Final Programme and Abstracts

Annual Congress 2013
Birmingham ICC 1st – 4th October
In Association with the Specialist Societies

Putting Evidence into Action
COPAL® – the product line for revision arthroplasty

Everything from a single source:
- COPAL®G+V – specialised cement with gentamicin and vancomycin for use in septic revisions e.g. in proven MRSA/MRSE infections
- COPAL®G+C – double protection and safety for one and two-stage revisions
- COPAL®spacem – specialised cement for the manufacture of spacers

Please visit Heraeus at BOA in Birmingham, booth Nr. 80 and collect your Abstracts USB stick.
Dear Friends and Colleagues,

Welcome to the BOA Annual Congress

2013 will be remembered as the year of great change, transformation and challenge in the NHS and UK health and care system: the NHS underwent one of the biggest re-organisations and restructures in recent times, which saw the creation of new bodies, departments and changes to existing roles. We also saw the publication of Sir Robert Francis QC’s second report on Mid Staffordshire, followed by the government’s wide ranging proposals to revolutionise care and embed high standards in the NHS. Other developments this year included the introduction of revalidation, affecting all licenced doctors in the UK. For 10 surgical specialities, including ours, there has been a push for greater transparency of surgical outcomes, and this is likely only to increase.

Against this backdrop of change and transition, there is a growing and deepening financial challenge at the heart of the NHS, and so throughout these tough times, it is critical that the orthopaedic profession uses evidence to support and underpin best practice. This is why the theme of our 2013 Congress is Putting Evidence into Action.

It is likely to be the largest Congress the BOA has staged, with over 1400 perhaps even 1500 attendees, and we believe we have all the ingredients for a vibrant and informative event. We have created an exciting programme for delegates around this theme and we hope that the sessions, seminars and lectures stimulate further discussions and debate not only during Congress, but with colleagues long after it is finished. Running alongside the official Congress programme is a much less formal social programme, and I do hope you take advantage of the social events we have planned. I am particularly looking forward to the Jam House for an evening of music and light entertainment, and I’m just sorry we couldn’t fit more of you in to enjoy what promises to be an excellent evening.

Many of our seminars and sessions are designed to support revalidation and we have developed these in collaboration with our Specialist Societies. We also have several new additions to the programme, including the session on GPs and Commissioning of healthcare, Good Clinical Practice training and the Trauma Boot Camp. I hope you find these new additions to our standard programme useful and interesting.

In summary I hope that this year’s Congress is a chance for us to discuss, debate, share ideas and best practice in order to rise to the challenges now and in the future. I look forward to speaking with many of you over the course of the four days, and I hope that, together, we make this year’s Congress a highly successful and enjoyable event.

Martyn Porter – BOA President
BOA COUNCIL 2013

OFFICERS
President M L Porter (Wrightington)
Immediate Past President J J Dias (Leicester)
Vice President T W Briggs (Stanmore)
Vice President Elect C R Howie (Edinburgh)
Honorary Treasurer A J Timperley (Exeter)
Honorary Secretary D Stanley (Sheffield)

ELECTED MEMBERS
B D Ferris (London) A C W Hui (Middlesbrough)
J P Hodgkinson (Wrightington) M F Gargan (Bristol)
P G Turner (Manchester) M G Matthews (Buckinghamshire)
I G Winson (Bristol) A M Nanu (Newcastle)
D J McBride (Newcastle) A J Stirling (Birmingham)
R Ravikumar (Middlesex)

EX OFFICIO MEMBERS
Chair, Council of Management of the Bone and Joint Journal N P Thomas
Chair, Specialty Advisory Committee in Trauma and Orthopaedics M L Goodwin
Chair, Education Committee D L Limb
Chair, Scottish Committee for Orthopaedics and Trauma C R Howie (Vice President Elect)
Chair, Welsh National Specialist Advisory Group for T&O N K Makwana
Chair, N Ireland Regional Orthopaedic and Trauma Committee I Brown
Chair, BOA Research Board A Carr
President, British Orthopaedic Trainees Association J Palan
Chair, British Orthopaedic Directors Society D Clark

HONORARY POSTS
Editorial Secretary B J Ollivere
Archivist I B M Stephen
Workforce Liaison Officer G W Bowyer

AWARDS & PRIZE WINNERS
The BOA is delighted to use the Annual Congress as an opportunity to publicise and celebrate the following awards and prizes granted by the Association in 2013;

HONORARY FELLOWS
Professor Sir Keith Porter
Professor Charles Galasko
Mr James Scott

PRESIDENTIAL MERIT AWARD
Sue Miles

ROBERT JONES MEDAL WINNER
Mr Jaykar Panchmatia

HONG KONG AMBASSADOR
Dr Chun-Hoi Yan
Registration
The Registration and Information desks are located at the top of the escalators. Onsite Registration must be done online at congress.boa.ac.uk – delegates can access the website in order to register by visiting the desks within the registration area; staff are on hand to assist.

Delegate Packs

Full meeting delegates will receive:
- Delegate Bag containing Final Programme and other congress materials
- Name Badge permitting access to all sessions
- Complimentary invitation to opening reception
- Issue 2 of the Journal of Trauma and Orthopaedics, the BOA’s new journal

One Day Delegates will receive:
- Delegate Bag containing Final Programme, and other congress materials
- Name Badge permitting access to all sessions for the day(s) of attendance
- Complimentary Invitation to opening reception (if registered for Wednesday)
- Issue 2 of the Journal of Trauma and Orthopaedics, the BOA’s new journal

All accompanying persons, Wives/Partners must be registered.

Accompanying Persons receive:
- Access to Sessions (space permitting)
- Complimentary invitation to opening reception

Finding Your Way Around

The Venue – ICC Birmingham
The halls/rooms that the BOA will be using during the Congress are on various levels. Hall 1 is the main auditorium and where all plenaries will take place.

Hall 3 is the main Exhibition area; all catering will be served within this area. The halls/rooms that the BOA will be using throughout the Congress are sign posted and there are also Hosts on hand to help and assist with directions.

Exhibition
There are over 100 companies showing their continued support to the BOA within the exhibition areas. We would encourage all delegates to visit the exhibition stands including the Internet Café located on the balcony. The exhibition floor plan and list of exhibitors can be found at the back of this programme.

Cloakroom
The cloakroom is situated on the Mall on the ground level next to the Starbucks coffee shop. Those using the cloakroom will be charged £1 per item.

Cloakroom Opening Times:
- Tuesday 1st October ........................................ 06:30 – 17:30
- Wednesday 2nd October .............................. 06:30 – 20:00
- Thursday 3rd October .............................. 06:30 – 19:30
- Friday 4th October ........................................ 06:30 – 17:00

Prayer Room
Is located off the main mall past ‘The Oak Kitchen’ and is accessed via a security keypad at the entrance door. Those wishing to use this room should request the security code from the staff on the registration desk.
General Information

Making the Most of Congress

Scanning of badges & CPD Points
Please ensure that your badge is scanned before you enter any of the session rooms and auditorium. Your attendance makes up the amount of CPD points you will be awarded during the Congress. CPD points cannot be added after; it is each delegate’s responsibility to have their badge scanned throughout their attendance at Congress.

Following the Congress, you will be able to access and download a record of your CPD points. Up to 24 CPD points can be awarded by the BOA for your attendance at revalidation and instructional sessions at the BOA Congress. Where you attend free paper sessions, you can gain CPD points but this must be through self-accreditation rather than the BOA system.

Session attendance
The BOA Congress has been more popular than ever this year and we envisage that some sessions will be close to full capacity. Therefore, we advise that you arrive in good time for the start of each session you wish to attend. We will do our best to accommodate as many delegates as possible within each session; however, we reserve the right to refuse entry to delegates if any session becomes full to ensure the comfort and safety of all.

However, the following two sessions have limited capacity and will be open only to those who pre-booked using the online survey:
- Good Clinical Practice
- Clinical Examination for FRCS(Orth)

We apologise for any inconvenience but no other delegates will be permitted in these sessions.

BOFAS Clinical Examination Course – by invitation only, not included in the programme
Tuesday 1st & Wednesday 2nd October – Rooms: Hall 6A & Exec Rooms 4, 5 & 6

Poster Display
Posters will be displayed in Hall 3 on the balcony within the exhibition area and outside Hall 3 along the back wall. ARUK Posters will be displayed within the registration area. Transitional Fellows Posters will be displayed on the balcony in Hall 3.

Podium Presentations
Authors can download their presentations in the Media Suite. Use of this room is for authors who are presenting only.

Annual General Meeting
The Annual General Meeting of the British Orthopaedic Association will be held on Thursday 3 October, 12:30pm. All members are entitled to attend and speak, but voting is restricted to Fellows only.

