pro forma were returned to the WM Regional Rep (Louise Tisdale) for collation.
After the agreed return date- a further reminder was emailed out to the circulation list.

Results

There were 5 returns; 2 of which had completed Audit Tool 3 only (representing 1 DSC and 1 of their satellite clinics)
3 DSCs (Birmingham, Stoke and Wolverhampton)
2 representing satellite clinics (Shrewsbury and Telford (same clinician) and 1 not identified)

Responses
Audit Tool 1: Service Evaluation

The role of the physiotherapist within the multidisciplinary team adheres to the recommendations of the guidelines.
All 3 returned forms reported yes
There is documented evidence of on-going formal and informal training and CPD in the pre and postoperative management and rehabilitation of adults with lower limb amputations and of reflective practice by the physiotherapist.
All 3 returns reported yes

Written information is available to support routine verbal information.
All 3 returns reported yes

Locally agreed, amputee-specific outcome measures are utilised, within agreed timeframes, by the physiotherapy team.
All 3 returns reported yes

The physiotherapy team has established links with their local podiatry/chiropody services.
All 3 returns reported yes

Physiotherapists can refer patients to a specialist multi-disciplinary team, including a diabetic specialist, podiatrist and foot care specialist as appropriate.
All 3 returns reported yes

Local protocols and competencies exist to cover specific treatment modalities and ensure that the physiotherapy team is working within appropriate scope of practice, or appropriate supervision is available.
1 return was N/A as they are a lone working Physiotherapist without PTA
2 returns indicated that they were reviewing or in the process of reviewing competencies for Therapy Assistant staff they worked with.

Audit Tool 2: Achievement of Good Practice Points (GPPs)

GPP 1: The MDT agrees its approach to rehabilitation.
All 3 responses were yes

GPP 2: Roles and responsibilities are agreed within the MDT. (GPP)
All 3 responses were yes

GPP 3: Patient and public involvement should underpin service delivery and development.
1 respondent reported the use of Friends and Family questionnaires
1 respondent reported consultation through user experience surveys and discussion with Peer volunteers
1 respondent reported that there was no formal patient involvement at present

GPP 4: Establish channels of communication between: •The MDT •Stakeholders •Commissioners •Professional networks
3 responses yes- NB all 3 amputee rehab services in the WM are commissioned by the same service.

GPP 5: Education, audit and research should be undertaken on a regular basis by the MDT.
All 3 respondents are involved in audit and education but not directly undertaking research though have participated in research projects through the BACPAR research team.

GPP 6: Documented pathways of care should be used. Pathways of care indicated in use.
1 respondent used a care pathway in 1 service they were associated with but not the other.

GPP 7: Contact details of MDT members should be readily available to the patient and carers.
Clinic cards were in use in 1 service – provided to the patient as an IP
Indicated that a card of contact information would be developed for another service

GPP 8: Access to other stakeholder agencies should be understood and agreed to facilitate discharge planning and transfer of care, e.g. Intermediate Care Teams, Social Services, etc.
All respondents were working in OP settings but are aware of the need for the above which may be accessed by the OP team once the patient has been discharged home.

GPP 9: A summary of the patient's treatment and status at transfer or discharge should be documented in the patient's record, with details of future management plan, e.g. details of package of care, community therapy, prosthetic referral.
1 respondent stated that a discharge record was not used and that they would develop an appropriate pro forma.
The other 2 respondents reported that there was a process for receiving discharge information.

Section 2

GPP 1: There should be opportunities for CPD and lifelong learning.
All 3 respondents reported yes

Section 3

GPP 1: A locally agreed amputee-specific physiotherapy assessment tool should be used.
All 3 respondents reported yes

GPP 2: Names and contact details of the MDT members involved in the patient's care should be recorded to facilitate communication.
Again reference to a clinic card onto which this information is recorded depending on where they will be followed up.
Also documented in the service's patient information.

GPP 3: The principles of the Single Assessment Process (SAP) should be considered to improve MDT communication.

A care bundle is in use in 1 of the services. Which is utilised in the DSC and its satellite clinics.
It was indicated that for the other service an MDT shared approach to documentation would be discussed.

Section 4

GPP 1: Names and contact details of the MDT members involved in the patient's care should be given to patients and carers.
Information is provided in all responses.

GPP 2: Information leaflets/booklets should be developed locally for patients and carers to supplement information given verbally.
1 respondent reported use of a Booklet for all patients referred to its service.
1 respondent indicated that they were in the process of developing a booklet for use by it's service and it's satellite clinics.

GPP 3: Physiotherapists should be aware of the BACPAR guidance entitled "Risks to the contra-lateral foot of unilateral lower limb amputees" and "Guidance for the multi-disciplinary team on the management of postoperative residuum oedema in lower limb amputees".
All respondents were aware

Section 5

GPP 1: The physiotherapist should be involved with the MDT decision to proceed with amputation and level selection. Where this is not possible, a procedure for prompt referral to physiotherapy following decision to amputate should be developed.
MDT amputation level decision making was indicated as involving the Physiotherapist by 1 respondent – where and when appropriate
1 respondent had developed a pre amputation referral pathway
The 3rd respondent stated that whilst they were not involved in decisions re amputation a procedure for prompt referral was in place.

Section 6

GPP 1: Information leaflets/booklets should be developed locally for patients and carers to supplement information given verbally.
1 service had a routinely used information booklet, 1 service was developing the same.

GPP 2: Information on self-management/home exercise following discharge should be provided to the patient.
All 3 respondents were OP services- the provision of exercises as an IP was checked in all cases when the patient attended as an OP and exercise sheets provided if necessary. The patient information booklet available for 1 service is provided to the patients as inpatients in the majority of cases.

GPP 3: Patients requiring ongoing outpatient treatment should have this arranged prior to discharge.
Processes are in place in the case of all 3 respondents to promptly arrange OP Physiotherapy once the patient has been discharged.

GPP 4: A summary of the patient's treatment and status at transfer should be sent to the physiotherapist providing on-going treatment.
1 service was planning to develop a handover document as there was no formal handover at present.
The other respondents reported that they were in receipt of an appropriate summary from the discharging IP team.

GPP 5: Contact names, telephone numbers and addresses of relevant MDT members should be supplied to patients prior to discharge.

The clinic card /patient information booklet provided which gave this detail to the patient.
The other service that responded reported that this information will be in the information booklet that they are developing.
The third respondent stated that they would develop an information card for their inpatients.

GPP 6: Physiotherapists should be aware of the BACPAR guidance entitled "Guidance for falls prevention in lower limb amputees" and "Guidance for the multi-disciplinary team on the management of post-operative residuum oedema in lower limb amputees".
All 3 respondents reported Yes

GPP 7: Physiotherapists should be aware of the well-established PIRPAG exercise program.
All 3 respondents were aware of the PIRPAG exercises; 1 of whom used a locally developed exercise sheet.

GPP 8: Physiotherapists should consider the option of ascending and descending the stairs using a seated method.
All 3 respondents reported that it was considered when appropriate.

GPP 9: Physiotherapists should be aware of other relevant guidelines including AGILE and the OT guidelines.
2 respondents stated that they were aware of these guidelines.

