UPDATE
AGM Summary

BE INSPIRED
Bob Gailey speaking in the United Kingdom

LEARNING
MSc in Amputee Rehab update

BRITISH ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS IN AMPUTEE REHABILITATION

SPRING 2018 **ISSUE 49**

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SPRING IS HERE

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CHAIR MESSAGE

Now the snow has gone it feels like spring is really on its way so time for the new journal, although writing this a bit before printing so you never know, maybe time for another flurry!

We have a busy year ahead with the very exciting study day in May with Bob Gailey, the Ossur team and others – It's not too late to get a place and, having heard Bob speak several times, he is a real inspiration on many levels and in my opinion unmissable.

We are about to have our March executive meeting and will be progressing some of the issues we discussed at the AGM – Increased use of Facebook, the next BACPAR conference in November, the joint venture with ISPO in 2019. We have also had interest from the Vascular Society in BACPAR's support with their work following the presentations by Mr Garnham and Professor Imray at the 2017 conference. It promises to be a very busy couple of days.

We will also be welcoming Sue Lein, our new treasurer, to her first exec meeting in a long time. Sue was one of the founding members of BACPAR 24 years ago so it is great to have her back, especially as she brings with her a great deal of experience in management and finance as well as amputee rehab. No pressure Sue!

Thank you to all the BACPAR exec committee as always for all their hard work behind the scenes, whilst maintaining their busy work schedules and squeezing in some home life!

Don't forget we now have a reciprocal arrangement with ISPO UK that BACPAR and ISPO members can attend each other's events at membership delegate rates. I hope that through this we can increasingly all benefit from the vast amount of knowledge, experience and enthusiasm the MDT has for speciality and, most importantly, our patients.

I wish you all well for 2018 and hope to see everyone in Wolverhampton in May.

Julia

BACK TO BUSINESS

EDITORIAL

Welcome back to the 49th BACPAR journal. Thank you so very much to Sue Flute who stepped in and completed the autumn journal for me, as I was arranging a Big Fat Greek Wedding.

Thank you for everyone's contributions for this edition.

I am sure you can all understand how time consuming the journal is, it would really help if you could carefully read your submission and spell check this / ensure it reads correctly before submitting.

Please do email me any courses / study days you are running locally so they can be advertised, along with any regional study day write ups to share the fantastic work going on all over the country.

Jodie Spyrou

BACPAR Journal Officer

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JOURNAL SUBMISSION GUIDELINES

Submitting an Article:

- Send any articles or posters as a **MS Word, MS PowerPoint or PDF file**. Please add your name, role and optional email address.
- If your article includes any pictures please send them **separately** as a JPEG or PNG file. **All images must be high resolution.** Low resolution images will be rejected.
- Send graphs as separate Excel files and name these the same as your article followed by a number in the sequence that they appear in the article (as with pictures).

Please submit your files to: **bacparjournal@gmail.com**.

BACPAR BULLETIN

SUMMARY OF BACPAR AGM

17th November 2017

This years AGM was held as usual during the BACPAR conference, 17th November 2017 back in good old Wolverhampton.

The full AGM minutes can be found on the BACPAR website: **http://bacpar.csp.org.uk/documents/2017-bacpar-agm-minutes**

88 members were present and apologies received from 5 – much better attended this year as 2 day conference rather than the previous 1 day in Liverpool I expect.

Minutes of the Previous AGM were agreed.

Matters arising:
The closed Facebook group should be running soon now the PRO's have settled in to their role.
There had been no suggestions for ARC motions so none would be submitted from BACPAR this year.

CHAIR'S REPORT

An extensive list of BACPARs achievements against our work plan is included in the full AGM minutes but a few of the highlights were mentioned:

- Regional meetings been planned throughout the country, although with difficulty in some areas.

- BACPAR continues to support M level course in Southampton as an Initiating Stakeholder and there has been lots of interest for the next intake.

- Executive committee and regional representatives Handbooks have been updated to try and support new exec members including advice on running study days and conference.

- Working party to start on the prosthetic guidelines in the new year under Sara Smith's guiding hand.

- 5 study days have been completed around the UK for AGILE members on amputee rehab at their request and have been very well received.

- Ongoing work by members of the committee with other groups – Westminster Cross Party Limb Loss Group, ISPO, World Confederation for Physical Therapy, Handicap International, NHSEngland, Client Group Alliance,CSP research priorities and SNOMED development.

- Research bursary criteria are being developed further to try and encourage members to make use of it, with suggestions as to how it might be used to facilitate development of research ideas.

- Membership went up from 180 to 230 last year and this year has remained pretty stable at 226 (with 36 new members) which is excellent news when other professional groups are reducing in numbers.
SPARG gave an interesting and detailed report on their work – SPARG conference , report, data base, and future plans.

Details of the accounts were presented by Katharine Atkin.

QUESTIONS TO THE MEMBERSHIP:

I had proposed that the BACPAR's constitution be updated to bring it in line with the Professional Network Handbook and also make things a little clearer. The details of these proposals had gone out to the membership prior to the meeting for any comments.

The membership was asked:

1) Should the term "limb difference" be used instead of Limb Deficiency within BACPARs objectives? This seems to be the more acceptable phrase now in some circles such as Reach. Or should it stay deficiency asper the "classification of limb deficiency". It was voted to maintain it as Limb Deficiency but to keep the terminology under review.

2) On the possible cessation of BACPAR who would the membership like any remaining assets to go to?Various possibilities were suggested and it was agreed that the wording would be "The allocation of any remaining assets held by the group will be decided at the final AGM or Extraordinary General Meeting."

3) In view of Bob Gailey's visit and study day 21st May 2018 the membership were asked if they wanted a 1 or 2 day conference in November and the majority voted for a 2 day conference.

4) ISPO had kindly offered BACPAR members reduced fees in line with ISPO membership rates at their events. The membership was asked if they would be happy for BACPAR to reciprocate. We could check that they were members by Liaising with Irene Cameron their secretarial support.

The membership voted to offer this to ISPO.

5) ISPO had also asked if BACPAR would be interested in a joint meeting in March 2019, possibly also with BAPO, saying they wanted to "showcase the true spirit of MDT in our field of work". The proposed meeting would take place in Manchester in conjunction with TIPs. The exec had a few concerns about making the content relevant to all of our membership. They were also concerned that we should not lose out financially, as in the last joint meeting, but we had received reassurances from ISPO in this regard.

The membership voted to agree to this joint meeting and at least 1, if not 2 days, in November 2019.

There were no further questions asked by the membership.

ELECTIONS

The following were voted in by the membership:

Treasurer
Sue Lein was welcomed onto the exec committee.

Secretary
Amy Tinley was voted in to continue into her 2nd term

There was no AOB raised.

If you have any questions about the AGM or the report please see the full minutes on the BACPAR website, if they are still not answered of course contact me via: **bacpar.chair@gmail.com**

Julia Earle, Chair of BACPAR

MY FIRST BACPAR CONFERENCE

BACPAR 2017 CONFERENCE **DAY ONE**

Lauren Joseph

Specialist Amputee Physiotherapist

It was my first BACPAR conference and I was excited, as day one promised a fascinating selection of talks and practical sessions. It didn't fail to deliver.

We kicked off with the talk on Sepsis and Rehabilitation by Dr Gill Malcolm. She provided a useful reminder of the risk factors for sepsis that place many of our patients in a vulnerable position, particularly broken skin (we have many a stump wound to contend with) and recent surgery or trauma. She also discussed how untreated sepsis can lead to further amputation, highlighting the importance of recognising signs and symptoms and initiating early treatment.

Next up, Pippa Bagnall talked us through a sepsis patient experience, including showing the trailer for the film Starfish which recounted the amazing story of a sepsis patient and his family. I wasn't the only person in the room to well up just a little as it served as an emotional reminder of the life-long challenges some of our patients face.

Matt Fuller then spoke to us about health literacy in vascular surgery patience. It was a real eye-opener to realise quite how poor health literacy can be in this patient group as many patients were found not to understand a number of aspects of their disease or of their care. It also highlighted the importance of ensuring we adjust our methods of communication to promote patient understanding. As health professionals we often rely on providing written information but for many of our patients, verbal communication is preferred and will therefore be more effective. Ultimately, like many areas of physio, further research is needed.

Following on from this we heard from Julia Earle, feeding back the results from a Survey of Higher Mobility Grade Patients with knee Disarticulation inLimb Centres in the South-East of England. Data was collected for 84 patients of SIGAM grade E and F from across four different prosthetic centres, with patients being categorised as congenital (12) or non-congenital (72) amputees. It was found that the congenital group had received additional sockets (due to growth) but otherwise prosthetic data was similar between the groups. Both groups appeared well adjusted to their amputations generally and socially, although the congenital group were better adjusted to acknowledging their limitations and felt less restricted by their amputation. Pain (both residual and phantom limb) was more prevalent amongst the non-congenital amputees but individual's experiences varied widely. The presentation prompted a number of questions around the benefits of knee disarticulations versus other level amputations and the practicality of different surgical techniques regarding prosthetic use.