Refreshments, Lunches and Congress Dinner

Refreshments
Tea and coffee will be served to all delegates during the mid-morning and afternoon breaks.

Lunch
A lunch bag contains: sandwich, fruit, snack bar, crisps and a hot or cold drink.

Delegates who have pre-ordered their lunch bags online will find a lunch voucher(s) attached to their Congress badge, each pre-ordered lunch bag contains a prize draw ticket (please see ticket for details). Pre-ordered lunch bags can be collected from the various catering points within the exhibition area, including the balcony, in Hall 3 – except on Tuesday when they will be available within the registration area.

Those wishing to purchase a lunch bag onsite can visit the cash catering points. On Tuesday these will be within the registration area and on Wednesday to Friday within the exhibition area at the catering point next to the stage.

Congress Dinner at The Jam House  NOW FULLY BOOKED  Wednesday 2nd October
The Jam House is your one stop destination for food, drink and live music!
This is one venue where you can eat, drink and dance to your heart’s content.

3-5 St Pauls Square, Birmingham, B31QU
Website: www.thejamhouse.com/birmingham, Phone: 0121 200 3030  Twitter: @TheJamHouse

If you have booked to attend the Congress dinner, your ticket(s) will be attached to your Congress badge (please see your ticket for more information). Those attending should make their own travel arrangements to and from the dinner venue.
General Information

Important Information

Hotels
If you are still in need of accommodation, or you have a query on your TSC booking, please contact TSC solutions: tel. +44 (0)1335 345 655 or fax +44 (0)1335 348 114 – www.thesolutionscompany.co.uk/event_society.php?e=12 0.

Travel Policy
Event participants are responsible for making their own travel and/or hotel arrangements. The BOA does not assume financial responsibility for penalties or expenses incurred by registrants who must cancel travel arrangements due to course cancellation.

In case of an emergency
Please note the various fire exits around you in case of an emergency. Listen to all public announcements and make your way carefully to the nearest fire exit if requested to do so. If First Aid is required, please ask a member of Staff or Host for help and assistance.

Declarations of Interest
All those presenting at the BOA Congress will be asked to make their declarations of interest on a slide at the start of their presentation, as discussed and agreed at the BOA AGM last year.

Copyright
The papers to be presented at this Congress have been prepared by the individual named authors. The papers represent the authors’ views of certain types of diagnosis, treatment or procedure. They are not represented as the only or best methods of diagnosis, treatment or procedure, nor are they represented as being appropriate for the diagnosis or treatment of individual patients who must be assessed by specialists according to their own individual circumstances.

Accordingly, neither the authors concerned nor the BOA accept any liability for any injury, damage or loss caused to any person by reliance upon or use of any diagnosis, treatment or procedure presented, described or discussed at this Congress.

Copyright and similar rights in the papers and other material presented are owned by the individual authors concerned [or in some cases by their employing institutions]. The BOA does not have any authority to allow the reproduction or use of those papers or materials and delegates wishing to do so must seek the permission of the individual authors concerned or their employing authorities.

The abstract memory stick sponsored and supplied by Heraeus has been produced under agreement with the BOA, and the same Copyright applies as stated above.

Other information
The British Orthopaedic Association does not accept liability or responsibility for third party exhibitors or their exhibits and the BOA does not endorse any of the products, items or processes exhibited.

Filming, recording or photography during the Congress is Strictly Prohibited unless by prior agreement with the BOA.

Badge types
Gold
Lilac/Purple
Blue
White
Pink
Grey
Red
Green
Orange
VIP
Guest Speaker
Delegate (Member)
Delegate (Non-member)
Partner / accompanying person
Visitor/Press
Staff
Exhibitor
GP Day Delegates

Invited Guests
Carousel Presidents
AAOS
AOA
AusOA
COA
NZOA
SAOA
John Tongue
Scott Boden
John Owen
Edward Harvey
Richard Lander
Johannes de Vos

Other Presidents
IOA(Irish)
IOS (UK)
Hong Kong Young Ambassador
Raymond Moran
Venu Kavarthapu
Chun Hoi Yan
The Annual General Meeting of the Association will take place in Hall 1 of the International Convention Centre, Birmingham on Thursday 3rd October 2013 from 12.30-13.30 under the Chairmanship of Mr Martyn Porter, BOA President. The agenda is below.

**PROXY NOTICE:** A member of the Association who is entitled to attend, speak and vote at the above-mentioned meeting is entitled to appoint a proxy to attend and vote instead of him or her. For details please see the note at the foot of this agenda.

**AGENDA**

1. **Membership issues**  
   a) Deaths [see annex 1]  
   b) Resignations [see annex 2]  
   c) New members [see annex 3]

2. **Matters arising from 2012 AGM**  
   a) Disclosures of conflicts of interest

3. **Elections**  
   a) President: September 2015 – 2016  
      To report the result of the Trustees’ ballot:  
      • Mr Timothy Wilton
   
      To report the result of the Home Fellows’ ballot:  
      • Mr Adam Brooks  
      • Mr Grey Giddins  
      • Mr Ian McNab  
      • Mr Phillip Mitchell
   
   c) Honorary Secretary: 2014 – 2016  
      To report the result of the Home Fellows’ ballot:  
      • Mr David Limb

4. **Honorary Treasurer’s Report and Financial Statements for 2012**  
   a) Annual Report of Trustees Financial Statements 2012 – see link below:  
      www.boa.ac.uk [see quick links on BOA home page]
   
   b) Resolution 1: To confirm the Auditors for 2014 – Crowe Clark Whitehill
   
   c) Resolution 2: To approve membership subscription rates for 2014  
      [see annex 4]

5. **Resolution regarding the appointment of Honorary Treasurer**  
   [see Resolution 3 in annex 5]

6. **Presentation and discussion of options for a revised Council structure**  
   These are likely to necessitate a change to the rules at the 2014 AGM
7. Presentation on implementation of BOA Research Strategy and implications for Joint Action

8. President’s report

9. Any other business

10. Date of next meeting
    Combined EFORT meeting – 4 – 7 June 2014 – London, under the Chairmanship of Prof. Tim Briggs and Dr Manuel Cassiano Neves.

    BOA Members only meeting – 12 – 13 September 2014 – Brighton, under the Chairmanship of Prof. Tim Briggs.

11. Future BOA and Allied Meetings
    BOA Annual Congress – September 2015 – Liverpool, under the Chairmanship of Mr Colin Howie.

    EFORT Congress – 27 – 30 May 2015 – Prague

NOTE
BOA Home Fellows received the AGM notification and proxy form by post in advance of this meeting, explaining the arrangements for appointing a proxy. The BOA must be notified of any proxies at least 72 hours in advance of the meeting.

Items for discussion under ‘Any other business’ should preferably be advised to the Honorary Secretary at least 72 hours in advance of the meeting, by contacting the BOA (contact details above).
Patient Liaison Group
What we want out of Orthopaedics

The PLG is pleased to present their first BOA Congress session at Birmingham in 2013

The Patient Liaison Group will cover:
- Who the PLG are and what they do
- Their achievements
- The importance of the patient-doctor relationship
- Experiences of being an orthopaedic patient
- What patients want from orthopaedic care

Hall 9
08:00am
congress.boa.ac.uk

The value of the PLG - a surgeons perspective - D McBride
From patient to patient champion - J Fitch
How the patient voice can improve the patient pathway - D Twigg
### Tuesday 1st October

<table>
<thead>
<tr>
<th>8.30</th>
<th>Hall 5 / Hall 10</th>
<th>Hall 9</th>
<th>Hall 7</th>
<th>Hall 6A</th>
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<tbody>
<tr>
<td></td>
<td>BJJ Orthopaedic publishing in 2013</td>
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<td>Primary Care at the BOA – Filling the Information Gap between Primary and Secondary Care in Orthopaedics**</td>
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<td>Infection in Orthopaedics – Assessment Diagnosis and Management*</td>
<td>Simulation &amp; Technology Enhanced Learning in Trauma and Orthopaedics</td>
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<td>13.00</td>
<td>Infection in Orthopaedics – Assessment Diagnosis and Management*</td>
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<td>14.30</td>
<td>TEA</td>
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<tr>
<td>15.00</td>
<td>Infection in Orthopaedics – Assessment Diagnosis and Management*</td>
<td>Simulation &amp; Technology Putting Simulation into Practice</td>
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<td>Primary Care at the BOA – Filling the Information Gap between Primary and Secondary Care in Orthopaedics**</td>
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*This session is expected to be popular and overflow will operate with a live video link in Hall 10 if Hall 5 reaches capacity.