These guidelines are available on or from the BACPAR website as follows; http://bacpar.csp.org.uk/publications/agileacpicr-publications-free-access-non-members
http://bacpar.csp.org.uk/publications/occupational-therapy-people-who-have-lower-limb-amputations

Audit Tool 3: Audit of Patient Notes (5 sets of notes were reviewed by each of the 5 respondents)

There is documented evidence of:
- *A full physical examination and assessment of previous and present function.*
- *The patient's social situation, psychological status, goals and expectations.*
- *Relevant pathology including diabetes, previous arterial reconstruction, impaired cognition and skin condition.*
- *A problem list and treatment plan, including agreed goals, formulated in partnership with the patient.*

All 5 respondents responded as yes.

There is documented evidence of:
- *Information provided to the patient about the expected stages and location of the rehabilitation programme suited to their individual circumstances.*
- *Information provided to the carers, with the patient's consent, about the expected stages and location of the rehabilitation programme suited to the patient's individual circumstances.*
- *The physiotherapist offering patients the opportunity to meet other adults with lower limb amputations, if appropriate.*
- *Where appropriate, and with the patient's consent, the physiotherapist offering carers the opportunity to meet other adults with lower limb amputations.*
- *The physiotherapist providing information about the prosthetic process if the patient was likely to be referred for a prosthesis.*
- *The physiotherapist offering to show demonstration limbs if the patient was likely to be referred for a prosthesis.*

There were reported gaps/inconsistencies in the documentation from all respondents re offering patients the opportunity to meet other adults with lower limb amputations
Offering carers the opportunity to meet other adults with lower limb amputations

Offering to show demonstration limbs if the patient was likely to be referred for a prosthesis

The practice was carried out but not routinely documented. It was not an element in the care bundle of the service that has a Care Bundle in place.

There is evidence of written information provided to supplement verbal information.
There was a report that not all verbal information is supported by written information.

There is evidence of appropriate goal setting, including:
- *Patients/carers have been made aware of any concurrent pathologies or previous mobility issues that may affect the outcomes of rehabilitation*
- *Patients/carers have been made aware that the level of amputation may affect the level of function and mobility. Patients/carers have been made aware that they may experience lower levels of function than bipedal subjects.*

There was a mixed response to this statement. Goal setting is carried out in all cases. The evidence of the

discussion that alerts patients and carers to factors that affect outcomes of rehabilitation, may be documented at the end of the MDT Primary appointment or within the Physiotherapy record. There are some statements that support these discussions in the Patient information booklets that are provided.

There is evidence of appropriate outcome measures used for rehabilitation goals.
The majority of patient records reviewed had evidence of outcome measures in use.

There is evidence that goal setting considers the impact of cognitive impairment.
This was not implicit in the records reviewed unless the cognitive impairment was going to affect the rehab outcomes.

There is written evidence that:
- *Vascular and diabetic patients and their carers have been made aware of the risks to their remaining foot and educated in how they can reduce them.*
- *The patient/carer has been taught how to monitor the condition of the remaining limb.*

The written evidence that this has been carried out was inconsistent. There was some areas of good practice that demonstrated that this information had been provided.

There is written evidence that:
- *Advice has been given to the patient/carer on the factors affecting wound healing. Advice has been given to the patient/carer on the use of compression socks. •Instruction has been given to the patient/carer on methods to prevent and treat adhesions of scars.*
- *The physiotherapist is giving on-going advice about residual limb care, as appropriate.*

There was evidence that the Patient Information booklets, where in use, gave general information regarding the above areas. The provision of this information to the patient is documented. Additional patient information re the use and care of compression socks is provided when these are issued and this is documented.

There is written evidence of:
- *A pre-operative physiotherapy assessment or appropriate documentation if not possible. Rehabilitation/discharge commenced preoperatively.*
- *If appropriate and possible the patient was instructed in wheelchair use pre-operatively.*
- *A structured exercise regime commenced at an appropriate time.*
- *Bed mobility and transfers taught preoperatively.*
- *Assessment for physiotherapy respiratory care, if indicated.*
- *Appropriate physiotherapy respiratory treatment given if indicated.*
- *Pain control optimisation prior to physiotherapy treatment pre-operatively.*
- *If appropriate, and with the patient's consent, carers were involved in pre-operative treatment and exercise programmes.*

Where a pre amputation assessment had been carried out by the Outpatient team this was documented in the patient's record. The items listed had been addressed as appropriate.

There is written evidence that:
- *Physiotherapy assessment and rehabilitation commenced on the first day post-operatively.*
- *Pain was considered and adequately controlled prior to every treatment.*
- *Respiratory care was given if appropriate. •Assessments informed the MDT regarding interventions and discharge planning.*

The respondents to the audit were outpatient Physios and were therefore not able to respond to this statement from the records that were being reviewed. It was commented however that the patients at 1 surgical site would not be seen outside of respiratory care if Day 1 post op was a weekend.

There is evidence that the physiotherapist was involved in home visits where necessary.
The respondents to the audit were outpatient Physios and were therefore not able to respond to this statement from the records that they were reviewing. It was commented however Physiotherapists may not be involved in Home Visits (Access Visits) as they were carried out by OTs and OT assistant practitioners.

There is evidence that a compression sock was supplied for reducing limb volume, in an appropriate and timely manner.
The provision of a compression sock was documented if provided in the Outpatient setting within the records that were being reviewed.

There is written evidence that:
- *Bed mobility was taught on the first day postoperatively. Sitting balance was re-educated if needed.*
- *Standing balance was re-educated if needed.*
- *Safe transfers should be taught as early as possible. Mobility post-operatively was in a wheelchair unless specified reasons were documented to teach a patient to use crutches/zimmer frame/ rollator.*

As stated previously, the records reviewed were largely outpatient records. Therefore most responses were non-applicable. Where relevant items specified had been reviewed and documented as such in the outpatient records.

There is evidence that the potential maximum post-operative mobility has been considered.
There is documentation of predicted mobility grades following assessment in all cases. But in terms of the early post op period the records did not provide this information – NA

There is evidence that EWAs have been considered as part of the rehabilitation programme for all lower limb amputation patients as both an assessment and treatment tool.
Where appropriate there was evidence of EWA use.

There is evidence that:
- *The patient, carers and the multi-disciplinary team have been made aware that the risk of falling is increased following lower limb amputation.*
- *Rehabilitation programmes included education on preventing falls.*
- *Patients and carers have been given instructions on how to get up from the floor in the event of the patient falling.*
- *Advice was given in the event that the patient is unable to rise from the floor.*

In 1 response it was fedback that it would be checked re what level of information is provided in the IP stage to those who are not likely to be in receipt of a prosthesis.
Where patient information booklets are provided they give information about the stipulated items. And the provision of this information is documented in the record.

There is evidence that the patient was provided with a wheelchair and appropriate accessories to include residual limb support (as appropriate) footplates, anti-tips and appropriate pressure management devices, and was taught how to safely use the wheelchair, including all accessories.
The request for a wheelchair is made in most cases by the inpatient services in the region. These may be provided when the patient is an IP. When the wheelchair is provided when the patient is an OP there was evidence that this had been documented in the Physiotherapy record. The safe use of the wheelchair had been taught whilst the patient was an IP in most cases.

There is evidence of contracture management through:
- *Education of appropriate positioning.*
- *Education of stretching exercises.*
- *Appropriate treatment plans where formed.*

There is evidence that range of motion exercises are advised (per the PIRPAG sheets and other local exercise sheet). Advice given is not specifically documented as contracture avoidance unless there is evidence of a reduction in muscle length when the reduction in range of motion is documented and appropriate exercises prescribed and reviewed. Respondents stated that this was being carried out.