Louise Whitehead then went on to compare in-patient and out-patient services in a presentation titled One Year Follow-up of Transfemoral Amputees Fitted with a Prosthesis – Two Centre Pilot. She concluded that completing a period of intensive in-patient prosthetic rehab may be linked to increased use of a prosthesis one year after fitting, both with regards to distance mobilised in the prosthesis and time wearing the prosthesis in a day. She also suggested that in-patient rehab may be associated with reduced rates of prosthetic abandonment at one-year follow-up and attributed this partly to an increased opportunity to have integrated the prosthesis into their functional activities.

The final presentation of the morning was delivered by Catriona Mawdsley and Nikki Porteous, discussing Microprocessor Knees: Progress so Far! It was a fascinating insight into the challenges of setting up a microprocessor knee service and a wonderful chance to hear some first-hand experiences of the highs and lows that come with that. We were also treated to many practical tips for treating a patient on a microprocessor knee, particularly to increase the yield to allow a patient to learn to trust their leg (and then reduce it as able to), to spend a lot of time focussing on slopes and stairs, to make sure we explain loading response stance flexion properly and to get out there and practice in the real world.

After lunch we all changed into comfortable clothing and got ready to be put through our paces with a selection of practical sessions. First up for my group was Pilates, hosted by Grace Ferguson. It was great to be reminded of the variety of ways we can get our patients to engage their core and to be presented with a fresh selection of amputee – suitable exercises to trial back in the gym.

Yoga with Kim Ryder also served to remind us of the importance of breathing and control when teaching our patients exercises. We were taught to "settle into the stretch reflex" and told we must only do what we can comfortably do while still being able to breathe- reminders that I will definitely be passing on to my patients.

Simon Hannah talked us through the evidence behind strength and balance training, with a discussion of the Otago home-based exercise programme and the FAME (Falls and Management Through Exercise) programme. While not specifically targeted at amputees, their results are impressive and the concepts and exercises are arguably very relevant, albeit with some adaptations. Simon then challenged us to complete a few not–so–easy theraband exercises. I'm a little ashamed to admit just how tough I found them. But in saying that, I now know how hard I need to be pushing my patients!

Finally, Kate Lancaster did a great job of finishing us off with her balance circuit group. This was a chance to trial a series of balance exercises whilst thinking about how we can adapt the classic falls programme to suit any level of amputee.

The conference was not only full of interesting talks and opportunities to learn, but it was a great chance to mingle with like-minded, passionate and driven people who renewed my excitement about the amputee physio world and all of the amazing things we're achieving in it.

MY THOUGHTS AND OBSERVATIONS

BACPAR 2017 CONFERENCE **DAY TWO**

Jessica Withpetersen

Clinical Specialist Physiotherapist

Firstly I must say what a wonderful programme put on this year. I thoroughly enjoyed every speaker and came away with a renewed passion for the wonderful world of amputees.

Our second day began with our BACPAR AGM. It was great to hear about the new and ongoing projects that BACPAR are involved in including the Masters level course at Southampton, developing a Facebook page and their links with SPARG, allowing us access to their documents and information on their training opportunities.

Our first lecture was on **'Current advances in Vascular surgery' by Mr Andrew Garnham.** We heard about the prevalence of Intermittent Claudication and the high mortality associated with this condition. Evidence for exercise and education classes as the preferred treatment option over surgical options was presented but the need for that exercise to continue once structured programmes end was shown to be essential. Evidence was also presented on the benefit of exercise prior to vascular surgery with support existing for HIIT (High intensity interval training) amongst this population.

The presentation went onto discuss surgical interventions and the BASIL trials from Birmingham University that are showing the long term outcomes following vascular bypass compared with angiogram. We also saw maps detailing the regional variations in diabetes and amputation rates across the country and the comparison of regional revascularisation and amputation rates. Evidence was also presented on the impact of a delay in undergoing a major lower limb amputation and the potential causes for these delays. Amputation techniques and the use of Integra matrix to allow deep wounds to heal were demonstrated and the potential benefits of knee disarticulation amputation were discussed.

Finally we heard that Peripheral vascular disease is coming to the forefront of research and development so keep an ear out for upcoming developments.

Next to speak was **Sara Smith with a great update on the guidelines.** Sara reminded us of the importance of using these documents to allow us to audit our own services and use the information we gather to disseminated to the wider amputee physiotherapy community via the journal etc so we are meeting the NICE accreditation requirements of using the documents as an audit tool and annually reviewing them.

We discussed BACPAR's current guidelines to agree a plan for their ongoing review. It was decided that as NICE already has robust falls guidelines that are reviewed regularly we will not review our document but seek to link it with AGILE. NICE also has guidelines on the diabetic foot so we shall not review our Care of the contralateral foot guidelines. We will ask the vascular society to support us with regard to the oedema guidelines and will focus on the Prosthetic guidelines.

Sara thanked all the team who worked on the last guideline reviews and called for volunteers to tackle the next guidelines up for review.

This presentation was followed by **Professor Chris Imray on the Management of Frostbite.** We heard real life stories of people who had suffered frostbite injuries and saw what their extremities looked like at time of injury and the resulting tissue loss they suffered.

We heard about the causes of frost bite and how the risk factors (behavioural, physiological and mechanical) and environmental elements can play a devastating part in the outcomes of frostbite victims.

The mechanism of how a frost bite injury occurs was discussed as well as the best treatment and current advances in medicine allowing prediction of potential digit loss and optimising healing. It was fascinating to hear about the ongoing work in this area, the real impact on people's lives from Telemedicine and the role UK hospitals and medics play in this international issue.

This talk was followed by **an overview of wheelchairs with specific consideration to amputees by Meg Bodycoat.** It was a great refresher for us who work with wheelchairs daily and invaluable for those new to the field.

Meg discussed our need for stability when considering a wheelchair prescription for a client but highlighted the impact of this on their function and ultimately their independence. We looked through all the components of the wheelchair and potential accessories along with the measurements needed to correctly assess for a wheelchair. We heard about the criteria used for manual and electric wheelchairs at Guys and St Thomas's wheelchair services and also that you can search for your own area's provider via **wheelchairmanagers.nhs.uk**

After an enjoyable lunch and wander around the stalls we settled in for a paediatric afternoon. I was really looking forward to this and wasn't disappointed. It kicked off with **Mr Andrew Gaffey talking about paediatric amputations.** We discussed congenital limb deficiency, the indicators for surgery and the best time for this to occur.

The main points raised were that it must always be the parent's decision with no pressure from other sources and the options should be either amputation or other procedures that will avoid amputation. We want to avoid, where possible, lots of procedures and then an amputation.

The other potential procedures were addressed along with post-operative management. It was fascinating to hear about the impact on growth on various surgeries and the impact on the child's final height/length of a limb. The primary consideration is to the function of the child and time at home/in school verses potential time in hospital.

This was followed by **Andrew Sharpe discussing children and limb deficiency from a prosthetists point of view.** The emphasis was on understanding the child as a whole and knowing what is important to them such as self-image, social life, taking part in sport etc. We were all reminded how we must consider how we speak and act with children and need to gain their trust to allow an effective working relationship to develop.

Andrew shared advice on getting the children to use their prosthesis and timescales for reviews with a reminder that appointments must be mindful of their educational needs too. We also heard about the impact of amputation on bone growth and the growth expected from distal growth plates. He found that knee disarticulation patients tended to be a successful amputation level and his most powerful statement being 'function isn't everything – it's the only thing'. We should focus on independence in using the prosthesis but also accept that there is no failure in a child deciding they can function better without their prosthesis.