**Timings for these sessions vary from the rest of the programme. For full details of times see p14.
Tuesday 1st October

Simulation & Technology; Enhanced Learning in Trauma & Orthopaedics

Surgical simulation has been demonstrated to have validity in preparing surgeons for operative situations; however, time, commitment, and a structured approach are crucial to successful integration into training. Trauma and orthopaedics has a long and established track record in the areas of simulation and Technology Enhanced Learning (TEL). Whilst we must embrace new technologies, our priority must be the expert supervision of trainees and appropriate preparation of trainers. We will explore aspects of simulation and TEL, which can be easily and inexpensively accessed by T&O trainers and trainees throughout the country. T&O surgeons then need to decide, based on intended specialty, identified learning gaps and resources available, how to achieve learning outcomes faster with minimal risk to patients. A section of the programme will be spent on planning options for integration into practice.

The day will run from 10:30 to 16:30 and by the end, participants will be able to:
1) Define the role of simulation and TEL in the wider context of surgical training
2) Integrate new ideas for simulation and TEL into their own practice
3) Identify sources of funding
4) Map simulation and TEL opportunities to the T&O curriculum

10:30 – 12:00

C Munsch – The Global View
a) Contextualise lessons learned from overseas initiatives to the UK
b) Explain how cardio-thoracic surgeons have integrated simulation into their curriculum
c) Identify suitable sources of funding
d) Outline pearls of wisdom and potential pitfalls identified by other specialties

B Bhowal, J Nichols & V Roberts – E-learning and Monthly Case-Based discussion
a) Describe the virtual learning environment in Leicester and its role in surgical training
b) Identify own needs as a trainer to support engagement with TEL

C Colton – Wikipaedics
a) Explain the future role of Wikipaedics within the wider context of e-learning

P Fearon – T&O Boot Camp
a) Describe the aim, process and costs of the Newcastle boot camp
b) Identify the key components of evaluation
c) Consider options for national roll out

C Kellet – Putting Simulation into Practice
a) Link simulation strategy to the T&O curriculum
b) Formulate a simple SWAT analysis for their own area of practice

A Gandhe – Touch Surgery
a) Download Touch Surgery and use it
b) Evaluate ways of integrating into practice
Tuesday 1st October

N Kumar – Establishing a simulation facility
a) Formulate a strategy for setting up a simulation facility
b) Consider options for funding and maintenance
c) Incorporate demonstrations of simulation technology into a conference / symposium

Lunch
12:00 – 13:00
Registration Area

13:00 – 14:30

M Alfa-Wali – Keep it Simple and Think Creatively
a) Outline the evolution of the home simulator
b) Plan ways of encouraging T&O trainees and trainers to create effective and efficient approaches to simulation.

J Barrie – Maximising Blackboard as an E-Learning Interface
a) Evaluate options for supporting e-learning
b) Plan simple ways of using Blackboard in the surgical setting

T Lewis
a) Access suitable medical apps for T&O practice/training
b) Evaluate current options

Tea Break
14:30 – 15:00
Registration Area

15:00 – 16:00

P Turner & L Hadfield-Law – Putting Simulation into Practice
Participants will have an opportunity to work up plans to develop and integrate simulation into the T&O curriculum

DISCUSSION
**Tuesday 1st October**

### Revalidation/Instructional

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:30 – 14:30</td>
<td>Bone &amp; Joint Journal Orthopaedic Publishing in 2013</td>
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<td><strong>Orthopaedic Publishing in 2013</strong> provides an essential guide for orthopaedic surgeons and researchers on all aspects of writing and publishing. Presented by the highly experienced editorial and publishing staff of The Bone &amp; Joint Journal (formerly known as JBJS Br), topics will include peer review, statistics, publishing metrics, fraud, editing and marketing scientific journals, and many more. You will also find sessions on what journal editors are seeking, and on what to expect once your paper has been accepted. Whether you are aiming to publish your first paper, or are already an experienced author, reviewer or even editor, this comprehensive update of current publishing practice will prove invaluable.</td>
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**08:30 – 10:00**

- **Introduction** – F Haddad
- **The History of The Bone & Joint Journal** – J Scott
- **Ups and downs of peer review** – F Haddad
- **Publishing metrics – a simple guide** – Peter Richardson

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<th>Coffee</th>
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<th>10:30 – 12:00</th>
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<td>Making sense of outcomes – M Costa</td>
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<td>Statistics for the busy clinician – A Petrie</td>
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<td>Spotting the fraudulent paper – N Parsons</td>
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<td>What an editor seeks – F Haddad</td>
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<td>What an author seeks – J Witt</td>
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<td>What a trainee seeks – J Palan</td>
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<td>So you want to write a novel? Publishing for the mass market – R Swift</td>
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<th>Lunch</th>
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<th>13:00 – 14:30</th>
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<td>Seeking perfect English – G Scott</td>
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<td>Helping staff to publish – R Field</td>
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<td>CME in orthopaedic publishing – D Limb</td>
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<td>Editing a specialist journal – R Spencer</td>
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<td>Marketing a scientific journal – L Stephenson</td>
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<td>So your paper has just been accepted? – E Vodden</td>
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<td>Video in orthopaedic publishing – A Bajway</td>
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<td>Social media and orthopaedics – V Khanduja</td>
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<th>Tea Break</th>
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**Notes**
## Tuesday 1st October

### Revalidation/Instructional
10:30 – 16:30
Hall 5 / Hall 10

### Update on Infection in Orthopaedics

**Session 1**
10:30 – 12:00

Chairs: Professor I Stockley & Dr M Morgan

- **Microbiology for Orthopaedic Surgeons** – Dr R Townsend, Consultant Microbiologist
- **Prevention of Infection** – M Reed, Consultant Orthopaedic Surgeon
- **Antibiotics and Biofilms** – Dr R Bayston, Associate Professor & Reader in Surgical Infection

### Lunch
12:00 – 13:00
Registration Area

**Session 2**
13:00 – 14:30

Chairs: Dr R Townsend & E Smith

- **Super bugs** – Dr M Morgan, Consultant Microbiologist
- **Surgical Management of Soft Tissue Infection** – A Fitzgerald, Consultant Plastic and Reconstructive Surgeon
- **Osteomyelitis** – M Dennison, Consultant Orthopaedic Surgeon

### Tea Break
14:30 – 15:00
Registration Area

**Session 3**
15:00 – 16:30

Chairs (a) A Cole & (b) J Webb

### DISCUSSION

Clinical Manifestations of Infection
(a) Spines
(b) Arthroplasty

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**Notes**
Tuesday 1st October

**Revalidation/Instructional**
08:30 – 16:30  
Hall 6A

**Primary Care at the BOA;**
**Filling the Information Gap between Primary and Secondary Care in Orthopaedics**

**Session 1: Commissioning of Care**  
09:00 – 10:30

- Evidence Based Referral Pathways – J Dias  
- Getting It Right First Time – T Briggs  
- MSK Commissioning – The GP Perspective – T Margham  
- How Commissioning Will Work – Commissioner tbc

**Coffee**
10:30 – 11:00  
Registration Area

**Session 2: Upper Limb**  
11:00 – 12:30

- The Weak/Stiff/Unstable Shoulder – D Clark  
- Subacromial Shoulder Pain – R Kulkarni  
- The Tingling Hand – J Dias

**Lunch**
12:30 – 14:00  
Registration Area

**Session 3: Lower Limb**  
14:00 – 15:30

- Hip Pain – J Timperley  
- Surgery for Painful Knee Arthritis – A Price  
- Foot and Ankle Pain – I Winson

**Tea Break**
15:30 – 16:00  
Registration Area

**Session 4: Spine and Roundtable**  
16:00 – 17:30

- Neck Pain – A Cole  
- Lower Back Pain – J Carvell

- Roundup and Roundtable  
Panel – J Dias, T Margham, L Horman, T Briggs, W Savior

**Notes**

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The image contains a detailed schedule for an orthopaedic meeting on Tuesday 1st October. The schedule includes sections for Revalidation/Instructional, Primary Care at the BOA, Commissioning of Care, Upper Limb, Lower Limb, Spine, and Roundtable. Each section lists presentations by various speakers, along with times and locations. The notes section at the bottom of the page is left blank for additional notes or information.
## Wednesday 2nd October

### WEDNESDAY 2nd OCTOBER

<table>
<thead>
<tr>
<th>Time</th>
<th>Hall 1</th>
<th>Hall 11b</th>
<th>Hall 9</th>
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<th>Hall 7a</th>
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<tr>
<td>8.00</td>
<td>Free Papers Hip 1</td>
<td>Revalidation / Instructional</td>
<td>Medicolegal Practice Pain, Percentages, Advancement/Acceleration and other nebulous concepts in Medicolegal practice</td>
<td>Revalidation / Instructional</td>
<td>Free Papers Elbow &amp; Shoulder</td>
<td>GCP Mandatory Training for Orthopaedic Surgeons Good Clinical (Research) Practice: Annual Mandatory Training Session 1 – Theme: Regulations for Clinical***</td>
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<td>8.30</td>
<td>COFFEE</td>
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<td>9.00</td>
<td>Revalidation / Instructional Hips– Instability after THR</td>
<td>Revalidation / Instructional Arthritis &amp; Arthroscopy in Wrist &amp; Hand Surgery</td>
<td>Free Papers Trauma 1</td>
<td>Revalidation / Instructional Anterior Cruciate Ligament Rupture</td>
<td>Revalidation / Instructional The stiff and painful Elbow</td>
<td>Free Papers BOOS &amp; Education</td>
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<td>11.00</td>
<td>Opening Ceremony (Hall 1)</td>
<td>Housekeeping HOT TOPIC 1 (Hall 1)</td>
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<td>11.30</td>
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<td>Howard Steel Lecture – Mark Stevenson “The Big Shift” (Hall 1)</td>
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<tr>
<td>17.15</td>
<td>Walter Mercer Lecture – Jimmy Hutchison “Lessons from Beyond the Grave” (Hall 1)</td>
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<tr>
<td>18.00</td>
<td>CONGRESS RECEPTION (6pm – 7:30pm)</td>
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***Session has limited capacity and will only be open to those who pre-booked using the online survey. These attendees have been pre-notified via email.