There is evidence that following on from the initial assessment, an exercise program was provided to address the problems identified, was relevant to the patient's goals,
It was suggested by 1 respondent that there is a need to ensure clearer documentation that exercises are reviewed and progressed as appropriate. Other respondents reported that there was evidence that this was being done.

There is evidence that:
- *The patient was made aware they may experience phantom limb sensation or pain post-operatively. Information and treatment regarding phantom limb sensation and pain was given as appropriate.*
- *Techniques for the self-management of phantom sensation and/or pain was taught as appropriate. Appropriate information and treatment was given for residual limb pain.*

A mixed response to this statement. Where provided Patient Information booklets do include information re PLP/PLS and RLP and the provision of these booklets is documented. Where appropriate treatment techniques had been documented as discussed/taught.

Audit Tool 4: Audit Action Plan

The West Midlands BACPAR membership will receive a draft copy of this report and will be given the opportunity to offer actions to address issues raised.

The next WM BACPAR region meeting is on the 19th October – the audit results will be discussed at this point. There may be some merit in developing a single checklist for the patient record that makes it clear that information/ opportunities have been provided to patients and carers as appropriate.

Respondents have indicated that they have already commenced work in the development of patient information where it is lacking.

Information cards to give to patients as inpatients are being developed in one setting and in place in another.
Handover document is being developed in the absence of discharge summaries.

Respondents have indicated that they have already considered the development of Physiotherapy assistant competencies – there may be some available regionally or nationally to share (iCSP Amputee Rehabilitation)

Individuals who are using Care Bundles will review the same to see where an update is required for the next review.
The BACPAR 2017 conference presentation by Sara Smith will share others' audit feedback – learning can be gained here.

With permission of the group (at the October meeting) I will share the updated audit report with Sara Smith in advance of the conference for her reference in her presentation
And with permission of the group following it's initial circulation for comments - submit this report with any additions from the group – to the BACPAR Journal.

2017 BACPAR / AGILE COLLABORATION

PHYSIOTHERAPISTS WORKING WITH OLDER PEOPLE TO CREATE MANAGING THE OLDER PERSON AMPUTEE STUDY DAYS

Claire Betts AGILE

Each year AGILE chooses a theme and then collaborating with the relevant experts creates a study day which it then runs in each of its 5 UK regions. For 2017, Amputee Management is the focus and we've been very grateful to Julia Earle who since early 2016 has been working closely with AGILE both in setting up, and leading these days with BACPAR colleagues in venues as diverse as Dundee, Belfast & Doncaster.

As the Secretary of AGILE East region I was offered the chance to do the administration for our study day on 9th July at the Lambeth Amputee Rehabilitation with the reward of a free place! The opportunity to update my amputee knowledge was very welcome as I only see a couple of amputees each year in my community hospital rehab ward but the complexities they face makes them very memorable patients and I often rely on more experienced local colleagues for advice and patient review.

Throughout, it has been a delight to work with Julia Earle and Amy Jones who led our Study Day . Amy sorted out all the practical issues with Jodie Georgiou at Lambeth from door codes to arranging for patient demonstrations. Julia kept in regular touch re the study day and sent a mountain of Dropbox information which I sent out ahead to attendees- this was the most comprehensive course information I've ever received. Information covered everything from measuring for Juzo socks to final level rehab exercise , some of which I've poached for my non amputee patients such as balance hedgehogs.

As July 9th dawned my getting lost coming out of Lambeth North station whilst lugging a suitcase carrying lunches & the all important biscuits for 24 people made driving look a better option! Meanwhile Julia & Amy had already put up signs & set up the room (needless to say, they helped me tidy up at the end of the day too) and were diligently printing off copies of their presentation for those who hadn't mastered Dropbox. From the word go, their warmth and gentle humour created a very relaxed atmosphere which made us comfortable to ask the most basic questions. They were a great double act

and their candour was much appreciated. As well as giving up their sunny Sunday, they couldn't have done more to help our understanding of amputee management with a course structure blending presentations, group work and observing two patients with very different histories talking about their rehab and demonstrating their mobility and on/off floor skills.

I now have a very clear idea of what I need to be aware of before referring a patient on for a prosthesis and for the first and probably the last time seen what a femurett looks like. I wish I'd had all the knowledge on the contra lateral foot for one particular patient I saw last year but I'm now well prepared. Learning about the disorientating effects of phantom limb sensation and telescoping pain and its implications for gait and falls as well as the effect of amputation on the sensory homunculus was very enlightening. Understanding the multiplicity of causes of, and treatments for phantom limb pain was also very valuable and learning ulcers never heal but are " just in remission" was a salutary point too.

Aside from a wide ranging update on amputee management, Julia tailored the day to thoroughly address adjustments for older amputees such as prosthetic alterations and walk aid choice both in the acute and established stage. Clinical reasoning for prosthesis consideration was thoroughly explored with a strong emphasis on quality of life. As with any older patient the emphasis on enabling standing for transfers, function and medical benefits through prosthesis use even if walking is not feasible was valuable. It was also good to hear the power of our positivity and enthusiasm in helping amputees to come to terms with both their disability and to enable them to progress their rehab. The issues of delirium and the need for patients to increasingly take control of, and responsibility for their rehab were timely reminders . Clearly befriending and buddy systems through BLESMA and SAFFA offer immense support for many amputees.

The course evaluation was resoundingly positive and rightly so, the only area attendees would have liked more time for was case study discussion but again Julia had supplied us with some good examples so we at least had some homework to do. Ultimately a course being " excellent, better than expected" has to be a great accolade but everyone expressed their gratitude- " very nice facilitators" and information was" very relevant, clear & accessible" and "nothing was too much trouble" "very practical & real world orientated", "even beyond my expectations"," very good info & teaching", "they were amazing", "best course I've attended", "practical session was invaluable" , " very informative & enjoyable ", "excellent day with good practical tips", "fantastic day" "fab facilitators", " both inspirational & charming", "so excited about amputee rehab & far more confident".

The most valuable lesson is that we utilise the immense expertise of our BACPAR colleagues to ensure we can provide the highest quality of service to these immensely complex patients and not to be afraid to seek advice. If Julia & Amy are anything to go by it will be a thoroughly enjoyable and illuminating experience.

Upper limb amputee in-patient rehabilitation in a specialist centre

Sophie Cook Band 7 Occupational Therapist (sophie.cook@gstt.nhs.uk) & Joanne Barnes Band 7 Physiotherapist (joanne.barnes@gstt.nhs.uk)
Guy's and St Thomas' NHS Foundation Trust, Adult Community Services, Amputee Rehabilitation Unit

Guy's and St Thomas' NHS
NHS Foundation Trust

Background - Historically the Amputee Rehabilitation Unit (ARU) admitted patients primarily with lower limb amputations. Whilst in an acute hospital, patient M, a mobile young trans-radial amputee was highlighted to the service. On review, patient M had severe and uncontrolled phantom pain (VAS 7/10), psychological symptoms, complete disengagement with stump and dependent for daily tasks (Barthel 17/20). The acute hospital plan was to be discharged home with a three times a day care package. However, there was a clinical justification for ARU admission for pain control, counselling input and to increase functional independence. This poster demonstrates the MDT intervention and consequential benefits of a short stay in-patient rehabilitation for appropriate unilateral upper limb amputees.