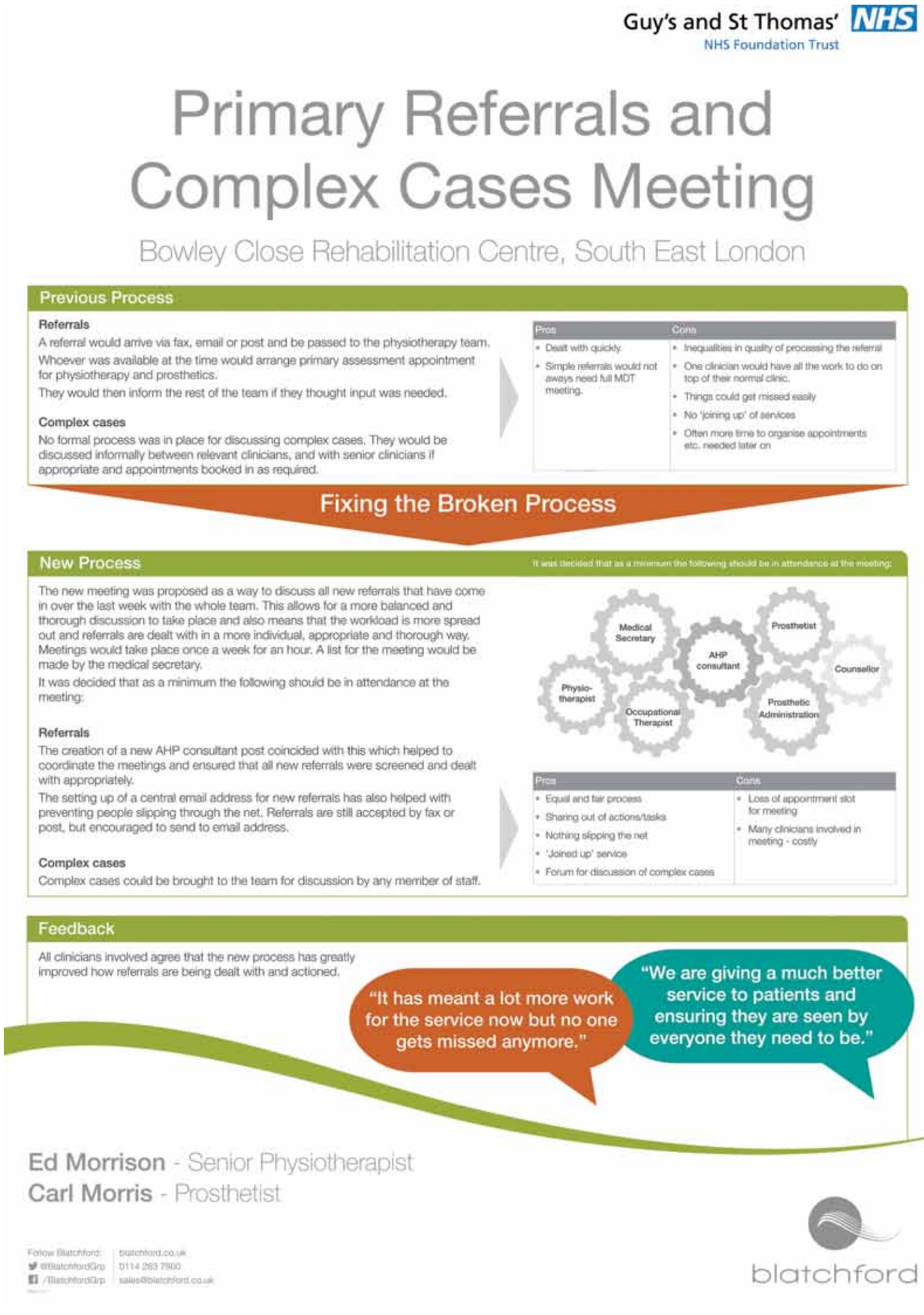
We then heard from Jane Sellar, Clinical lead in children's therapy services. Jane updated us on the current guidelines and policies with a view to children and how we treat them in our care. She reminded us that we must all know our local safeguarding process and how to raise any concerns that we may have. It was very interesting and allowed us to understand how all the various guidelines work and their impact on the care we provide.

Our final speaker was physiotherapist **Jennifer Fulton who presented on prosthetic rehabilitation and management of child amputees.** We looked at the numbers of amputees and the causes that Jennifer sees in her centre and the benefit of joint disarticulation to retain distal growth plates. We were reminded of the importance in knowing our milestones and to be aware that a child who has lost a limb due to illness such as sepsis can regress in milestones initially.

We discussed the gait pattern of children and the benefits of prosthetic rehabilitation for children to encourage normal development of motor and social skills. The potential differences between children with congenital limb loss and those with an acquired amputation were shown with an impact on acceptance, general health and healing on those with an acquired amputation.

The prosthetic considerations were covered such as the need for the prosthesis to not fall off during crawling as well as the elements considered during prosthetic/physiotherapy follow-up sessions.
The presentation went on to cover the potential difficulties children encounter such as bony overgrowth and heterotopic ossification and the potential MSK issues they may present with.

In conclusion, day 2 of the study day was as enjoyable and educational as the first day. What a great conference, thank you to everyone who was involved in making it such a success.



PINBOARD

UPCOMING AMPUTEE CPD EVENTS

I ♥ BACPAR

SPARG

Conference 2018
Friday 8th June

Edinburgh Storytelling Centre, 43-45 High Street, Edinburgh, EH1 1SR

Topics will include:
- Renal disease and amputation
- Innovative fat injections for bony prominence
- Update on transfemoral surgical technique
- Upper Limb prosthetics
- Social Deprivation and amputation
- Specialist prosthetic case studies
- Long term transfemoral rehab outcomes

Cost:
- £85 including lunch and refreshments
- £70 early bird before end March 2018

Contact: for application form and payment details
katy.bryce@nhslothian.scot.nhs.uk
catriona.mawdsley@nhslothian.scot.nhs.uk

BACPAR

Advertise your
BACPAR regional study days here.

Contact:
bacparjournal@gmail.com

WHAT HAS THE EDUCATION OFFICER BEEN UP TO?

HERE ARE SOME NOTABLE PROJECTS AND ACTIVITIES

Mary Jane Cole

bacpar.education@gmail.com

In what is likely to be my last year as Honorary Education Officer (I have served two terms) I want to take the opportunity to share some of BACPAR's educational activities that align with the networks' objectives. These are:

- To encourage, promote and facilitate interchange of knowledge, skills and ideas

- To improve communication and understanding between all disciplines working in the field of amputation and limb deficiency rehabilitation

- To improve post-registration education in this specialty

- To encourage research in this specialty

- To provide support and information between members and contact with similar organisations nationally and internationally

My first main task was to review and update the Student Education Guidelines (2013). This was very thorough – the working group included academic members – and consequently the next review which is due shortly, shouldn't require too much work. See BACPAR's website – publications.

One of the most notable activities that I've had the privilege to work on has been the planning and development of post-registration education. In our quest to explore and develop this, a small BACPAR education working group invited all Universities in the UK to put forward a proposal for post graduate learning in the speciality. The response was considerable with eleven universities expressing interest and sending proposals. Following a fairly lengthy but robust selection process, the University of Southampton was chosen to deliver 'Amputee Rehabilitation and Prosthetic Use'. This is quickly becoming established and is in its second concurrent year attracting an inter-professional cohort of students including Occupational Therapists, Physiotherapists, Prosthetists, Podiatrists, Sports and Exercise Therapists and Bio-engineers. Feedback has been resoundingly positive from students.

One of the attractions is the University's flexible approach to learning with the opportunity for students to participate and study across a pathway to gain different qualifications, from a Post Graduate Certificate, a Post Graduate Diploma or a full Masters in Amputee Rehabilitation. The first MSc in Amputee Rehabilitation will graduate this summer.

I shared successes at last year's International Society of Prosthetics and Orthotics World Congress in Cape Town, South Africa where the flexibility and inter-professional approach was especially applauded.

Please take a look at the poster assignments by some of this year's students which reflect a range of topics and give food for thought for our practice. Students progressing to the full MSc are encouraged to publish findings from research projects, adding to the evidence base. Co-incidentally, a recent review of the University's post graduate research recommends that the pathway is marketed as a standalone programme and consequently a change of name is underway, to be confirmed shortly.

It has been excellent to work so collaboratively and constructively with the course leads at Southampton. BACPAR is a valued stake holder and will be consulted as the course continues to develop.

I contributed to some of the teaching, for example in relation to global health issues pertaining to amputee rehabilitation. My interest in this area has developed in recent years, notably via BACPAR's further collaborative work with Humanity and Inclusion UK (formerly known as Handicap International UK).

At the end of 2013 BACPAR was invited by HI to work with them and other CSP professional networks to develop and deliver training for therapists to register with UK-Med's Community of Practice, in readiness to respond as part of the UKEMT (UK Emergency Medical Team) after a sudden onset disaster such as an earthquake. Another BACPAR working group worked diligently to develop 3 training modules; one is an overview of amputee rehabilitation in the context of sudden onset disaster setting and which forms part of a 3 day core training course. This is accompanied by chapters in a manual **(downloadable via https://www.bond.org.uk/resources/rehabilitation-in-sudden-onset-disasters).**

To date BACPAR has contributed to the core training twice or three times year. The second module – a practical day long workshop – has been delivered up to three times annually since 2014. And finally an e-learning module was developed to accompany the core training and workshop. The working group has grown in numbers as members' commitments change and more volunteers are needed to support the workshops. All together it's been great fun and a learning opportunity for all of us involved, let alone those receiving the training. This association with HI continues and the next task is to update the manual – watch out for a call for volunteers to assist with this!

In summary, there are numerous additional BACPAR 'educational' activities and projects such as regional study days, conferences, guidelines… too many to mention. Suffice to say that education underpins our clinical practice and our ultimate goal of providing the best evidence based amputee rehabilitation.

May I take this opportunity to say a **really big thank you to all members** who have supported these exciting projects and developments. I hope this 'education' overview will encourage members to consider taking on what has been a very enjoyable and fulfilling role; I recommend it!

Southampton UNIVERSITY OF

Oxford University Hospitals NHS
NHS Foundation Trust


(1)

Is body image affected by lower limb amputation?