**Notes**
### Wednesday 2nd October

#### Medicolegal Practice
**Pain, Percentages, Advancement/Acceleration and other Nebulous Concepts in Medicolegal practice**

- **The Legal Perspective** – G Eyre (Barrister)
- **The Pain Perspective** – Dr C Pither (Consultant Anaesthetist/Pain Management)
- **The Psychiatrist’s Perspective** – Dr L Neal (Consultant Psychiatrist)
- **The Orthopaedic Perspective** – M Foy (Consultant Orthopaedic Spinal Surgeon)

**Revalidation/Instructional**
- 08:00 – 09:30
- Hall 11B

#### Trauma: Bootcamp Session 1 – Upper Limb
**Session I: Upper Limb**

- **Clavicle:** Fix it or Leave it? – B Ollivere
- **Humerus:** Nail or Plate or Leave? – M Kelly
- **Elbow:** Get Out of Jail Cards – D Stanley
- **Wrist:** K-Wire/Plate or Ex Fix? – M Costa

**Revalidation/Instructional**
- 08:00 – 09:30
- Hall 9

#### Hip 1
**Chairs:** A Manktelow, A Howell

**Details available on page 61**

**Revalidation/Instructional**
- 08:00 – 09:30
- Hall 11B

#### Knee 1
**Chair:** TBC

**Details available on page 64**

**Revalidation/Instructional**
- 08:00 – 09:30
- Hall 11B

#### Introduction to Basic Science Course for Revalidation & Preparation for FRCS(Orth)
**Coffee**
- 09:30 – 10:00
- Hall 3

#### Elbow & Shoulder
**Chairs:** D Tennant, T Lawrence

**Details available on page 68**

**Revalidation/Instructional**
- 10:00 – 11:30
- BHS
  - Hall 1

#### Infection vs Tumour
**Osteomyelitis or Bone Sarcoma**

- M McNally

**Critical Imaging for Infection or Sarcoma**

- S Ostlere

**The Infected Endoprosthetic Replacement**

- L Jeys

**Infection or Soft Tissue Sarcoma**

- TBC

**Revalidation/Instructional**
- 10:00 – 11:30
- BOOS
  - Hall 10

#### Arthritis & Arthroscopy in Wrist & Hand Surgery
**Current state of PIP Joint Replacement**

- A Watts / J Hoby

**What’s new in Basal Thumb Arthritis**

- I Trail

**SLAC/SNAC and Wrist Replacement**

- G Packer

**Arthroscopic Advances**

- C Heras-Palou

**Revalidation/Instructional**
- 10:00 – 11:30
- BSSH
  - Hall 11B

#### Free Papers
**08:00 – 09:30**
- **BHS**
  - Hall 1

**08:00 – 09:30**
- **BASK**
  - Hall 8

**08:00 – 09:30**
- **BESS**
  - Hall 11A

**08:00 – 09:30**
- **BSSH**
  - Hall 7B

**08:00 – 09:30**
- **BEPP**
  - Hall 11A

**08:00 – 09:30**
- **BOOS**
  - Hall 10

**08:00 – 09:30**
- **BASK**
  - Hall 8

**08:00 – 09:30**
- **BSSH**
  - Hall 11B

**08:00 – 09:30**
- **BASK**
  - Hall 8

**08:00 – 09:30**
- **BSSH**
  - Hall 11B
Wednesday 2nd October

Free Papers
10:00 – 11:30 BTS
Hall 9

Trauma 1
Chairs: B Ollivere, M Kelly
Details available on page 71

Revalidation/Instructional
10:00 – 11:30 BASK
Hall 8

Anterior Cruciate Ligament Rupture
Basic Science – A Amis
History and Risk Factors – R Parkinson
Natural History – D Deeham
Surgical Management – T Spalding
Rehabilitation – T Smith

Revalidation/Instructional
10:00 – 11:30 BTS
Hall 7B

Trauma: Debates in Orthopaedic Practice
Conservative or Surgical Management of Clavicular Fractures

Opening Ceremony
11:30 – 12:00
Hall 1

Housekeeping & Hot Topic 1
12:00 – 12:15
Hall 1

Howard Steel Lecture
12:15 – 13:00
Hall 1

Lunch
13:00 – 13:45
Hall 3

Presidential Guest Lecture
13:45 – 14:30
Hall 1

Putting Evidence into Action
Henrik Malchau

Oncology & Education
Chairs: M Gibbons, G Cribb
Details available on page 74

Free Papers
10:00 – 11:30 BOOS
Hall 10

The Stiff and Painful Elbow
Classification and Aetiology – T Lawrence
Open Surgical Management – L Rymaszewski
Arthroscopic Treatment – A Watts

Free Papers
15:15 – 16:00 BHS
Hall 1

Hip 2
Chairs: A Acornley, J Nolan
Details available on page 77

Free Papers
15:15 – 16:45 BSSH
Hall 11B

Hands
Chairs: L Leonard, I Chakrabarty
Details available on page 79

Free Papers
15:15 – 16:45 BTS
Hall 9

Trauma 2
Chairs: T Chesser, N Rossiter
Details available on page 82
### Wednesday 2nd October

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tr>
<td><strong>Adrian Henry Lecture</strong></td>
<td>15:15 – 16:00</td>
<td>Hall 8</td>
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<tr>
<td><strong>BASK</strong></td>
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<tr>
<td>Ligament Balancing with Computer-Aided Surgery – J Stiehl</td>
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<tr>
<td><strong>Revalidation/Instructional</strong></td>
<td>15:15 – 16:45</td>
<td>BESS Hall 11A</td>
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<tr>
<td><strong>Update on Proximal Humeral Fractures</strong></td>
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<tr>
<td>Current Concepts and Update on PROFR Trial – A Rangan</td>
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<tr>
<td>The Evaluation of Proximal Humeral Fracture Treatment – M Robinson</td>
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<tr>
<td><strong>The Future of Orthopaedic Education</strong></td>
<td>15:15 – 16:00</td>
<td>Hall 10</td>
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<tr>
<td><strong>A Round Table Discussion</strong></td>
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<td>Chair: D Stanley</td>
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<tr>
<td>Improving Education for Orthopaedic Surgeons – J Owen – President – AOA</td>
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<td>Recertification of Orthopaedic Surgeons – R Lander – President – NZOA</td>
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<td>The Intercollegiate Speciality Examination in Trauma &amp; Orthopaedics – D Stanley – Honorary Secretary – BOA</td>
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<tr>
<td><strong>GCP Mandatory Training for Orthopaedic Surgeons</strong></td>
<td>15:15 – 16:45</td>
<td>Hall 7A</td>
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<td><strong>Session 3</strong></td>
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<td>Certificate awarded for completed course Challenges in Clinical Research</td>
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<tr>
<td><strong>ARUK Clinical Studies Group</strong></td>
<td>15:15 – 16:45</td>
<td>Hall 7B</td>
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<tr>
<td><strong>Charnley Hip Lecture</strong></td>
<td>16:00 – 16:45</td>
<td>BHS Hall 1</td>
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<tr>
<td><strong>Ethics, Probity and Science</strong></td>
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<tr>
<td>The History of Thromboprophylaxis in Hip and Knee Replacement Surgery – R Barrack</td>
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<tr>
<td><strong>Tea Break</strong></td>
<td>16:45 – 17:15</td>
<td>Hall 3</td>
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<tr>
<td><strong>Walter Mercer Lecture</strong></td>
<td>17:15 – 18:00</td>
<td>Hall 1</td>
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<tr>
<td>Lessons from Beyond the Grave – J Hutchison (Introduced by I Ritchie, President RCS Ed)</td>
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<tr>
<td><strong>Congress Reception</strong></td>
<td>18:00 – 19:30</td>
<td>Hall 3</td>
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**Notes**