Patient M: Multidisciplinary Team intervention

Physiotherapy
- Global strengthening
- Exercise tolerance
- Weight bearing activities
- Gym/swimming
- Wound management
- Oedema management

Psychological
- Counselling
- Anxiety management
- Body image adjustment

Occupational Therapy
- Personal care tasks
- One handed techniques
- Upper limb devices
- Home visit
- Community access
- Joint session with prosthetist & prosthetic OT

Pain Control
- Analgesia
- Acupuncture
- Desensitisation
- Graded Motor Imagery

D/C Planning
- Benefits advice
- Motability/DVLA
- Re-housing support
- Return to work advice
- Appointments booked for prosthetic Ax at limb centre

Summary – Following a 4 week admission utilising a holistic approach, patient M was discharged home independently managing all daily tasks (Barthel 20/20) and reintegrated with social and leisure activities with confidence. Patient M reported reduced phantom and stump pain (VAS 1/10) and improved mood. He was discharged receiving all appropriate benefits and work advice which greatly reduced his anxiety about his future.

Conclusion - Admission to the ARU for unilateral upper limb patients is appropriate and can be successful if a clinical need demonstrated. Patients self reported quality of life greatly improved following short inpatient rehab compared to discharge plan from acute setting. Flexibility with length of stay at ARU allowed for shorter admission time compared to lower limb amputees ensuring cost effectiveness. As a result, the ARU therapy team were up-skilled in upper limb amputee rehabilitation and communication made to referring hospitals regarding considering this patient group for future referrals.

References – Mahoney FI, Barthel DW (1965). Functional Evaluation: The Barthel Index. *Md State Med J,* 14: 61-65

BACPAR

BACPAR 2017 Annual National Conference
16th & 17th November
Wolverhampton Science Park

CONFERENCE PROGRAMME

Thursday 16th November	
09.00	Registration
09.15	Welcome
09.20	Sepsis and Rehabilitation Dr Gill Malcolm
09.50	Sepsis Patient experience
10.05	Health Literacy in vascular surgery patients. Matt Fuller
	Survey of Higher Mobility Grade Patients with Knee Disarticulation in Limb Centre's in the South East of England Julia Earle
	One year follow up of transfemoral amputees fitted with a prosthesis - 2 centre pilot Louise Whitehead
10.30	COFFEE
11.00	Microprocessor knees: Progress so Far!
	Carolyn Hirons Catriona Mawdsley Nikki Porteous
12.30	LUNCH (Regional Rep networking opportunity)
13.30	PRACTICAL SESSIONS PLEASE COME SUITABLY DRESSED TO FULLY PARTAKE IN THESE SESSIONS AND BRING A TOWEL TO LIE ON.
	Yoga Kim Ryder
	Strength and Balance Simon Hanna
	Pilates Grace Ferguson
	Falls Kate Lancaster
15.00	Coffee
15.30	PRACTICAL SESSIONS (Continued)
	Yoga Kim Ryder / Strength and Balance Simon Hanna / Pilates Grace Ferguson / Falls Kate Lancaster
17.00	Research Drop In Session- Fiona Davie Smith and Chantel Ostler Marston Room
	CLOSE

Optional Evening out at the Island House

Friday 17th November	
08.45	Registration for AGM
09.00	AGM
09.45	Current Advances in Vascular Surgery. Mr A. Garnham
10.30	Guidelines Sara Smith
10.45	Coffee
11.15	Management of Frostbite Professor C Imray
12:00	Wheelchairs and the amputee Meg Bodycoat (clinical lead manager wheelchair services)
12.45	Lunch
	Paediatric afternoon
13.30	Paediatric Amputation Mr Gaffey
14.15	Children and limb deficiency Andrew Sharpe Prosthetist
14.45	Comfort Break!
14.55	Guidelines Jane Sellar
15.10	Not Just Small Adults: Prosthetic rehabilitation and management of child amputees Jennifer Fulton
15.55	Questions
16.00	Close

WHY ARE RIGID DRESSINGS NOT USED UNIVERSALLY?

Introduction
The fundamental goals of post-operative dressings are to improve wound healing and control pain through the provision of a sterile healing environment (Smith et al 2004). Following a trans-tibial amputation (TTA) there is no agreed best practice guidance for managing the wound (Nawijn et al 2005). There are several choices. Soft adhesive dressings are commonly used in conjunction with a compression sock or elastic bandage when the wound has been assessed as stable. Otherwise a rigid dressing (RD) can be placed over the wound. RDs vary in their type but form a rigid compartment over the residual limb. It is difficult to ascertain the exact amount of use of RDs in practice. A survey of Veteran Affairs hospitals in North America found that standard dressings (SD) were used 67% of the time and various RDs for the remainder (Choudhury et al 2001).

There have been studies on RDs with multiple positive benefits, but the literature quality is poor and the results do not universally agree on what benefit it provides. A definitive answer as to which dressing is most efficacious has still not yet been found (Taylor et al 2008).

Post-operative Management
The postoperative management of the residual limb after a TTA can be challenging (Ladenheim et al 2007) and this is a crucial time for the patient. Pain, oedema, healing and mobility are all essential components in the successful rehabilitation of the amputee (Ladenheim et al 2007). Due to improved surgical techniques and prosthetic advances, as many as 80% of trans-tibial amputees with a healed residual limb should be able to ambulate (Tang et al 2008), but rehabilitation becomes more difficult, more costly and less successful the longer it is delayed after surgery (Custon et al 1994, Johannesson et al 2008). It is therefore imperative that the correct dressings are used to promote healing and ensure maximum function as quickly as possible.

What are the Possible Benefits of RDs?
The evidence suggests that RDs can confer many advantages over SDs, see table one.

Table One: Benefits of RDs, according to literature from the last 20 years

Benefit	Notes	Evidence to Support	Inconclusive Evidence
Prevent Knee Flexion	If RD is taken above the knee then this will help prevention development of knee flexion contracture as the patient will be unable to flex the knee against the rigid surface	No studies examined this outcome specifically. Discussed as an advantage in: Choudhury et al (2001) Smith et al (2003) Woodburn et al (2004) Deutsch et al (2005) Van Velven et al (2005) Ladenheim et al (2007) Sumpio et al (2013)	Was not used as an outcome in the literature
Improved Healing Times	Different studies have used different end points for healing time	Hughes et al (1998) Vigier et al (1999) Smith et al (2003) Nawijn et al (2005) Taylor et al (2008) Hordacre et al (2013) Sumpio et al (2013) Churilov et al (2014)	Deutsch et al (2005)
Reduced length of Stay	Discharge from acute hospital	Hughes et al (1998) Vigier et al (1999) Taylor et al (2008) Hordacre et al (2013) Churliov et al (2014)	Deutsch et al (2005)
Initial prosthetic casting	Measured as time for first definitive socket	Schon et al (2002) Van Velzen et al (2005) Ladenheim et al (2007) Taylor et al (2008) Hordacre et al (2013) Sumpio et al (2013)	Deutsch et al (2005) Woodburn et al (2004)
Decreased Trauma	No damage to residual limb after fall	Hughes et al (1998) Schon et al (2002) Deutsch et al (2005) Goldberg (2006) Sumpio et al (2013)	Nil
Reduced Swelling	Circumference measurement	Smith et al (2003) Nawijn et al (2005) Bouch et al (2012)	Deutsch et al (2005)