Helen Wilkins (Occupational Therapist)

Introduction:

- Lower limb amputation (LLA) is a life-changing experience (2), requiring physical, psychological and social adjustment
- Body image is a person's perception of his/her own body (3), likely affected by LLA

Aim:

To examine and critically appraise current literature on the impact of lower limb amputation on body image

Method:

- Search using Delphis
- Critical appraisal using CASP Tool
- Search terms: accept*, adjust*, amput*, body image, body image perception, loss of lower limb, lower limb loss, quality of Life, QoL

Author	Method	Findings
Coffey et al. (2009) (4)	• Cross-sectional study (2 prosthetic centres) • 38 participants; diabetes-related LLA; fitted for prosthetic • TAPES*, HADS*, ABIS-R*	• Anxiety correlates with depression and body image disturbance • Significant relationship between depression and body image disturbance • Significant correlations between body image disturbance and TAPES measures of adjustment
Holzer et al. (2014) (3)	• Cross-sectional study (3 ortho/prosthetic centres) • 149 participants (LLA); 149 controls (orthopaedic conditions, without LLA) • Fitted for prosthetics • MBSRQ*, RSE*, SF-36*	• LLA decreases level of body image perception and QoL • Similar levels of self-esteem in both groups • Self-esteem is influenced by phantom pain sensation
McDonald et al. (2014) (5)	• Convenience sample • 50 participants (diabetes-related LLA); 240 controls (diabetes without amputation) • HADS, WHOQOL-BREF*, BIDQ*	• Greater body image disturbance in LLA group • Depression and physical QoL may be more related to overall poor physical health than diabetes-related LLA itself

* ABIS-R – Amputee Body Image Scale – Revised; BIDQ – Body Image Disturbance Questionnaire; HADS – Hospital Anxiety and Depression Scale
MBSRQ – Multidimensional Body-Self Relations Questionnaire; RSE – Rosenberg Self-Esteem Scale; SF-36 – Short Form Health Survey (QoL)
TAPES – Trinity Amputation and Prosthetics Experience Scale; WHOQOL-BREF – World Health Organisation Quality of Life - BREF

Discussion:

- Psychological factors due to LLA are multifactorial
- Strong indication body image is affected following LLA
- Varied assessments used in studies ∴ not easy to compare results, but all identify impact on body image perception
- Limitations of study designs - do not examine change in individuals' body image perception over time
- Small sample sizes in Coffey et al. (2009) & McDonald et al. (2014) limit generalisability of findings

Conclusion:

- Evidence shows that body image perception is affected by LLA
- Body image, and other psychological factors, should be assessed following LLA to monitor progress towards adjustment (3)
- Further research needed into body image immediately after LLA & for those for whom prosthetics are not suitable
- Further longitudinal studies may be beneficial

References:
1. Picture courtesy of www.StockSnap.io
2. Couture, M., Desrosiers, J., Caron, C. Cognitive appraisal and perceived benefits of dysvascular lower limb amputation: A longitudinal study. *Archives of Gerontology and Geriatrics 2011; 52, 5-11*
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Teach a Man to Fish: Self-Management in Persons with Amputation

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Southampton UNIVERSITY OF

BACKGROUND

People with amputation often have complex and lifelong rehabilitation needs [1]. There is a high prevalence of multiple co-morbidities within the elderly group in this population; this includes diabetes and cardiovascular diseases [2].

Self-management is especially important for those with chronic diseases, in which the person is responsible for their own everyday care over the course of their illness. It can also be considered as an essential approach when coping with the problems amputees face post-amputation, and throughout the different phases of prosthetic rehabilitation.

DEFINITION

Self-management describes all the actions taken by people to recognize, treat and manage their health [3]. Key features include [4]:

- Building **self-efficacy**
- Via **problem solving**, **decision making**, **action planning** and **behaviour changes**

Broad range of initiatives are used to support self-management, which lie along a continuum [5].

METHODOLOGY

A literature search of self-management in people with major lower-limb amputation was undertaken. Papers with the term *self-management* described in its title and/or abstract were considered.

CURRENT RESEARCH

RCT (Wegener et al., 2009)
Test effectiveness of community-based self-management
N=287 in Promoting Amputee Life Skills (PALS) group, compared to N=235 in usual support group (Control)
Outcomes: Pain, depression, positive affect, self-efficacy, musculoskeletal function, life satisfaction
Results: Favours intervention group, greater benefits in subgroup analysis although clinically modest

Self-management strategies:
✓ Group education
✓ Self-monitoring

Expert panel review and survey (Lee and Veneri, 2017)
Examine development and acceptability testing of decision trees for prosthetic socket fit
N=15 prosthesis users
Outcomes: Acceptability of using decision trees to 'troubleshoot' prosthesis socket fit
Results: Decision trees easy to use, may benefit new prosthetic users more

Self-management strategies:
✓ Written information
✓ Self-monitoring

Pre-experimental study (Horne et al., 2017)
Test efficacious use and effects of tactile desensitization in managing post-surgical pain
N=13 amputees due to DM, PVD or ESRD
Outcomes: Pain, hospital anxiety and depression, feasibility of intervention
Results: Subjective comments show ability to self-administer desensitization with ease; changes in pain descriptors over time; indications of pain correlation with anxiety

Self-management strategies:
✓ Written information
✓ Self-monitoring

DISCUSSION

Recent studies [7] [8] have utilized self-monitoring interventions with the use of written management plans to facilitate coping with amputation-related issues. The papers, however, were inadequate in describing targeted concepts of self-management and were pre-experimental in nature.

Authors in the RCT [6] developed PALS based on self-management principles of knowledge, problem solving, skills acquisition and self-monitoring. Results appear promising, and the use of an outcome measuring self-efficacy truly reflects a person's confidence in their ability to manage problems related to amputation. Nonetheless, it would be useful to consider if there was an active component of individualized goal setting within the group interventions.

In clinical practice, amputee-related needs that can utilize a self-management approach includes:


Diabetic foot care


Chronic pain management


Falls prevention


Lifestyle redesign

CONCLUSION

Theoretically, self-management may be a fitting approach in the rehabilitation of persons with amputation. More empirical studies are required to determine its effectiveness, with a program design that truly reflects its principles.

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'The Perfect Prosthesis' An Ideology or Reality

UNIVERSITY OF Southampton
By Tamara Simmons

Background -

With modern advances in technology, upper limb prosthesis development has vastly improved. Within any design, the prosthesis is solely dependent upon an interactive and forever ongoing partnership between designer and client. This is evident within prosthetics, of which for an amputee, is an extension of the body, and must function to a high level of quality. Whilst balancing numerous daily design requirements. However, despite technological advances, prosthetic limb rejection rates remain exceptional high at 35-45% (Maat et al, 2017).

A common notation is for an upper limb prosthesis that is both functional, and yet visually pleasing. It is also noted within literature, that 'Movement is an essential part of cosmetic' (Biddiss and Chau, 2007). However, until more recently upper limb prosthesis has typically favoured either function, or cosmetic appearance, not both, leading to question, which provides the patient the most satisfaction; function or visual.

Passive Prosthesis

- Passive prosthesis offers a life-like appearance, and may be used for various uses (Fraser, 1998). However, heavily varies of which can be moved and locked in to position by the sound hand (Maat et al, 2017), or spring loaded responding to presences at the end of the fingertips.

Body Powered Prosthesis

- Despite the ongoing technological advances of electric prosthesis's, Body powered prosthesis has remained a common choice in regards to upper limb amputees. The acceptance of body-powered prosthesis largely depends upon the type of terminal device, whether it be hand or hook. Kejlaa (1993), demonstrated body-powered hands are associated with rejection rates as high as 80% (Millstein et al, 1986) and 87% (Kejlaa, 1993).

Electronic Prosthesis

- Electronic prosthesis remains an enticing alternative to body powered devices. Bionic prostheses are commonly associated with offering advantages in factors such as appearance, sensory feedback, grip strength, and lack of harness (Codella et al, 2016). Disputed features also include; overall function and comfort of which merits of electric over body-powered prosthesis are undetermined.

Figure 1. Upper Limb Prosthesis Examples
(Medicalexpo.com, 2018), (Ottobock.us.com, 2018), (Eugene Rossouw Prosthetics, 2018).

Figure 2. Lower Limb Prosthesis Examples
Schaffer, E. and Kreuter, P. (2009). Does Form Follow Function?. *Amputee Coalition*, 19(7).

Discussion -

Despite the strong evidence within rejection rates between pediatrics and adults, the two populations cannot be compared. This was a common theme within current research and do not specify age distributions within their studies. Although characteristics remain not too dissimilar and are noted, specific subgroups are not reported.

The use of body-controlled prosthesis with high rejection rates, even with the added function over static limbs, are not favourable. Thus, pointing to the requirement that the function needs to be refined, and accurate, to provide solace rather than hinder the user. Which leads to the advancement within technology that can provide smooth DC motors with reliable movement and reactions, that can be tailored and monitored to provide the most ease to the user.