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### Thursday 3rd October

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<tr>
<th>Time</th>
<th>Hall 1</th>
<th>Hall 10</th>
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<th>Hall 11A</th>
<th>Hall 7</th>
<th>Hall 6</th>
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<tbody>
<tr>
<td>8.00</td>
<td>The New Culture of Data Collection in Orthopaedics</td>
<td>Free Papers Foot &amp; Ankle</td>
<td>Best of the Best</td>
<td>Free Papers Research</td>
<td>Free Papers BLRS/BTS General Trauma</td>
<td>Revalidation / Instructional BASS The management of lumbar degenerative disorders and root compression</td>
<td>Best of the Best: CSOS Free papers</td>
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<td>9.30</td>
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<tr>
<td>10.45</td>
<td>Naughton Dunn Lecture Evidence Versus Anecdote in Foot &amp; Ankle Surgery J Baumhauer</td>
<td>Roadway Trauma – A Rapidly Progressing Problem Worldwide John Tongue (AAOS)</td>
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<td>11.30</td>
<td>Housekeeping HOT TOPIC 2 (Hall 1)</td>
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<td>11.45</td>
<td>Robert Jones Lecture – Peter Kay – Innovation and Safety – Who should be Responsible? (Hall 1)</td>
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<td>16.15</td>
<td>NUR Q&amp;A</td>
<td>Revalidation / Instructional</td>
<td>Free Papers General</td>
<td>Revalidation / Instructional</td>
<td>BORS / BOTA Prize Papers</td>
<td>Revalidation / Instructional</td>
<td>The safe use of Bone Morphogenic Protein – A 2013 Update and Look into the Future Scott Boden (AOA)</td>
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<td>17.00</td>
<td>Arnott Demonstration (from RCS Eng) Arthroscopic Anatomy of the Hip Joint Vikas Khanduja</td>
<td>Revalidation / Instructional</td>
<td>BSCOS – Bone &amp; Joint Infection in the Child</td>
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<td>TPD Forum (closed session) Paul Manning</td>
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**Notes**

- Arnott Demonstration
  - (from RCS Eng)
  - Arthroscopic Anatomy of the Hip Joint
  - Vikas Khanduja
### Thursday 3rd October

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td><strong>08:00 – 09:30</strong></td>
<td>Revalidation/Instructional</td>
<td>Hall 1</td>
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<td><strong>08:00 – 09:30</strong></td>
<td>Free Papers</td>
<td>Hall 8</td>
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<tr>
<td><strong>10:00 – 11:30</strong></td>
<td>Revalidation/Instructional</td>
<td>Hall 1</td>
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<tr>
<td><strong>10:00 – 11:30</strong></td>
<td>NJR – Tenth Annual Report</td>
<td>Hall 11A</td>
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#### The New Culture of Data Collection in Orthopaedics
- Non Arthroplasty Hip Register (NAHR) – M Bankes
- British Spine Register (BASS) – L Breakwell
- Knee Ligament Register – S O’Leary
- National Hip Fracture Database (NHFD) – D Marsh
- BSCOS Register – T Theologis
- BSSH Hand Audit – S Fullilove
- Foot and Ankle Outcome Data (BOFAS SOFA) – A Goldberg
- Shoulder Register – J Rees
- My Clinical Outcomes – D Williams
- Changing the Culture for data collection in Orthopaedics. The UK – leading the world? – J Timperley
- Registers: an overview from NICE – Dr H Patrick Consultant Clinical Adviser

**Free Papers**
- **08:00 – 09:30**: BOFAS
- **08:00 – 09:30**: Hall 10
- **08:00 – 09:30**: Hall 9

#### Foot & Ankle
- Chairs: M Solan, R Russell
- Details available on page 87

**Free Papers**
- **08:00 – 09:30**: Hall 11A

#### Research
- Chairs: A McCaskie, A Sprowson
- Details available on page 90

**Free Papers**
- **08:00 – 09:30**: Hall 11A

#### The Management of Lumbar Degenerative disorders and Root Compression
- Neurogenic Claudication: Presentation, Diagnosis, Management – A Way
- Sciatica: Conservative and Surgical Management – J Langdon
- Degenerative Spondylolisthesis – R Naderajah
- Lumbar Degenerative Disease: Surgical Outcomes – R Shetty

**Free Papers**
- **08:00 – 09:30**: Hall 7

#### Limb Reconstruction, General Trauma
- Chairs: S Royston, M Jackson
- Details available on page 93

#### The Best of the Best
- Chair: T Briggs
- Details available on page 90

**Free Papers**
- **08:00 – 09:30**: Hall 6

**Disuussion**

**Coffee**
- **09:30 – 10:00**: Hall 3

**NJR – Tenth Annual Report**
- Chair: P Gregg, Vice Chairman, NJR Steering Committee
- Opening Remarks – L Powers-Freeing
- Chairman NJR Steering Committee
- 10th Annual Report – Keynote Findings – M Porter
- Views From a Patient – S Musson
- Patient Representative – NJR Steering Committee
- Clinician Feedback Update – P Howard
- Data Quality and Surgeon Engagement – P Gregg
- ODEP for Knees and Beyond Compliance Update – K Tucker
- Report from the Current NJR Research Fellow – J Palan
- Mortality after Hip Replacement – A Blom

**Video Presentation**
- **10:00 – 10:45**: Hall 10

**MTP Fusion/Chilectomy**
- Chair: James Davis
- How I do it – J Baumhauer

**Naughton Dunn Lecture**
- **10:45 – 11:30**: Hall 10

**Evidence Versus Anecdote in Foot and Ankle Surgery**
- J Baumhauer

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**Notes**
Thursday 3rd October

Free Papers
10:00 – 10:45
Hall 9

Best of the Best
Chair: T Briggs
Details available on page 90

Current Concepts
10:45 – 11:30
Hall 9

Roadway Trauma
Chair: T Briggs
A Rapidly Progressing Problem
Worldwide – J Tongue – AAOS Past President

Revalidation/Instructional
10:00 – 11:30
Hall 8

Orthopaedic Tissue
Engineering; Focus on Translation
Introduction – A McCaskie
Stem Cells to Heal Meniscal Tears
– A Hollander
Enhancing Bone Remodelling Around the Implant Interface Using Stem Cells
– G Blunn
Clinical Trials for Cartilage Repair
– J Richardson
Skeletal Stem and Progenitor Cells for Bone Regeneration – R Oreffo
Clinical Trials For Bone Repair – D Dunlop
Discussion – A McCaskie

Revalidation/Instructional
10:00 – 11:30
Hall 11A

Robert Jones Lecture
11:45 – 12:30
Hall 1

Innovation & Safety
Who Should be Responsible? – Peter Kay

BOA Annual General Meeting
12:30 – 13:30
Hall 1

Lunch
13:30 – 14:15
Hall 3

Revalidation/Instructional
14:15 – 15:45
Hall 1

NJR Update
How does Register Evidence Drive Practice?
Chairs:

What is Evidence? – A Carr
How does Registry Evidence drive Hip Practice? – F Haddad
How does Registry Evidence drive Knee Practice? – C Esler
Views from the recent NJR Research Fellows: Hip – S Jameson, Knee – P Baker
Report from the Current NJR Research Fellow – J Palan
How to become an Outlier Orthopaedic Surgeon – P Howard

Free Papers
10:00 – 11:30 BASS
Hall 1

Spine
Chairs: J Langdon, A Stirling
Details available on page 97

Spine

Knee, Enhanced Recovery, NICE & Clinical Practice
Chairs: I Winson, D Clark
Details available on page 100

Housekeeping & Hot Topic 2
11:30 – 11:45
Hall 1
**Thursday 3rd October**

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
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<td>Hall 10</td>
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<td>14:15 – 15:45</td>
<td>Hall 11A</td>
<td>Free Papers</td>
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<td>16:15 – 17:00</td>
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<td>14:15 – 15:45</td>
<td>Hall 9</td>
<td>Paediatrics</td>
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<td>14:15 – 15:45</td>
<td>Hall 6</td>
<td>Free Papers</td>
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<tr>
<td>16:15 – 17:45</td>
<td>Hall 10</td>
<td>Computer Assisted Surgery, Audit &amp; Management</td>
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<td>16:15 – 17:45</td>
<td>Hall 9</td>
<td>Free Papers</td>
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<td>16:15 – 17:00</td>
<td>Hall 1</td>
<td>Arnott Demonstration (RCS England)</td>
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<td>16:15 – 17:45</td>
<td>Hall 9</td>
<td>The Rheumatoid Foot &amp; Ankle</td>
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<td>16:15 – 17:45</td>
<td>Hall 3</td>
<td>General</td>
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**Forefoot Surgery – Current Treatment Options**
Biomechanics of the Foot and Ankle – N Makwana
Hallux Valgus – Complications and How to Manage Them – F Robinson
Hallux Rigidus – Complications and How to Manage Them – J Baumhauer
Lesser Toe Disorders – Jim Barrie