This table shows results but does not comment on the strength of these. The table demonstrates that preventing knee flexion and reducing trauma had no inconclusive evidence and therefore a benefit of the RD. Reduced trauma to the wound was not studied by as many papers but had good outcomes in the ones that did. Having a fall and re-opening a wound is potentially another life changing incident for the patient. They will suffer an increase in pain, probably a longer

stay in hospital and in the worst case may need further surgery and/or potentially revision to higher amputation level. This happened to two of the six patients that fell with SDs in the Deutsch et al (2005) study. Revision to a higher level is a significant functional loss to the patient. The success rate of walking at knee disarticulation or trans-femoral level is much less than at TT level (Fletcher et al 2001). The other outcomes were widely studied with predominantly positive results. Improved healing and reduced oedema links to quicker prosthetic casting times and gives the patient a better chance of walking, improving their quality of life and function (Johannesson et al 2008). Reduced length of stay (LOS) is another important factor for the patient and healthcare services. The patient will be eager to return home and the healthcare service keen to facilitate discharge.

In general most of the inconclusive evidence was showing a trend that the RDs improved outcome but did not achieve statistical significance. This mainly related to sample size. Woodburn et al (2004) found quicker time to cast but did not have the resources to continue the study until sample size was achieved. Deutsch et al (2005) was finding that wound healing was so improved in the RD group they did not feel it was ethical to continue to withhold RDs from patients to achieve appropriate sample size. In summary there are multiple possible benefits of using a RD over a SD and in all the literature found SDs were never more beneficial than a RD in any measure.

Literature Quality

One of the reasons that no consensus has been reached on RDs use is the poor literature quality and different methodologies used makes gathering the evidence difficult (Nawijin et al 2005, Churilov et al 2014). There have been only two RCTs attempted to compare SDs and RDs and both of these have limitations in their methodology. There is also no universally accepted way of completing a RD and only two studies had a similar protocol (Deutsch et al 2005 and Taylor et al 2008). It may not matter how the RD is made as long as it is rigid though. Johannesson et al (2008) compared two different types that performed similarly. More studies need to be completed to determine this with confidence. The majority of the literature used prosthetic cast and length of stay for the study outcomes. The difficult with these outcomes is that they have many confounding factors and the research struggled to achieve sample size to minimise bias.

Reflection of Practice in Royal Bournemouth Hospital (RBH)

Practice at RBH used to involve the application of soft dressings in theatre covered by a light bandage post TTA. If there were no indications of non-union or infection then a compression sock would be applied around day five post-operation. Patients would be discharged home or transferred to a rehabilitation hospital when medically fit. Unfortunately there were several patient falls over a short period. This resulted in revision surgery for one patient and a significant increased LOS for another. This made us consider our patient pathway. We decided to implement a falls prevention programme but realised it will always be difficult to prevent amputees falling (Gooday and Hunter 2004) and therefore needed another strategy to minimise harm. Reflecting on the oedema guidelines (Bouch et al 2012) a search of the RD literature was undertaken. Despite there being no definitive guideline of best practice for the application of RDs, there was enough evidence to suggest a trial of them, especially as there were very little contraindications for them or problems with their use. A protocol was discussed within the MDT and design considerations suggested. The orthopeadic technicians were asked if they could devise a rigid, lightweight cast that went above the knee, was easily removable and had reinforcement distally. This was applied as soon as any drains and local pain killing infusions were removed from the residual limb. We then assessed this RD over the next six months and compared it to the previous six months with the SD. We assessed if it prevented trauma to the wound and if it had an effect on LOS and time to cast for prosthesis. During the trial we had three patient falls but no damage to the residual limb. Both other measures improved: LOS reduced from 10 days to 7 days (only patients returning home included) and time to casting for prosthesis 112 days reduced to 70. The difficulty we had in proving the efficacy for the RD is similar to the studies already discussed; our numbers were small, it was not a RCT and there were many other confounding factors that effect the outcomes of wound healing and LOS. In addition we asked the patients how they found wearing the RD. All comments were very positive with most respondents remarking that their residual limb felt more secure with the RD on and it gave them confidence to complete their transfers. Due to their overwhelming success RDs are now standard practice at RBH.

How to improve RD use

To set the scene for any improvements it would be beneficial to carry out a comprehensive survey of how much RDs are used, and if not used then why not. If common reasons or barriers occur then research can be focused on those aspects to build the evidence. To produce more robust evidence then ideally studies should be RCTs with clearer protocols and outcome end points. To further build the evidence a broader range of measures should be used. This should include prevention of trauma and include a patient reported measure. Pain is a very important within rehabilitation and would be ideal.

Conclusion

The post-operative TTA period is an extremely important time to ensure the right wound dressing is given to promote the patient's well being, minimise pain, improve independence and facilitate a timely discharge. The literature suggests that SDs appear to be used more often than RDs. There has been increasing evidence to use RDs as they promote wound healing, minimise trauma, reduce LOS and time to prosthetic cast. RDs may not be used universally because the evidence is weak due to a variety of reasons and the protocols for using RDs is inconsistent.

With very little precautions of use and multiple benefits is it not time that rigid dressings are used universally as the standard dressing post TTA?

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The clinical justification for providing transfermoral amputee patients with a prosthetic limb in an intensive amputee inpatient rehabilitation setting.

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Acknowledgements to: Sophie Ellse, Physiotherapist and Jodie Georgiou, ARU Clinical Lead (GSTT)

Background

The Amputee Rehabilitation Unit has a turnover of 100 patients per year inclusive of a large number of trans fermoral amputees. The majority of these patients are provided with a prosthesis, however some patients are unsuccessful. The clinical reasoning involved in deciding who is appropriate for a above knee prosthetic limb is often challenged. At the Amputee Rehabilitation Unit (ARU) the decision to provide a prosthesis involves a multi-disciplinary approach lead by the ARU Clinical Lead. The literature informs us that many trans-femoral amputees (TFA) discontinue limb use within 1 year. The ARU wished to investigate if the decision making of prosthetic provision with TFA was accurate at 1 year post ARU discharge, assessing the proportion still using their prosthesis, and also those that were not provided a prosthesis but at a later date went on to be successful.

Aims

1. To reflect on the current clinical pathway for decision making at the ARU for trans femoral prosthesis provision
2. To establish prosthetic use at 12 months post ARU discharge
3. To establish the accuracy of clinical reasoning used at ARU for those patients deemed either appropriate or not appropriate for a prosthesis and for the choice of prescription.

Methods

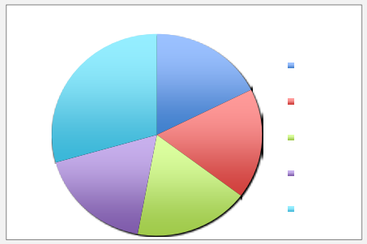
A prospective cohort study was carried out at the ARU over a period of two years from 2015-2017 including 76 past trans femoral patients. A one year follow up phone call was made with 5 questions asked relating to prosthetic use and quality of life, together with a notes review.
Patients admitted for 6 weeks of rehabilitation were assessed over a median of 12 rehabilitation days consisting of 2 rehabilitation sessions per day for the suitability of a prosthetic limb using an early walking aid.
Standardised criteria for provision of a prosthesis was based on those guidelines provided by BACPAR, however in addition to this the ARU also consider provision of prosthesis based on social support and took into account cognitive functioning. The objective measure used was the MOCA.