Based upon literature within the past 25 years, prosthesis rejection or non-use was recorded on an average of 1 in 5 individuals within upper limb amputations (Biddis and Chau, 2007). However, it is predicted this value may be in fact higher due the collection of these results being obtained through rehabilitation centres of which not necessary have access to non-wearers using their services.

The extent to which factors involving prosthetic design within prosthesis rejection was not definitively stated. Rather, encompassing a large variety of aspects which may contribute to prosthesis abandonment percentages. A study conducted by Kejlaa (1993) recorded a high majority of prosthesis rejection due to external factors including; delayed prosthetic delivery, medical complications and or co-morbidities, or lack of functional need, only attributing 22% of rejection rates to prosthetic problems or discomforts.

The most recent full-scale study of which solely focussed upon defining individual consumer satisfaction within prosthetic options was conducted just over two-decades ago (Atkins et al, 1996). Within this time, prosthesis development has vastly improved, such as microprocessors in relation to reimbursement codes, (Lake and Mlgueler, 2003), as well as advancements within silicone coverings, and more lightweight batteries (Williams, 2005).

Conclusion -

To create a perfect prosthesis the technology of tomorrow will need to be applied to the socially of today. The current need for form and functionality has been demonstrated to be limited by the lack of technological advancements. However, the advancements that are being made at a high level of funding are seen to be positive, these applications can be made once the costing of such developments are reduced to be achievable at all levels to one day produce a one fits all prosthesis incorporating both form and function.

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Colchester Hospital University NHS
NHS Foundation Trust

"Decisions, Decisions" Determining Prosthetic Candidacy

UNIVERSITY OF Southampton

Louise Vigar
Physiotherapist

1) Introduction

Clinical decisions around suitability for prosthetic rehabilitation are challenging and complex. Clinicians starting out in the field lack the experience to guide them and therefore their decisions will need to be guided by the best available evidence, clinical guidelines and the experiences of colleagues.

2) Aims:

A literature search was performed, (Search terms – Predicting and amputation and walking. Clinicians and decision making and amputee rehab) via DelphiS to:

> Highlight the best available clinical evidence to predict prosthetic success

> Explore what guides clinicians' decision making in the field

> To consider how the above can influence inexperienced clinician's decisions.

3) Findings:

Best Available evidence(1):

Strongest Predictors:
- Level of Amputation
- Fitness
- Co-morbidities

Moderate Predictors:
- Age
- Ability to stand on one leg
- Cognition
- Cause of amputation

Weak predictors:
- Motivation
- Social Support
- Stump factors
- Independence in ADLS
- Time to rehab

Clinicians experience of factors affecting decision making (2):

- Patient attributes
- Multidisciplinary assessment
- Success with early walking aid
- Predicted level of mobility
- Social Support
- Use of guidelines-CSP(3) or local
- Flexible assessment
- Patient choice – affected by:
  - Family
  - Expectations and impact of media
  - Goals
- Barriers
  - Budget considerations
  - Risk Aversion

Patient factors:
- Social support(1,2)
- Expectations (2)
- Goals (2)
- Motivation(1,2)
- General health and physical function (1,2)
- Cognition (1,2)
- Coping Ability and adjustment (2)
- Pre amputation living status (1)

4) Discussion/ Conclusion

> Assessment should be holistic, flexible to change and individualised, considering all the factors identified as well as risk versus benefits (2).
> Early walking aid assessment gives the opportunity for therapist and patient to assess ability and challenges(2).
> It is not an exact science and difficult to predict outcome(2).
> Over prescriptions is favored over under prescription due to the costs associated with not being active (1).
> Use of locally agreed guidelines appears to improve confidence in decision making (2), and could be useful for new clinicians.
> Use of validated prediction tools may be useful to standardise the approach.

Due to limitations in the evidence base as well as a lack of nationally agreed guidelines for suitability for a prosthesis there is likely to be an inequality in prosthetic provision. This will be influenced by the experience of the clinician and the culture of the service. Inexperienced clinicians need to be familiar with the evidence base and use it to help guide decisions. Future research could focus on establishing a more standardised assessment process, which still allows for individual considerations, to improve both equality of provision and the strength of the evidence base for predicting prosthetic success..

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SKIN INTEGRITY

UNIVERSITY OF Southampton

Is it an important factor to post-amputation rehabilitation program in lower-limb amputee patients?

Acosta-Carrazco P. MD. Faculty of Health Sciences

Introduction

The principal outcome in the post-amputation rehabilitation process is to offer to the patient improvement in their quality of life, independency and mobility (Buitkema et al, 2014).

After an amputation, the residual limb skin suffer from disruption of blood vessels, nerves, and lymphatics. Scars, invaginations of the skin, and bony protrusions, make the residuum skin more vulnerable to dermatological issues (Buitkema et al, 2014).

An improper socket fitting is highly related to the prevalence of dermatological problems. The dermatologic conditions are presented in a wide range of symptoms and aetiologies.

Since burning sensation, superficial erosion, erythema, and desquamation, to more severe stages as painful fissures, thickening of the skin, lichenification, and callus formation. Allergic and irritant contact dermatitis are considered the most common ones (Colgecen et al, 2016).

Discussion

Butler et al, 2014, had described that the fit of the prosthesis socket is a key component in dermatological problems.

If the prosthesis does not fit well the inflammatory and noninflammatory pathophysiology will underneath dermatologic problems (Buitkema et al, 2014).

Skin issues identified are allergic contact dermatitis and infection in the stumps, but there is a huge variety of symptoms and presentations that can affect the reliability of soft tissue, principally skin.

The amputation level is another factor that induces skin issues, according to Koc et al, 2008, the higher is the level the most common is the incidence of dermatologic problems.

Conclusion

To conclude dermatologic issues are related to poor fitting socket, and non-use of prosthesis. However the evidence is not enough to make an assumption.

There is a gap in literature about this matter, it is important to conduct more studies to skin issues in amputees and look for the causes that can mislead the rehabilitation prosthetic path.

Key words

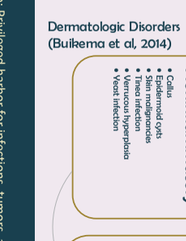
Skin integrity, skin breakdown, stump, skin disease, dermatologic conditions, dermatologic problems, skin temperature, lower limb amputee, prosthetic limb.

Aim

Identify skin factors that may affect lower-limb amputees in their post-prosthetic rehabilitation process.

Methods

Challenges after amputation (Buitkema et al, 2014).



Most common causes conditioning skin issues, (Buitkema et al, 2014).

Noninflammatory	Poorly fitting prostheses
	Increased friction
	Shearing forces
	Unequal forces across the stump site
Inflammatory	Retention of perspiration in the socket
	Poor hygiene
	Bacterial and fungal infections

Dermatologic Disorders (Buitkema et al, 2014)

Noninflammatory
- Callus
- Epidermoid cysts
- Skin indigenondis
- Verrucous hyperplasia
- Yeast infection

Inflammatory
- Acroangiodermatitis
- Bacterial folliculitis
- Contact dermatitis
- Eczema
- Folliculitis
- Hidradenitis
- Intertriginous dermatitis
- Psoriasis
- Pyododerma
- Ulcer

Results

Dermatological disease incidence in lower-limb amputee (Colgecen et al, 2016).

24-74%

28 used soft socket prosthesis which 23 develop a dermatological problem

18 used silicone prosthesis from it, 11 dermatological issue

24 did not used any prosthesis, 15 develop skin problem

(Colgecen et al, 2016).

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Does a Krukenberg amputation ever produce a satisfactory outcome?

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Charlotte Matthews, BSc Podiatry

What is a Krukenberg amputation? It was first described by the surgeon Herman Krukenberg in 1917 (1&2). The procedure consists of hand loss and separation of the ulna and radius creating a pincer grip which has sensation.

Study	Study type and content	Strengths	Criticisms
Freire et al. 2005 (3)	Case study; 51 year old female with traumatic bilateral TR and TB amputations	- Operation done after prosthetic rejection - Measured Quality of Life (QoL) as well as physical recovery	- Case study - Doesn't say how QoL or physical change were measured
Schatz et al 2002 (4)	Case study; 13 year old male with traumatic unilateral TR amputation and blindness	- Shows lots of qualitative data - American study, shows developed surgery techniques	- No measurements taken of physical or QoL bar visible progress
Irmay, Merzouga and Vettorel 2000 (5)	Case series investing function; 11 participants (3 unilateral and 8 bilateral TR; ages 13-65)	- All participants were labourers (bar 2) - All right handed	- Very wide age range - No control group - Subjective testing - Manual dexterity calculation incorrect - Short follow up

How good is the evidence?

- General - lack of control groups; subjective results e.g. muscle strength
- Ethics - is it right to do further testing on an amputation technique we are not sure about?
- Sample sizes - will always be small due to number of people suitable
- Prosthetics vs Krukenberg - any comparison would be hard to quantify and need longer timescales (prosthetic acceptance).