**Amputations & Prosthetics**
Management of a severely traumatised limb – Role 3 Initial management – Lt Col D Griffiths
Management of a severely traumatised limb – Role 4 Reconstruction – Wing Cdr J Kendrew
Rehabilitation and prosthetics – Lt Col R Phillips

**Research in Orthopaedics and Trauma**
Portfolio Trials in T&O – Current Activity and Future Plans
Royal College of Surgeons of England’s Clinical Research Initiative – Centres and Specialty Leads
Role of the UKCRN

**You’re hired – Confessions of a new Consultant**
How to get that Consultant Job; What the NHS Trust wants from you – R Hurd, Chief Executive of RNOH
Confessions of a New Consultant – S Cook – BOTA Trainer of the Year 2012
Starting a Private Practice

**Computer Assisted Surgery, Audit & Management**
Chairs: T Hui, D O’Doherty
Details available on page 106

**Tea Break**
15:45 – 16:15

**Notes**
Thursday 3rd October

**Free Papers**
16:15 – 17:00
Hall 8

**Current Concepts**
16:15 – 17:00
Hall 7

**BORS / BOTA Prize**
Chair: A McCaskie, A Sprowson
This session features the collaboration of the British Orthopaedic Research Society and the British Orthopaedic Trainees Association. Earlier in the year the competition was launched and this session sees the highest ranking papers presented in order to select the prize winner.

Details available on page 113

**Free Papers**
17:00 – 17:45
Hall 7

**Research**
Chair: A McCaskie, A Sprowson
Details available on page 114

**Bone & Joint Infection in the Child**
The Microbiology of Bone and Joint Infection – M Katchburian
Diagnosis and Investigation – C Bruce
Management – D Rowland

**The Safe Use of Bone Morphogenetic Protein**
Chair: J Dias
A 2013 Update and Look into the Future – S Boden

**Free Papers**
17:00 – 17:45
Hall 7

**Audit & Management**
Chair: A Nanu, G Matthews
Details available on page 115

**TPD Forum**
16:15 – 17:45
Hall 6

Closed Session for Training Programme
Directors only.
## Friday 4th October

### FRIDAY 4th OCTOBER

<table>
<thead>
<tr>
<th>Time</th>
<th>Hall 1</th>
<th>Hall 10</th>
<th>Hall 9</th>
<th>Hall 11A</th>
<th>Hall 7</th>
<th>Hall 8A</th>
<th>Hall 8B</th>
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<tbody>
<tr>
<td>8.00</td>
<td></td>
<td>Free Papers General</td>
<td>Revalidation / Instructional The Value of the Patient Voice?</td>
<td>Professional Issues Financial Planning for Surgeons</td>
<td>Free Papers Sports Trauma including Foot &amp; Ankle</td>
<td>Clinical Examination Course***</td>
<td>Clinical Examination Course***</td>
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<tr>
<td>8.45</td>
<td>Trauma BOOTCAMP (OTS)</td>
<td>Current Concepts The Assessment and Management of the Painful Stiff Knee after Arthroplasty Surgery Johannes Devos (SAOA)</td>
<td>Revalidation / Instructional Musculoskeletal Clinical Networks in the New NHS</td>
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<td>9.30</td>
<td>TEA BREAK</td>
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<tr>
<td>10.00</td>
<td>Trauma BOOTCAMP (OTS)</td>
<td>NHFD The NHFD 2012-13 Report</td>
<td>Revalidation / Instructional BODS Appraisal / Revalidation Update</td>
<td>ARUK Young Investigators’ Award</td>
<td>Revalidation / Instructional Sport &amp; Osteoarthritis</td>
<td>Clinical Examination Course***</td>
<td>Clinical Examination Course***</td>
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<tr>
<td>11.30</td>
<td>Putting Leadership into Action: Perspectives from T&amp;O (Hall 1)</td>
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<td>13.00</td>
<td>Closing Ceremony / Housekeeping HOT TOPIC 3 (Hall 1)</td>
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<td>13.45</td>
<td>LUNCH</td>
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<tr>
<td>14.30</td>
<td>Trauma BOOTCAMP (OTS)</td>
<td>Revalidation / Instructional BOSA and the New NHS</td>
<td>AGM Talkback</td>
<td>Revalidation / Instructional CAOS Technology: It’s value and the evidence</td>
<td>Revalidation / Instructional WOC Developing a consultant led, NHS linked, training fellowship in Cambodia</td>
<td>Clinical Examination Course***</td>
<td>Clinical Examination Course***</td>
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<tr>
<td>16.00</td>
<td>Close of Meeting</td>
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***Session has limited capacity and will only be open to those who pre-booked using the online survey. These attendees have been pre-notified via email.**
Friday 4th October

Revalidation/Instructional
08:00 – 09:30
Hall 1

Trauma Boot Camp (OTS)
Session II: Lower Limb
Chairs: Professor C Moran, A Oppy
Hip Fractures – Importance of Making Tariff – K Willett
Femoral Fractures; Bifocal/Segmental/Retrograde Nails – M Kelly
Distal Femoral Fractures – A Gray
Tibial Plateau Fractures; Two Plates Better than One? – J Keating
Pilons – Remember the Posterior Approach – D Noyes
Cases and Discussion – All

Free Papers
08:00 – 08:45
Hall 10

General
Chairs: J Hodgkinson, R Ravikumar
Details available on Page 117

Current Concepts
08:45 – 09:30
Hall 10

Chair: C Howie
The Assessment and Management of the Painful Stiff Knee after Arthroplasty Surgery – J Devos [SAOA President]

Revalidation/Instructional
08:00 – 08:45
Hall 9

The Value of the Patient Voice?
The Value of the PLG – a Surgeons perspective – D McBride
From Patient to Patient Champion – J Fitch

How the Patient Voice can improve the Patient Pathway – D Twigg

Revalidation/Instructional
08:45 – 09:30
Hall 9

Musculoskeletal Clinical Networks in the New NHS
ARMA and its Clinical Network Project – D Marsh
Musculoskeletal Services and NHS England – P Kay
The BOA’s Drive to Modernise Services – M Porter

Professional Issues
08:00 – 09:30
Hall 11A

Financial Planning for Surgeons
The Changing Face of Retirement Planning – I Price, Division Director
Pension at St. James’s Place Wealth Management
Alternative Tax Efficient Investment Strategies – S Ruthers, Oxford Capital Partners
Medical Indemnity Insurance – G Monaghan, Director, PMP
Private Practice Structures and Exit Strategies – S Norris and T Rust, Peters Elworthy & Moore Accountants
Financial Planning Solutions for Surgeons – A Hodgson, Partner Practice at St. James’s Place Wealth Management

Free Papers
08:00 – 09:30
Hall 7

Sports Trauma and Foot & Ankle
Chairs: M Carmont, M Dobson
Details available on page 118

Revalidation/Instructional
08:00 – 09:30
Halls 8A and 8B

Clinical Examination Course
Session 1: Clinical Examination Lectures
Chair: F Ali
Examination of the Hip – P Banaszkiewicz
Examination of the Knee – J Williams
Examination of the Foot and Ankle – S Jones
Examination of the Spine – I Braithwaite
Examination of the Shoulder and Elbow – S Shahane
Examination of the Hand and wrist – J Garcia

Coffee
09:30 – 10:00
Hall 3

Professional Issues
10:00 – 11:30
Hall 1

Trauma Boot Camp (OTS)
Session III Multiple injuries/High Energy Trauma
Chair: Dr John Tongue/Mike Kelly
Who’s in Charge?; What we Have Learned Across 22 MTCs – C Moran
Operating at Night; The Myths Surrounding Open Fractures and Compartment Syndrome – T White
Priorities for Fixation; Best Guess Orthopaedics – D Forward
Cases and discussion – All

Notes
## Friday 4th October

### NHFD 2012-13 Report
**10:00 – 11:30**  
Hall 10

The NHFD 2012-13 Report – **R Wakeman**  
Fracture Liaison Services – **D Marsh**  
How to improve Hip Fracture Care in your Hospital; 10 little things that make a big difference – **A Ruckledge**  
Discussion – All