Results

52/76 (68%) patients were provided with a prosthetic limb. 11/76 (14%) were not provided with a prosthetic limb who were admitted to the ARU for a prosthetic trial/prosthetic rehabilitation goals. 13/76 (17%) patients were not admitted to the ARU for prosthetic rehabilitation.
Out of 52 patients provided with a prosthetic limb 44 were successfully contacted. Out of 11 patients trialled for a prosthetic limb whilst at the ARU 4 were not included in the study results due to deceased (n=3) and unanswered telephone (n=1).
Incidental findings from the notes review highlighted that all patients not provided with a prosthesis, had a MOCA score of 19 or below.
5 patients had limbs taken away at a later date: 3 due to alcoholism, 2 due to deterioration of remaining limb.

No Decision Prosthesis group: 7/11 successfully contacted for study	Current Status	n = 7
	Patients still not provided	5
	Patients provided prosthesis at alternative centre as a second opinion but still completing trial	2

Prosthesis Given Group: 44/52 successfully contacted for study	Current Status	n = 44
Reduction in prosthetic use (20%)	Prosthesis Taken Away Downgraded prescription Not wearing presently	5 (11.3%) 1 (2.2%) 3 (6.8%)
Patients still using prosthesis (80%)	Reported improved QOL and Function post ARU discharge	35 (79%)



Conclusion

This research demonstrates that of the patients provided with a prosthetic limb by the ARU 80% are currently still using their prosthesis with improvement in function and QOL reported.
This provides support of the clinical reasoning and criteria used within the ARU to provide a prosthesis to trans femoral amputee patients.
Additionally at 12 months post ARU fitting, only 1 patient had a change in prescription which was a 'down grade', supporting clinical decisions for accurate componentry at the time of assessment.
Importantly, of the patients who were deemed not appropriate for a prosthesis only two of these went on to receive one at a different centre, however these were still being used in an assessment capacity following a request for a second opinion. This highlights that our criteria is also mirrored and supported across wider amputee provision services (Outpatient Limb Fitting centres - Amputee Hubs) with all ensuring that patients are selected on a needs and performance basis. There also seems to be a correlation between MOCA score and being provided with a prosthesis although further analysis of this is required. It can also be concluded from the notes audit that the 5 patients who had their limb taken away at a later date had the correct decision made at the time of assessment in the ARU.

Recommendations

This research highlights although the BACPAR border line criteria was beneficial in guiding practice along side goal setting, the ARU used analysis of social support and MOCA score to assist in decision making: including this into a developed criteria may assist clinicians following further research into this area.

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AUTUMN 2017

A SURVEY OF THE LOWER LIMB AMPUTEE POPULATION IN SCOTLAND 2014

Ms H Scott
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Executive Summary
This is the 22nd Annual Report on data collated from lower limb amputees in Scotland by the Scottish Physiotherapy Amputee Research Group (SPARG). All major amputations carried out in 2014 are included, that is, ankle disarticulation (A.D.), transtibial (T.T.), knee disarticulation (K.D.), transfemoral (T.F.), hip disarticulation (H.D.), and transpelvic (T.P.). Patients having partial amputations of the feet and amputation of the toes are excluded.

All data are entered locally onto the SPARG web-based Database. The Database has reporting facilities which allow for local data checking and analysis (see Appendix B for the list of available reports).

National and individual hospital data are presented in this report. All outcomes are reported according to final level of amputation. Individual hospital data are summarised to facilitate comparison of outcomes and the benchmarking of services. The comparative data items or key performance indicators (KPIs) for each hospital were identified by a previous, multidisciplinary benchmarking exercise (Scott and Patel 2009). From 2014 the length of hospital stay is reported in two parts. Firstly, the length of stay in the acute/surgical unit and secondly, the overall hospital length of stay which includes the time spent in other units such as Care of the Elderly or Rehabilitation Units. Each of the larger centres' (n≥10) models of care have been described according to criteria identified in the benchmarking report and agreed following consultation with SPARG members. This information has been summarised in Section 6 (see also Appendix H).

For the first time, national demographic data appear to be changing from previous years; these changes and trends are noted below. Where possible, comparisons are given in the body of the report for at least 6 years from 2009-2014.

Results
In 2014, there were 819 amputees and 846 amputation procedures; some patients having had a re-amputation (to a higher level), or bilateral amputations, during the same episode of care.

The quality management "data checking" system introduced in 2003 continues to be highly successful. The percentage of records which are complete in every respect is 94%.

The mean age at amputation has fallen to 65.5 years.
Peripheral arterial disease (PAD) and/or diabetes accounted for 85.8% of all amputations and in this group, males outnumbered females by 2.3:1.

The proportion of patients with diabetes was greater this year, 46.5%. These patients were 3 years younger than those with amputation due to peripheral arterial disease (without diabetes) and there were almost four times the number of men in this group (male to female ratio, 3.7:1).

The percentage of amputations carried out at a T.T. level in 2014 was 51%. Individual hospital data (centres, n≥10) show significant variation, from 80% down to 48%.

The proportion of amputees (all levels) fitted with a prosthesis remains low at 42%. When examined by level, 64% of T.T. and 28% of T.F. amputees are fitted. There is still discrepancy between genders, with more men than women being fitted with a prosthesis (T.T., M:F=69%:52%) (T.F., M:F=32%:19%). When individual hospital data are examined, the differences in proportions of amputees being successfully fitted are large, varying from 67% to 32% (centres, n≥10) – see Figure 1.

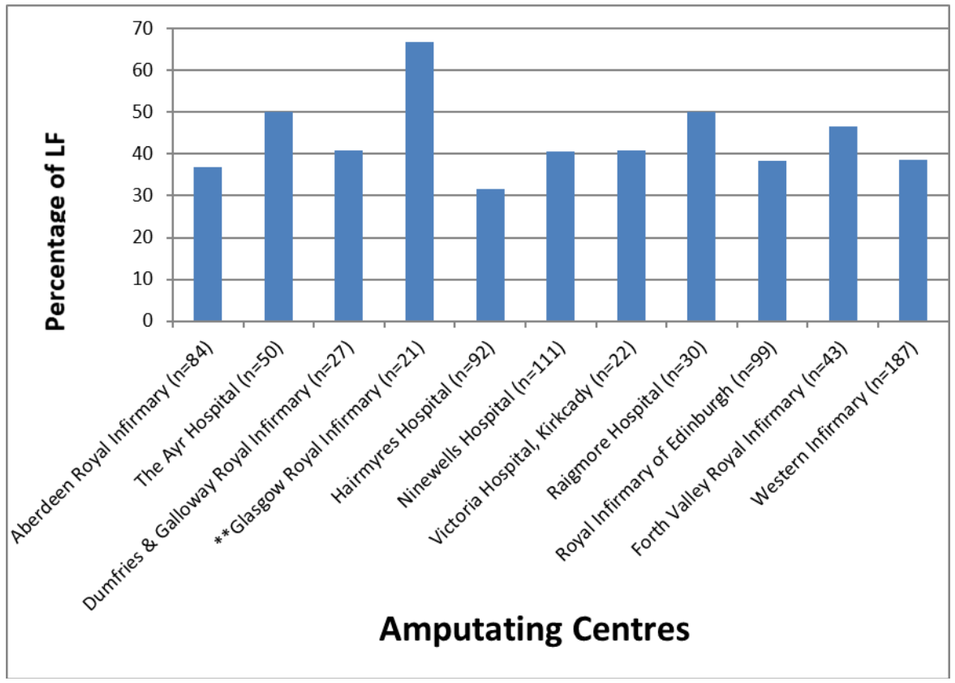

Figure 1: Percentage of amputees who were limb fitted in each of the amputating centres (n>10 amputees)
** = predominantly amputations carried out for orthopaedic reasons