Why do it?

Pros	Cons
Cheap	Appearance (scarring)
Sensory function	Fewer nerves in forearm than hand
Optional prosthetics	Fewer prosthesis'

What can we take from this?

Despite the poor appearance of these amputations, these case studies show that they are well tolerated and preferred by some. Evidence suggests that the Krukenberg amputation is still useful today, even in patients with sight, due to remaining sensation.

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ISPO UK MS OSSEOINTEGRATION WORKSHOP

CHALLENGES AND PERCEPTIONS – DIRECT SKELETAL FIXATION FOLLOWING AMPUTATION

A PHYSIOTHERAPIST'S VIEW OF THE DAY

Maggie Walker

Senior Physiotherapist

ISPO UK hosted a comprehensive workshop in London on the 18th January 2018, exploring the 'Challenges and Perceptions of Direct Skeletal Fixation following Amputation'.

The day was attended by nearly 100 delegates who were keen to share experiences, improve their knowledge and understanding of direct skeletal fixation techniques, be updated with patient outcomes and discuss the future of where this exciting but challenging development in the specialty of amputee surgery and rehabilitation is heading.

As a physiotherapist based at Queen Mary's Hospital, Roehampton, I have been fortunate to be involved in Osseointegration since 1997, when the first UK amputee underwent Osseointegration using the Branemark method from Sweden. This was part of a Department of Health funded trial. My physiotherapy experience within osseointegration solely lies in being part of the multidisciplinary team management of amputees who have undergone the Branemark system. Over the past two decades, different teams worldwide have developed their own bone implant systems and rehabilitation programmes. This workshop gave an immense opportunity for renowned leaders in the field of direct skeletal fixation to present their systems, share their encouraging results and be honest about complications, as well as discuss the future. The fully packed programme included presentations from teams from Sweden (The Branemark Method), Germany (Endo-Exo Method), Australia (OGAAP-OLP) and the UK (ITAP). A detailed evidence review was also presented as well as time given for two patients to share their experiences of having direct skeletal fixation and the impact it has had on their quality of life – highlighting the positive impact but also the challenges of trying to overcome some complications.

Direct skeletal fixation for amputees is currently not available as a 'routine procedure' on the NHS. However, over the past few years, amputees have gone privately to the different countries listed above to have the surgical procedure and then return to the UK for ongoing rehabilitation via Private Prosthetic Clinics. The Military have also undertaken a direct skeletal fixation programme for a number of bilateral transfemoral amputees. Presentations and updates on patients' outcomes to date and clinicians' experiences were also shared.

As well as an educational overview of prosthetic fitting, alignment, biomechanics and ISO standards, a presentation was given by NHS England informing delegates of where direct skeletal fixation lies within NHS provision. That is, it is not routinely commissioned and commissioning will need to occur through evaluation. A policy would need to be developed and the pathway would definitely not be simple. There are many grey areas about where responsibilities lie. For example, if the implant breaks, who takes responsibility?

The cause of the break would need to be investigated, but would responsibility lie with the supplier of the implant or the NHS? If the development of a policy was started in the near future, it would likely take at least two years before it may be agreed and implemented. This is not dissimilar to the hard work put in to develop and approve the recent NHS England MPK Policy.

The question of the panel discussion was 'How do we ensure the UK has a robust and ethical governance for all amputees who are either considering, or who have undergone a direct skeletal fixation procedure?' This discussion was led by Professor Noel Fitzpatrick, otherwise known as the 'Supervet'. He shared his extensive knowledge on treating animals with direct skeletal fixation and challenged the speakers and delegates to collaborate more with him and to share experiences to develop practice for our patients.

This incredibly informative day which was so well supported by health care professionals from every discipline involved in prosthetic rehabilitation, highlighted the interest in this topic and proved that direct skeletal fixation is here to stay. But it has left so many unanswered questions.
These need to be addressed before the procedure is to be commissioned routinely in the NHS. In my physiotherapy experience of treating direct skeletal fixation patients, I know that when it works well, it transforms a patient's life. To see the mobility, function and quality of life restored for a person is humbling. However, we are aware of potential complications such as infection, implants having to be removed, mechanical issues with the failsafe designs etc, and these can have a negative effect on a patient's life if not managed appropriately.

Some of the unanswered questions that Sir Saeed Zahedi outlined at the end of the day and that require further research and development are:

- Looking into the different surgical techniques – some are a single stage procedure, some are a two stage procedure, some implants are a screw-fix technique, some are a press-fit technique. What about the penetration site – a skin to metal interface or a skin to bone interface?

- The rehabilitation pathway – some protocols are very speedy and patients are fully mobilising within three months. Some can take up to eighteen months.

- The failsafe design needs urgent attention as it appears to be the cause of a number of mechanical incidents. The failsafe is the 'safety device / connector' that attaches the implant system to the prosthetic components. In the unfortunate event of an adverse incident, eg a severe fall or a rotational impact, the failsafe should release to protect the integrity of the implant, ie, it is a 'torque device'. Each system is using a different design. Should there be one design that is reliable, safe, minimises the risk to patients and can be used on all the different systems?

- The management of addressing complications eg, revision surgery, antibiotics?

- There is a definite need for teams to work together, collaborate, share experiences, improve data collection, have an international register, look at long term costs and health economics as well as having a supportive network for the education and training of clinicians. The small numbers of patients often require a disproportionate amount of time spent with them and clinicians need time and support to optimise patient outcomes.

The numbers of direct skeletal fixation amputees in the UK are growing, although remain small in comparison to other areas of health. Long term results are still not known. There is a duty of care as health care professionals to look after and manage the patients who have had direct skeletal fixation from 20 years ago on the NHS as part of the original Department of Health funded project, as well as more recent amputees who have undergone the procedure as part of the Military or Privately.

ISPO UK should be congratulated for organising this comprehensive day. As a profession, we look forward to some of the unanswered questions being addressed and for further study days like this.

LENGTH OF STAY AUDIT COMPARING 2008, 2011 AND 2016/17

AMPUTEE REHABILITATION IN MUSGRAVE PARK HOSPITAL, BELFAST

Lauren Buckley

Physiotherapist
Belfast Amputee Rehabilitation Centre

Purpose of Audit

The purpose of this audit was to determine whether recent changes within RDS, such as staffing levels and the introduction of outpatient services, had affected the length of patients' hospital stay compared to previous years. An initial Length of stay audit had been carried out in 2011.

Method

It was decided to complete an audit to compare patients' length of stay between 2008, 2011 and April 2016-April 2017. The patients included were primary amputees attending RDS for limb fitting and gait re-education. Other information recorded was the patient's age, gender, number of sessions of physiotherapy each patient received during their stay, and outcome measures on discharge.

Exclusion Criteria

Patients were excluded if they were admitted to the ward for PPAM aid or femurett assessment only, and did not continue for limb fitting. Patients were also excluded if they were established walkers admitted for walking practice for a short period, or patients who were admitted for transfer practice only.

Outcome measures SIGAM, LCI/LCI5

The outcome measures chosen were the SIGAM mobility scale and the Locomotor Capability Index score. Both of these outcome measures are recognised as appropriate measures for amputee patients who have been fitted with a prosthesis. The LCI is a self-reported outcome measure which assesses the lower limb amputee's ability to perform activities while wearing a prosthesis, and is scored out of a total of 42 points. In 2011, the LCI had been updated to a newer version, the LCI-5, which is scored out of 56 points, therefore the 2008 scores were not comparable to the more recent years.

Summary of findings

The average length of stay per patient in 2008 was 33 days, in 2011 was 28 days, and in 2016/17 it was 20 days. In 2008, both transtibial and transfemoral patients stayed, on average, 33 days. In 2011, transtibial patients stayed an average of 26 days compared to transfemoral patients staying 30 days.
In 2016/17 the length of stay further reduced with transtibial patients staying an average of 20 days, transfemoral patients staying 24 days, and through knee patients 20.5 days. The average number of physio contacts for all patients in 2008 was 22.5, which reduced in 2011 to 18, and then remained consistent in 2016/17 with an average of 18.5. In 2008, transtibial patients received 22 contacts and transfemoral 24 contacts. This reduced in 2011 to 17 and 21 contacts. In 2016/17 the averages increased to 19 and 22.5 , and 18 contacts for through-knee patients.