### Revalidation/Instructional
**10:00 – 11:30**  
Hall 9

### Appraisal / Revalidation Update
**10:00 – 11:30**  
Hall 11A

**RCS/BOA Perspective** – **D Limb**  
**Medical Director’s Perspective** – **D Wise**

### ARUK Young Investigators’ Award
**10:00 – 11:30**  
Hall 10

### Clinical Examination Course
**Session 2 Clinical Examination Practice in Small Groups in Rotation**
- **Shoulder** – **S Shahane**  
- **Elbow** – **J Wright**  
- **Hand and Wrist** – **J Garcia**  
- **Peripheral Nerves** – **J Fernandes** and **F Ali**  
- **Spine** – **I Braithwaite**  
- **Hip** – **P Banaszkiewicz**  
- **Knee** – **J Williams**  
- **Foot and Ankle** – **S Jones**

### Putting Leadership into Action – Perspectives from T&O
**11:30 – 13:00**  
Hall 1

### Trauma Boot Camp (OTS)
**Session IV: Strategies for Complex Cases**
Chair: **N Rossiter**
- Acute pelvic (and Acetabular) injury-binders and ex-fixes, c-clamps – **T Chesser**  
- Periprosthetics- burn the strut grafts? – **M Moran**  
- Delayed union, Malunion Non-union – When fractures misbehave – **M Jackson**  
- Upper limb Tips and Tricks – Clavicle, Shoulder, Humeral shaft, Distal Humerus, Elbow, Wrist  
- Pelvis and Femur tips and tricks – Pelvic ex-fix, Femoral head, Intertrochanteric, Subtrochanteric, Distal femur  
- Tips and Tricks tibia – Plateaus, Tibia shaft, Pilons, Ankle, Calcaneum, Foot

### Closing Ceremony & Presidential Handover
**13:15 – 13:45**  
Hall 1

### Lunch
**13:45 – 14:30**  
Hall 3

### Revalidation/Instructional
**14:30 – 16:00**  
Hall 1

**Notes**
Friday 4th October

**BOSA and the New NHS – Maintaining Standards and Best Patient Care**
- The New NHS – Prof T Briggs
- The GMC Perspective – D Mercieca
- The Intercollegiate FRCS T&O Examination – D Stanley
- The SAS Orthopaedic Surgeon in the New NHS – S Shalaby

**World Orthopaedic Concern**
Chair: S Mannion
- Developing a Consultant-led, NHS linked, Training Fellowship in Cambodia – F Monsell
- Capacity building in Afghanistan – H Budd
- The Challenge of equipping healthcare facilities effectively in the developing world – T Beacon

**AGM Talkback**
- 14:30 – 16:00
- Hall 9

**Technology: Its Value and the Evidence**
- The Critical Margin in Orthopaedic Oncologic Surgery – Cutting Edge with Navigation Guidance? – A Mahendra, S Patton
- Surgical Techniques; Surgery Made Easier with Technology – Is it True? – D Nathwani, A Tom, R Strachan
- Outcomes: Does the Technology Make it Better? – K Mahalkar, M Sanjiv, F Rodriguez
- CAS/Robotic Technique for a Very Experienced Surgeon – Professor L Dorr

**Clinical Examination Course**
Session 3: Continuation of Session 2 (see above)
A world leader in orthopaedic solutions, Acumed® has built a reputation on our unwavering commitment to the Collective Outcome – successful procedures for the patient, surgeon and hospital. From our patented headless compression screws, to the most innovative instruments currently in development, every Acumed product is designed with the single goal of creating a more effective, and efficient medical process. We’re creating tools intended to minimize time in the operating room and improve patient success rates, which all contribute to the hospital’s bottom line. This dedication to the community extends beyond healthcare, too, as we strive to make a positive impact at the global level through

Adler Ortho is an Italian Company specialized in developing and manufacturing state of the art Hip and Knee Implants. Continuous innovation, responsiveness, and focus on customer satisfaction are the Company main qualities.

Adler Ortho is particularly proud of offering the widest product portfolio of Powder Manufactured implant on the market, and of having developed Ti-Por®, the monolithic 3D surface, build to maximize primary stability and bone ingrowth.

Adler Ortho is focused on making surgical procedures easier, and more reproducible.

An example of that is the Genus Magic Block a device able to assist to provide proper knee alignment in extension and flexion without violating the femoral canal.

Advance Recruitment are specialists in medical sales and marketing recruitment for leading healthcare, pharmaceutical, dental and veterinary companies throughout the UK. Our business has been built on achieving results in the search and selection of Medical Sales Professionals, Sales Managers, Marketing Personnel, Trainers, Nurse Advisors and Field Service Engineers. We recruit at all levels from Graduate or RGN Trainee through to Experienced Sales Executives, Managers and Directors with companies involved with a range of medical products. Our infrastructure allows us to deal with clients, both large and small, throughout the UK.

Visit stand 18 and we will get the search underway immediately.

Advancis Surgical has been developed to bring to market new and exciting innovative technology. We pride ourselves on the ability to take ideas, develop them and create products that bring increased benefits to patients but also offer surgeons, anaesthetists and perfusionists a new way of improving the blood recycling process. Hemosep, the first product to be launched through Advancis Surgical, is designed to recover blood spilled during open-heart and major trauma surgery and concentrate the blood cells for transfusion back to the patient. The process reduces the volume of donor blood required and the problems associated with transfusion reaction.

Globally recognised Aesculap Academia, created in 1995, aim to deliver high quality education programmes for all health-care professionals.

Our dedicated team of event specialists can realise your objectives, offering creative & economically feasible
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Angiotech
http://www.quilldevice.com

The Quill™ Knotless Tissue-Closure Device is indicated for soft tissue approximation.

It is designed with barbs helically arrayed around a suture material, in opposing directions, on either side of a transitional segment. The device is double-armed with surgical needles and comes in both absorbable and non-absorbable materials.

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Quill™ allows for a more even distribution of tension on the soft tissues as they are approximated, with tension distributed along the entire length of the wound.

AOUK
AOUK, Marlborough House, York Business Park, York, YO26 6RW, United Kingdom
Tel: 01904 787767
aouki1@btconnect.com
http://aouk.org

The AO Foundation is a charitable organisation, which is dedicated to the promotion of excellence in surgery of musculoskeletal trauma. AOUK is the Anglo-Irish section of the foundation and through its education department delivers non-profit making courses in the UK & Ireland to train young surgeons and operating room personnel in the theory and practice of trauma.

The membership of AOUK consists of a group of established surgeons and ORPs who freely give their time to teach on the 30 courses that are run by AOUK annually.

AOUK also offer research grants and fellowships.

AposTherapy
300 Grays Inn Road, London, WC1X 8BP
Tel: 0800 909 8009
www.apostherapy.co.uk

AposTherapy offers a new approach for the treatment and management of knee conditions based on the latest scientific evidence regarding the central role biomechanics plays in the pathophysiology of knee OA and other knee pathologies. By combining optimal body alignment with controlled perturbation while walking as part of daily routine, AposTherapy restores neuromuscular control, instilling desirable patterns of motion for significant reduction in pain, and improvement in function and quality of life.

Arthrex Ltd
Unit 5, 3 Smithy Wood Drive, Smithy Wood Business Park, Sheffield, S35 1QN, United Kingdom
Tel: 0114 232 9180
info@arthrex.co.uk
http://www.arthrex.com/

The AO Foundation is at the very core of Arthrex’s foundations. Our unique commitment to dynamic medical education is showcased at this year’s BOA Congress. The Mobile Lab, Europe’s first mobile surgical skills lab, is rolling into the ICC to provide surgeons and healthcare professionals with the opportunity for one-on-one educational training and open sessions, where all delegates can view the unique potential of this new training method. Visit Arthrex at Stand 102 for Mobile Lab bookings and further information on our educational programmes, including eBooks, the new Arthrex.com, Live Surgery courses, the Essential Skills Lab in Sheffield, ArthroLab in Munich and much, much, more...

Arthritis Research UK
41 Portland Place, London, W1B 1QH
Tel: +44 (0) 300 790 0400
enquiries@arthritiscampus.org
www.arthritisresearch.org

Arthritis Research UK are the leading authority on arthritis in the UK, funding research into all types of arthritis and related musculoskeletal conditions. Our funding opportunities include schemes supporting individuals in developing their career in musculoskeletal research. These schemes range from PhD training and educational approaches, to large-scale programme grants and multi-centre clinical trials. We are proud to sponsor a Young Investigator award at
the Annual Scientific Congress this year, comprising two prizes. In conjunction with the BOA, we are committed to the future of UK orthopaedics. To find out more visit our website www.arthritisresearchuk.org, or come and meet us at stand 120.

ArthroCare® has a different perspective, a global organisation dedicated to improving outcomes by focusing on innovation within the field of minimally invasive surgery. We don’t see the status quo; we see opportunities to improve.

Our high-performance products are the result of innovative thinking and practical application of science and technology. Our goal is to give surgeons confidence in their tools and deliver the accuracy, speed and precision they need to deliver better outcomes for their patients.