For the ninth year, the figures for prosthetic rehabilitation being abandoned during the rehabilitation period are reported. These are unilateral, T.T. = 6.9%, unilateral, T.F. = 3.2% and bilateral=9.3%.
Inpatient length of stay (LOS) for limb fitted amputees has fallen (T.T., median 41.5 days, T.F., median 35 days) whilst LOS of patients not limb fitted remains unchanged.

Discussion and conclusions
Service changes in 2014

- A multidisciplinary in-reach service from Astley Ainslie Hospital to Royal Infirmary of Edinburgh was initiated in March 2012 and completed its second full year in 2014.

This would appear to be associated in a reduction in days from surgery to prosthetic cast (2012: median 64 days for unilateral T.T., 2014: median 35 days) and days from surgery to discharge from hospital (2012: median length of stay for unilateral T.T., 80 days, 2014: 54.5 days).

- Implementation of standardised pre-prosthetic fitting assessment for unilateral T.F. amputees treated by the Prosthetic Service at Westmarc.

This was introduced in August 2012 in an effort to ensure patients with T.F. proceeding to prosthetic fitting have the potential to use a limb successfully. The protocol requires the local multidisciplinary team to complete an assessment, with corresponding paper work, prior to being allocated an appointment at Westmarc. The assessment includes physical and cognitive screens (Functional Co-morbidities Index, Addenbrookes Cognitive Examination III, pre-amputation Locomotor Capabilities Index 5 and current mobility using Transfemoral Predictor Tool (TFP)). As approximately half of all new amputees in Scotland are treated in Westmarc, this change in practise may account for the significant increase in median days to cast for T.F. amputees by up to 30 days in 2014, a longer outpatient rehabilitation time and also a reduction in

number abandoning prosthetic use within the rehabilitation period, from 10-12% to 3%.

Local audit/project activity

- Comparison of T.F outcomes at one year from limb fitting : Westmarc and Ninewells
- The aim of this audit is to determine if use of the TFP (see above) assists in standardising prosthetic referral rates for unilateral T.F. amputees to two prosthetic Services in Scotland and to determine whether intensive inpatient prosthetic rehabilitation (patients referred to TORT Centre) improves limb use one year after fitting when compared to patients who have the majority of prosthetic rehabilitation as an outpatient (Westmarc). Follow up interviews have been completed and results are being collated.
- Joanne Hebenton completed work on the BACPAR Funded project 'Rehabilitation outcomes after lower limb amputation in Scotland - all aetiologies other than PAD and/or diabetes.' in November 2016. This has been written up as a poster and will be available on SPARG website (http://www.knowledge.scot.nhs.uk/sparg.aspx) and BACPAR Journal.

Limitations of SPARG data set:

1. Reporting of aetiology

   SPARG reports diabetes as the underlying aetiology in all cases in which diabetes is an established diagnosis, unless the reason for amputation is tumour, trauma, burns or an orthopaedic condition.

2. Factors not currently accounted for in data analysis: -

- Pre-amputation vascular reconstructive surgery
- Incidence of palliative amputations, that is, life-improving surgery for patients who were previously and, in the long-term, immobile with no prospect of rehabilitation.
- Social deprivation
- Final outcome at a defined point in time after surgery and longer term follow up.

Key messages from the 2014 report are:

Demographic data are changing; the mean age at amputation is reducing and there are more amputations carried out for people with diabetes. These 2 factors may be linked; the mean age of the diabetic group is lower than the group with PAD (without diabetes).

1. There is a reversal in the trend for more patients with T.T. to be treated with a rigid post-operative dressing (25% in 2013, 19% in 2014), fewer are using PPAM aid within 10 days from surgery (35% in 2013, 28% in 2014) and time from surgery to cast for T.T. has increased again (34 days in 2013, 43 days in 2014). It is not known if these findings are related.
2. There is a further increase in time from surgery to cast for T.F. as previously mentioned.
3. Outcomes and milestones continue to vary significantly between hospitals, most importantly, the proportion of amputations carried out at a T.T. level and the proportion of all patients successfully limb fitted.
4. Proportionally, fewer women continue to be limb fitted compared to men.
5. Median length of stay (LOS) for limb fitted patients has continued to reduce and this appears to be associated with an increase in median length of outpatient physiotherapy treatment.

Points for further investigation/action:

- The large variation in the proportion of amputees successfully limb fitted between centres continues to warrant further investigation by the local multidisciplinary teams.
- Aetiology
- Reporting of aetiology has been revised to include more detail for people with diabetes and amputation for orthopaedic reasons (see Appendix D). This was implemented from 1.1.2016 and will enable clearer reporting of the immediate indication for amputation.
- Key aspects of services that appear to improve speed and outcomes of rehabilitation after lower limb amputation
- Reducing median age and increasing proportion of people with diabetes and amputation
- Outcome after bilateral amputation
- Poorer outcome for females
- Mortality rates after 30 days
- KPI data according to Health Boards in addition to amputating hospitals.
- Reducing use of rigid dressings
- Impact of change in pre-prosthetic assessment on the rate of abandonment for T.F.
- Length of hospital stay including time in the acute/surgical unit to be reported using 2015 data.

Prosthetic Limb Use – 1 year Follow-up of Patients with Trans-femoral Amputation : 2 Centre Pilot Study

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AIM

To determine if use of the Trans-femoral Fitting Predictor (TFP) standardises prosthetic referral rates and whether intensive in-patient prosthetic rehabilitation improves limb use one year after fitting of patients with a primary unilateral trans-femoral amputation

BACKGROUND

Patients referred for limb fitting post trans-femoral amputation (TFA) are not all suitable for limb fitting or the physical and cognitive demands of rehabilitation (1). Successful limb fitting in this group may be as low as 24% with subsequent high rates of abandonment (2).

The Trans-femoral Fitting Predictor (TFP) is an observed assessment tool that was developed to assist in assessing the potential of patients to use a prosthesis prior to referral for prosthetic fitting (3). Two Prosthetic Services in Scotland use the TFP as a screening tool.

Prosthetic Service 1 (PS1) is referred patients who undergo intensive inpatient prosthetic rehabilitation and Prosthetic Service 2 (PS2) is referred patients who are predominantly discharged home prior to limb fitting and rehabilitation as an out-patient.

Little is known whether the use of the TFP tool is helping to standardise referral rates and reduce abandonment rates at 1 year after fitting at both centres and whether the two different models of care impact on these same factors.