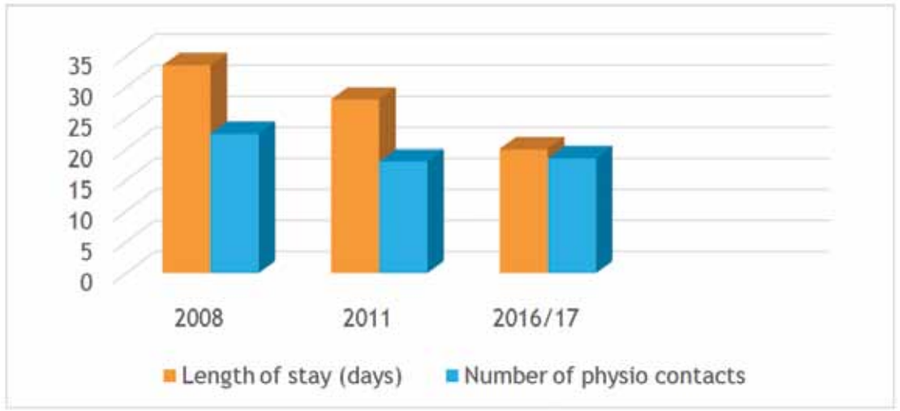
Out of interest, it was decided to compare the length of stay in 2016/17 between males and females. The result was that male patients appear to have a longer length of stay than females, with the average length of stay for men to be 21 days, and females 18 days. The biggest difference is between transfemoral patients. SIGAM scores have altered slightly in 2016/17 with more patients recorded as either a C(a) (walking on uneven surfaces with a frame, less than 50m) or D(b) (walking on outdoor even surfaces, with 2 sticks/ crutches, more than 50m). In transtibial patients, LCI-5 scores in 2011 and 2016/17 have remained quite similar (32 & 31). Transfemoral patients scored higher in 2016/17 compared to 2011 (32 & 24).

SUMMARY TABLE COMPARING RESULTS IN 2008, 2011 AND 2016/17

Year	2008	2011	Year 2016/17
Number of patients	61	78	65
Age	59	63	63
Length of stay (days)	33.5	28	20
Number of physio contacts	22.5	18	18.5
LCI/LCI5 score	35/42	30/56	32/56
M:F ration	46:15	58:20	52:13

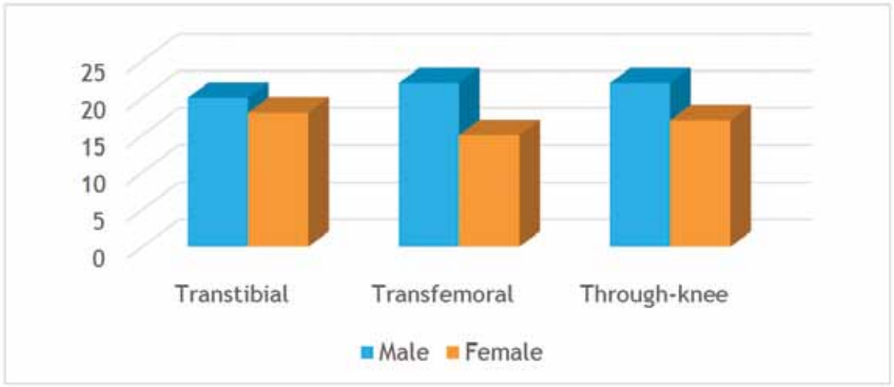
	2008		2011		Year 2016/17		
Average	TT	TF	TT	TF	TT	TF	TK
N=	43	18	54	24	52	12	3
Age	58	60	63	62	60	59	58.5
Length of stay (days)	33	33	26	30	20	24	20.5
Inpatient contacts	22	24	17	21	19	22.5	18
LCI or LCI5 scores	30/42	25/42	32/56	24/56	31/56	32/56	36.5/56

COMPARISON OF LENGTH OF STAY AND PHYSIOTHERAPY CONTACTS

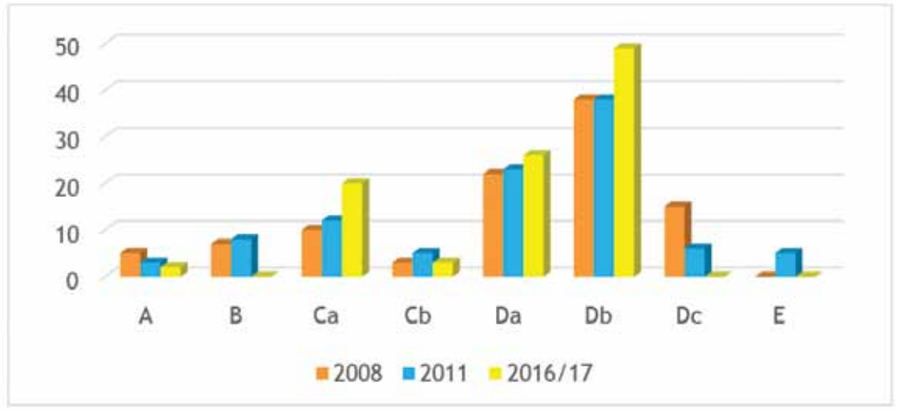


COMPARING MALES AND FEMALES 2016/17

Average length of stay (days)	Male	Female
Transtibial	20	18
Transfemoral	22	15
Through-knee	22	17
All	21	18



SIGAM SCORES



Discussion

Between 2008 and 2016/17, our patients' average length of stay in hospital has reduced. The average number of physio contacts in 2016/17 has remained consistent from 2011. Outcome measures will continue to be recorded to ensure the treatment patients are receiving is not compromised by the pressures of waiting lists and bed availability.

In 2016/17 the number patients admitted to the ward for primary limb rehabilitation has reduced. This may be the result of a new Outpatient Amputee Rehabilitation service offered to local patients who are deemed medically fit to travel from home each day. This service started mid 2016 and may have impacted the number of inpatient admissions.

Reduced hospital admissions and length of stay has obvious benefits. These include reducing costs in an already stretched health budget and reducing the incidence of hospital acquired infection.

Looking forward, it has been noted that hospitals and community staff appear to be making good use of the PPAM aid. By continuing to encourage this and provide appropriate advice and support for staff across the region, this could have a positive impact on length of stay.

Formulating a MDT Trial and MPK Provision Process in Accordance with the NHS England Policy

Practicalities

A meeting was arranged with all MDT to prioritise the patients organising the order of provision.

Equipment sourced for outcome measures and purchased.

A practical trial of the outcomes measures was conducted; it was found that a walking track was required and that appointment durations should be 1hour.

Develop outcome measure recording sheet, for ease of use for clinicians and admin processing of data.

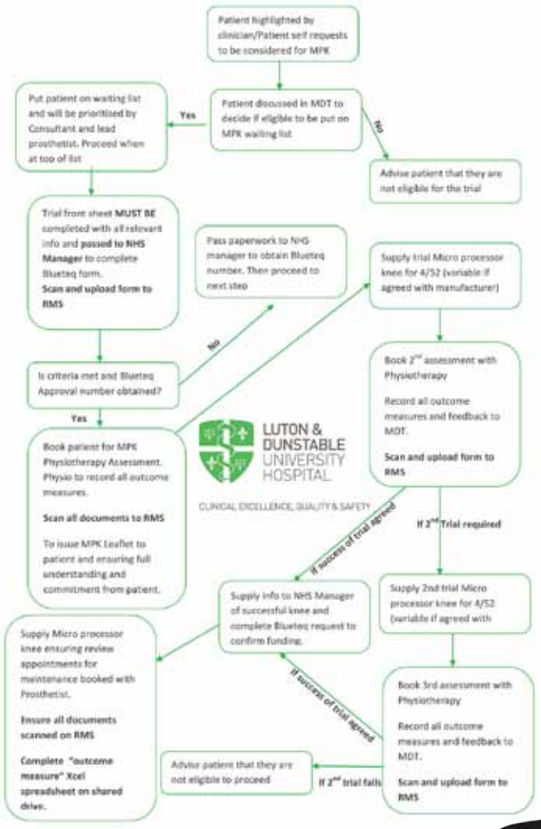
Activity diary sourced from another Blatchford centre.

Coordinating clinic rooms to allow use of pressure plate.

Reflections

- All planning for trials and provision was carried out through MDT meetings, allowing smooth transition into implementing the policy.
- Outcome measures set up and carried out without therapies staff initially, showing the outcome measures are not overly complicated and all MDT can carry them out.
- It was found that socket alignment was paramount to the successful fitting and set up of MPK knees, therefore it is best practice to have sockets at fitting stage for initial set up of the knee, to allow for optimal alignment.
- Ramps in rehab garden are insufficient gradient for patient to practice using yield of knee on ramp descent.
- There have been issues with storing video data due to incompatible software/hardware.
- The admin time required to process the outcome measures data affects work load of all staff especially physiotherapist.

Pathway for MPK Trials

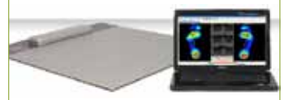


Outcome Measures

The core outcome measures required by the policy were a Prosthetic Evaluation Questionnaire (PEQ), Falls Diary, Timed walking tests, Timed Up and Go (TUG), Re-integration to Normal Living Index (RNLI) and Joint Movement Data.[1]

In addition to this the Hospital Anxiety and Depression (HAD) scale was included to offer a more holistic view the impact a microprocessor knee has on persons quality of life.[2]

To enhance gait analysis a pressure plate gathers data on peak pressure on the contralateral foot and the stance phase timing differential, both report on the symmetry of gait.[3]



Footwork Pro pressure plate from Mar Systems

Polar heart rate monitor was used to measure total heart beat index offering information on energy expenditure.