METHOD

63 patients who had a TFA and were consecutively referred to PS1 & PS2 were included in the pilot. Patients who were limb fitted were routinely followed up at one year using the Functional Measure for Amputees (FMA) (4)

RESULTS

Prosthetic service 1

- 18% referred to limb centre & all 21 were cast & fitted
- 85% male
- Average age 61
- PAD + diabetes 75%
- 76% continued use after one year
- 2 patients abandoned use (9.5%)
- Average time prosthesis worn per day = 8.9 hrs (range 2-17)

Prosthetic service 2

- 26% referral to limb centre and 42 of the 43 were fitted (1 RIP)
- 81% male
- Average age 66.7
- PAD + diabetes 84%
- 58% continued prosthetic use after 1 year
- 11 patients abandoned (26%)
- Average time prosthesis worn per day = 5.7 hrs (range 1-12)

	Number referred for limb fitting (referral rate)	Number limb fitted	Outcome at 1 year				
			Limb fitted	Abd	Died	Excl.	Lost to follow up
PS1	21 /117 (18%)	21	16 76%	2 10%	1 5%	2 10%	0 0%
PS2	43 /168 (26%)	42 1 RIP	25 58%	11 26%	4 10%	1 2%	1 2%

CONCLUSION

Fewer patients were referred to Prosthetic Service 1 despite both services using the TFP screening tool. However more patients continued to use their prosthesis one year on, and for an average of 3 hours more per day than in Prosthetic Service 2.

Intensive inpatient rehabilitation may be linked to increased daily prosthetic use and lower abandonment rates.

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WORLD PARA ATHLETICS CHAMPIONSHIPS

Claire Briggs

London hosted the World Para Athletics Championships in July 2017. It was the eighth edition of this International biennial event.

The event itself took place from the 14th-23rd July with pre-event training for athletes taking place from the 8th July. This Para-disability event included athletes with visual impairment, intellectual impairment and physical impairment e.g. multiple sclerosis, cerebral palsy, spinal cord injury, amputees, brain injury, dwarfism etc. The event itself was broadcast on mainstream television on Channel 4 and More 4 throughout the competition.

150 Physiotherapists were selected to work as volunteers at the World Para Athletic Championships and the World Athletic Championships. I volunteered as one of the 150 Physiotherapists, working in hotel accommodation during the run up and at the warm up track beside the Olympic stadium during the Para-event.

I am a BACPAR member and routinely work for the NHS in Amputee Rehabilitation in Belfast where I treat outpatients and Amputee patients with musculoskeletal problems.

In London I worked as part of the Physical Therapy Team, which, consisted of a mixture of skilled professionals including Physiotherapists, Sport Massage Therapists, Chiropractors and Osteopaths. This opportunity enabled me to work alongside healthcare professionals not routinely employed within the NHS and helped to develop my knowledge and skills in areas which otherwise may not be available within my current day to day working

I felt honoured to have been selected by the Medical Services Team to work and to be able to represent the Northern Ireland Physiotherapy profession at a World class disability event.

As a result of working at these World Para-Athletic Championships I have now been asked to work as a Physiotherapist at the 5th Asian Indoor and Martial Games in Ashgabat, Turmenistan for two weeks in September/October 2017.

LONG TERM REHABILITATION
following traumatic transfemoral amputations, a case study

Author – Carolyn A Hirons, HCPC Registered Physiotherapist, Pace Rehabilitation UK

AB TIMELINE OF REHABILITATION:

2007

RTA multiple complex injuries including heterotopic ossification bone growth at pelvis.

Working on wheelchair independence.

AB aged 28.

HO bone scan

Left residuum HO

Initial health team reluctant to start prosthetic rehab, HO restricting hip range and right elbow, no lumbar movement.

Multiple physiotherapy appointments for range and strength.

2011

February, USA for surgery to remove HO, lengthen left side residuum and distal flap.

Before & after left leg lengthening

Left leg lengthening xray 2011

Prosthetic rehabilitation started with the provision of Otto Bock C legs and crutches.

2011

Unable to stand without crutches due to alignment of sockets.

posture C legs Jan 2011

Posture C legs Nov 2011

Put more flexion in sockets to allow upright standing, progressed to sticks indoors. Improved wheelchair prescription.

2012

Skin break down due to superficial HO bone, required refashioning surgery. Four months off walking.

Left leg revision Jan 2012

Left stubby alignment

Progressed after surgery using stubbies, to create the strength and fitness required for no sticks. Extreme flexion required for lack of hip and spine extension.

2013

Improved posture and not requiring walking aids on level ground. Unable to descend slopes.

Posture Genium X3s 2013

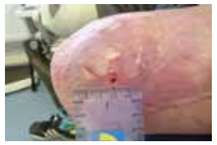
Ulcer Nov 2013

Ulcer stopped walking for several weeks. Osteomyelitis threatened. Prescription changed from Otto Bock C legs to Genium X3s.

2014

Practise outdoors on grassy slopes and at work on building sites. Recurrent ulcers.

Ulcer July 2014



Ulcer Aug 2014

Physiotherapy for maintenance whilst off prostheses again. IV antibiotics.

Further residuum refashioning on left.

2015

Moved from a bungalow to house once mastered stair ascent with X3s.

Outdoor practise

Still practising unaided on slopes and step descent.

Practising stair ascent.

2017

Presented with residuum pain, back pain and fatigue. Posture become flexed again having stopped home exercise programme.

Posture Feb 2017

All joint range of movement reassessed. Socket alignment reviewed. AB started a programme of core and hip strengthening.

PRACTICE REFLECTION

Timely physiotherapeutic input, including fitness and lifestyle training, has enabled AB to achieve his goal of unaided walking and a return to work. Physiotherapy intervention ongoing, including surgery periods and at prescription changes.

Prosthetic alignment for upright posture was key to progression to unaided gait. Aggressive socket flexion was required. Microprocessor controlled prostheses allowed advanced function beyond the clinic setting.

Intermittent surgery interrupted mobility, physiotherapeutic input required to maintain strength and stamina. Surgery was necessary to allow continued prosthetic use due to recurrent ulcers. Responsive socket changes prevented catastrophic ulceration and infection.

Short stubby pylons were essential to progression from sticks. A full understanding of the spine movement guided modifications.

Costs of prosthetic rehabilitation so far have exceeded £227,500, not including surgery. Due to resource limitations in the National Health Service rehabilitation services were provided in the private sector.

The patient's determination and attitude to risk influenced the rehabilitation process and eventual outcome, and is still driving continued improvements. AB has been able to use a jet ski with his family and future rehabilitation plans include running on his stubbies with blades.

Outcome measures were used to monitor functional progression and maintenance* - ABC UK, 2MWT, LCI-5

CLINICAL RELEVANCE AND LEARNING OUTCOME

Traumatic bilateral amputations require a specialised team approach to facilitate recovery and a return to quality of life. This team has learned that rehabilitation is a continuous process as posture changes due to the daily influence of the prostheses and movement patterns. Prolonged postures change soft tissue length and position, affecting muscle efficiency, posture and joint pain. This is the known as the creep phenomenon (reference)

Ten years later, the team are still being challenged and have learned that rehabilitation is not a defined by a single episode. Resources are key. Lessons learned can aid goal setting and outcome prediction of future patients, guiding resource allocation.

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*Activity Balance Confidence Score UK, 2-Minute walk test, locomotor capabilities index-5 – BACPAR Toolbox of Outcome Measures version 2 Nov 2014 (http://bacpar.csp.org.uk/)

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