Polar Heart monitor

EQ-5D-5L was selected as NHS Scotland have been using this outcome for their advanced prosthetic technology policy, it is also recognised across Europe therefore will allow comparison of data.[4]

Next Steps

- Install new ramp in rehab garden of 15°
- Resolve video data storing issue
- Service review of policy every 6 months discussed in Audit meeting
- Calendar of service dates for knees
- Appoint 6 month MDT review of patient

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1. https://www.england.nhs.uk/wp content/uploads/2016/12/ clin-comm-pol-16061P.pdf
2. http://www.svri.org/sites/default/files attachments/2016-01-13/HADS.pdf
3. Perry, J. Gait Analysis: Normal and Pathological Function. United States of America: Slack, 1992.
4. https://euroqol.org/wp-content uploads/2016/09/EQ-5D-5L UserGuide_2015.pdf

Elizabeth Holland, Sarah MacGillivray and Rachel Smith - Luton Limb Fitting Centre

AMPUTEE MORTALITY RATES STUDY FEBRUARY 2018

Kym Irwin

Purpose of Study
Analysis of data of patients from Belfast Regional Amputee Rehabilitation Centre (ARC) who had died within years December 2012- December 2017
The purpose of this audit was to determine mortality rates for patients referred to ARC who were deceased 5 years post amputation.

Further analysis of mortality rates for these patients who were issued with a prosthesis following referral to the Belfast Regional ARC.

Methodology
Information was gained from REHAPP, Opcare's patient data, for all patients referred to ARC in NI who had died in the last 5 years.
Other information gathered:
- Were issued / not issued with a prosthesis
- Time recorded between amputation and death
- Level of amputation (TT/TF)
- Age of patient
- Cause of amputation

Exclusion Criteria
Patients were excluded from the study if they:
- Were an upper limb amputee
- Died more than 5 years ago i.e. prior to December 2012

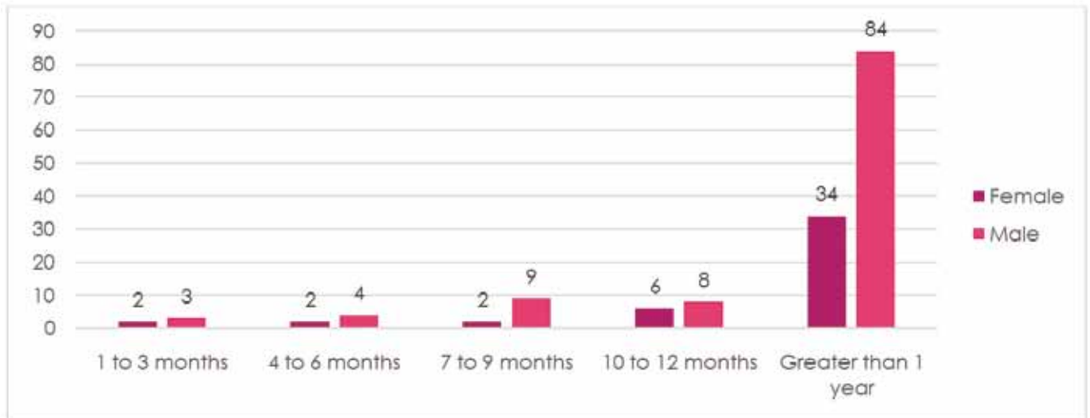
TOTAL NUMBER OF PATIENTS ATTENDING ARC WHO DIED 2012-2017

Months/years between amputation and death	Male	Female	Grand total
1 to 3 months	45	33	78
4 to 6 months	23	10	33
7 to 9 months	19	7	26
10 to 12 months	12	7	19
Greater than 1 year	105	50	155
Grand total	204	107	311

PATIENTS WHO DIED DECEMBER 2012 - DECEMBER 2017

PATIENTS ATTENDING ARC, ISSUED WITH A PROSTHESIS, WHO DIED 2012-2017

Years between amputation and death	Male	Female	Grand total
1 to 3 months	3	2	5
4 to 6 months	4	2	6
7 to 9 months	9	2	11
10 to 12 months	8	6	14
Greater than 1 year	84	34	118
Grand total	108	46	154



TIME BETWEEN AMPUTATION AND DEATH

Time between amputation and death	All patients referred to ARC	Patients referred to ARC and issued with prosthesis
1 to 3 months	78	5
4 to 6 months	33	6
7 to 9 months	26	11
10 to 12 months	19	14
Over 12 months to 5 years	155	118
More than or equal to 5 years	311	154

MORTALITY RATES VS TIME

Of all the patients who died between December 2016-December 2017
25% died within 3 months of amputation
49% died within 12 months of amputation

Of all the patients who were fitted with a prosthesis and died between December 2016 - December 2017
3% died within 3 months of amputation
23% died within 12 months of amputation

Discussion
Lower mortality rates are observed in patients issued with a prosthesis, as they were deemed medically fit enough to use a prosthesis.

Demonstrates the importance of careful medical screening at the MDT First Examination clinic and how medically unwell this group of patients can be.
23% of the cohort who had been fitted with a prosthesis were deceased within 12 months. This raises issues regarding these patients' quality of life with a prosthesis, general health, and potential prosthetic abandonment rate for this group.

Future Studies
Compare Mortality rates for various groups:
- Unilateral vs Bilateral
- Diabetes vs Non diabetes
- Dialysis vs Non dialysis patients
- Transtibial vs transfemoral
- Analyse annual data for 1-5 years post amputation

SOUTH THAMES STUDY DAY

Amy Jones

Clinical lead of amputee service
Guys and St Thomas' Regional Prosthetics Centre

Pain Management of an amputee
Miss Becky Sandford, Consultant vascular Surgeon, GSTT updated us on investigations and treatment for vascular causes of pain and their teams' use of indwelling catheters for pain relief. She also outlined their emergency assessment beds that local services can refer into, which is a service Bowlety Close utilises.

Pharmacological management was presented by one of our in-house pharmacists. She gave an overview of the mechanisms of neuropathic pain and characteristics of post amputation pain, the more common and less common medications used, along with side effects and considerations regarding co morbidities and interaction with other medications.

An overview of graded motor imagery (GMI) was given by Ed Morrison. (B7 physiotherapist at Bowley Close) Along with an overview of the theory of GMI, he tested our visualisation skills and there was a practical element for the group to discuss how we use GMI within our clinical settings and if we have modified our way of working to incorporate GMI.

Our in house specialist counsellor Lisa Ferguson taught us how pain can be managed by cognitive behavioural therapy and relaxation.

Maria Andrews, (Bowley Close B6 physiotherapist) presented on pain management using acupuncture. She gave an overview of the theory of acupuncture, common acupuncture points and the clinical reasoning and evidence behind the use of certain points.

Nicolas Spahr, Consultant physiotherapist, GSTT pain team provided a riveting lecture on pain management in physiotherapy. Nicolas is based in the pain team at GSTT. A main take home point for me was 'pain is a multidimensional experience produced by characteristic "neurosignature" patterns of nerve impulses generated by a widely distributed neural network-the "body-self neuromatrix"-in the brain. The concept of acceptance and commitment therapy and mindfulness of chronic pain was discussed.

Lt Col Tania Cubison, Consultant in burns, plastics and reconstructive surgery at Queen Victoria Hospital, East Grinstead and Defence Medical Rehabilitation Centre, Headley Court updated us on the cases she treats in the military population. Her patients mainly present long term with neuromas (more common in trans tibial residuums), bone length concerns and soft tissue problems, with heterotrophic ossification if involved with very high energy injuries. These are dealt with in a 2 stage surgical approach. Revision surgery was carried out for length revision (longer fibula or rotated short fibula) and rewrap of soft tissues. Lt Col Cubison identified clinical presentations for surgery that are either easily indentified or with less clear benefit. The later includes patients with loose muscles, mild soft tissue excess, recurrent infection, recurrent proximal neuroma and patient choice of functional length of the residual limb. Discussing with the patient re being prepared for a 3 month recovery period is essential, as is having an experienced interventional radiologist. She has learnt with experience (and continues to do so) to recognise the professional patient, who may have a long term sick role, where surgery will not be beneficial.

Common skin problems was presented by me (Amy Jones). Skin problems can cause discomfort, pain and if left untreated, can cause emotional distress. Skin function and structure was revised, preventable measures focussing initially on patient education regarding hygiene when using a prosthesis and accessories was highlighted and referred to frequently throughout the presentation. Folliculitis, hyperhidrosis, distal congestion, verrucous hyperplasia, dermatitis (allergic and irritant), infection, fungal infection and boils were all indentified with photographs. The causes and treatments were presented for each clinical presentation. Anti microbial soaps over the counter, arranging swabs for correct antibiotic prescription, swift wick socks, odaban, driclor, antiperspirants, laser hair removal and specialist liners are all treatment adjuncts that are frequently used here at Bowley Close and other prosthetic centres.

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