ArthroCare’s internationally patented Coblation® Technology has significantly improved many existing surgical procedures and continues to enable new minimally invasive procedures.

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229 Bristol Road, Birmingham, B5 7UB
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www.bauerfeind.co.uk

Bauerfeind is one of the world’s leading manufacturers of medical aids with 80 years of experience & offers the medical professional a wide range of quality products within the following fields: Orthopaedics, Phlebology & Foot Orthopaedics.

Orthopaedics. Our products are used for the treatment of injuries, post-operative & degenerative change – for rapid recovery and mobilisation.

Phlebology. We manufacture a wide range of medical compression stockings for the systematic treatment of mild to severe venous disorders & Lymphoedema.

Foot Orthopaedics. The range includes foot imprint systems, therapy shoes, support orthoses, and a foot care system for patients with foot problems.

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B. Braun Medical Ltd
Thorncliffe Park, Sheffield, S3 5PW, United Kingdom
Tel: 0114 225 9000
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http://www.bbraun.co.uk

The Aesculap Orthopaedic Division of B. Braun Medical Ltd offer a comprehensive range of primary and revision prostheses for both hip and knee arthroplasty, all supported by the World Leading Navigation System Orthopilot®. The new software approaches navigation with a reduced workflow and advanced algorithms to provide optimized implant positioning for the individual patient.

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Tel: +44 (0) 1782 338 580
info@biocomposites.com
http://www.biocomposites.com

A Solution for Infection.

Biocomposites is a privately held orthobiologics company that designs, manufactures, markets and sells ground breaking products. Our leading technology, Stimulan®, is a patented biomaterial used internationally by surgeons to combat infection associated with osteomyelitis, diabetes, surgery and haematogenous complications.

Stimulan is producing patient outcomes previously unachievable with pre-existing materials in the fields of infection and bone regeneration.

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Tel: 01656 655221
ukfeedback@biotec.com

Headquartered in Warsaw, Indiana, Biotec Inc. and its subsidiaries currently distribute reconstructive products in approximately 90 countries. With annual sales well in excess of $2 billion and over 7,000 team members worldwide Biotec looks to the future with a focus on continued growth and innovation.

Biotec's portfolio reflects our heritage of clinically proven implants throughout our Knee and Hip offerings. With a number of 10A ODEP rated Hip products and outstanding Knee survivorship rates, the pedigree of our implants is proven.

With its European headquarters in Dordrecht, Netherlands and represented by subsidiaries in 22 European countries, including five manufacturing sites, across the continent, Biotec offers a specialised focus on European
healthcare and orthopaedics. With a history of innovation and entrepreneurial flair, Biomet is continuously expanding its presence, with our service offerings of Rapid Recovery and Theatre Care Rapide continuing to pursue ground-breaking concepts for the European market place.

**Bioventus**

International Headquarters Bioventus Coöperatief U.A. Taurusavenue 31, 2132 LS Hoofddorp, The Netherlands

Tel: +31 (0) 23-554-8888

Customer Freephone: 00800-02-04-06-08

www.BioventusGlobal.com

Bioventus is a biologics company that delivers clinically proven, cost-effective products that help people heal quickly and safely. The company’s innovative products include market-leading devices, therapies and diagnostics that make it a global leader in active orthopaedic healing. Built on a commitment to high quality standards, evidence-based medicine, and strong ethical behaviour, Bioventus is a trusted partner for physicians worldwide. The company is the recognized leader in bone healing devices and among the leading distributors of osteoarthritis injection therapies.

For more information, visit www.BioventusGlobal.com

**Blue Belt Technologies**

Office number 207, 3000 Aviator Way, Manchester Business Park, Manchester, M22 5TG

Tel: 07791198363

www.bluebelttech.com

Contact info: Mr John Tierney – General Manager / VP Europe Email: jtierney@bluebelttech.com

Blue Belt Technologies, Inc is an innovative medical technology company commercialising the NavioPFS™ orthopedic surgical system for initial use in Uni-compartmental Knee Replacement(UKR). NavioPFS™ provides a less invasive solution for partial knee replacements, bringing to the operating room advanced robotic technology coupled with intuitive and powerful intra-operative planning and navigation software. NavioPFS™ intelligent handheld instrumentation provides robotic enhancement in accuracy and repeatability for the technically challenging UKR procedure, making available to patients a solution which can add years to the life of their knees.

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http://bluespier.com/

Bluespier provides clinical systems for hospitals and Private Practice. They are designed to be part of normal work routines, are highly configurable, capture key clinical data and provide administrative data as a by-product. We specialise in theatre and stock management, trauma centre management, electronic clinical records, clinical correspondence, electronic discharge, outpatient and pre-admission clinic management. Data and reporting available from the system is used to drive efficiencies and help improve patient care. Data is available on income, costs, utilisation, CQUINs, target management, registries and dataset returns. Data is easily retrievable in real time, accurate and detailed.

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CareFusion combines proven clinical technologies with actionable intelligence to improve patient care. Our employees are focused on developing and bringing to market, solutions to today’s major healthcare challenges, for example healthcare associated infections (HAIs). The CareFusion Infection Prevention mission is to deliver clinically differentiated evidence-based products and services that support the global effort to reduce HAIs.

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CeramTec’s BIOLOX® materials are the most widely used ceramic components in arthroplasty. They are extremely wear-resistant and biocompatible, helping to avoid particle disease and allergic reactions. Since 1974 more than nine million ceramic BIOLOX® ball heads and cup inserts have been used in hip joints. Ceramic components for knee joints are currently being introduced clinically.

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As a leader in orthopaedic innovation, Corin has pioneered a number of landmark developments since its foundation. It is proud to have been able to improve the quality of life of thousands of patients around the world through these groundbreaking products and its commitment to Responsible Innovation. Associated with some of the most important technological developments over the last 20 years, Corin’s portfolio today includes ECiMa™ vitamin E HXLPE, Unity Knee™ 5th generation knee, Trinity™ acetabular system, MiniHip™ bone-conserving hip, Trifit TS™ and MetaFix™ cementless femoral stems, TaperFit™ cemented hip, Uniglide™ unicondylar knee, Zenith™ ankle and LARS™ soft tissue internal fixation.
Crowther Ballantyne Associates have been leading the way in Orthopaedic Sales and Marketing recruitment for the last 15 years and are happy to support the BOA once again this year.

A large number of company representatives exhibiting at this conference have long standing relationships with our company and many will have been placed in their current role. We are proud to have been responsible for enhancing so many careers and look forward to helping more people realise their potential in the future.

If you need our help with your next move or you are an employer looking for a new hire then please come and talk to us at stand 124.

DePuy Synthes Companies offer the world's most comprehensive portfolio of orthopaedic products and services for joint reconstruction, trauma, spine, sports medicine and cranio-maxillofacial therapies. DePuy Synthes Companies are also a global leader in neurological solutions—inspired solutions that go beyond quality implants and include services, education, instruments, and emerging technologies. We are inspired to advance patient care in orthopaedics and neurological therapies by listening carefully to what our customers and their and patients have to say, and then developing total solutions that go beyond the products themselves.

The Joint Reconstruction business markets orthopaedic devices, solutions and supplies for hip, knee and extremity reconstruction, in addition to cement and operating room products.

The Sports Medicine business offers orthopaedic sports medicine products, soft tissue repair devices, joint movement solutions and minimally invasive and arthroscopic solutions.

The Trauma business offers a broad portfolio of orthopaedic fracture fixation products, including screws, plates, nails and other implants used to fix broken bones.

The Biomaterials group provides a wide range of innovative products such as bone graft substitutes that complement the use of traditional metal implants.

The Power Tools division offers a comprehensive range of air, electric, and battery-driven high and low power instrument systems, including drills, reamers and saws.

The unmet needs in orthopaedic and neurological care are significant. With insights from patients, physicians, providers, payors and policymakers to guide us, DePuy Synthes Companies are uniquely positioned to meet these needs and deliver life-changing medical innovation. At DePuy Synthes Companies, we aspire to be your partner of choice, delivering high standards of quality in everything we do.

DGL Solutions is the UK’s leading software provider for the private medical sector, with more than 4500+ licences sold. Its comprehensive software suite provides consultants, secretaries, clinical staff and managers with a total solution, from booking to billing, through diagnosis and treatment.

Designed and developed in-house, its software is powerful and flexible, yet intuitive and easy to use, enabling your practice to run more efficiently, and reducing the time required for completing administrative tasks. DGL Solutions recognises that every practice, clinic and hospital is unique, and its software is designed to offer a bespoke package that is right for you.

Specialist courier services to the medical sector, Dynamic has been focused in the medical logistics sector for over a decade. We have invested heavily in specialist vehicles, computer software and hardware to enable us to offer some unique services to the medical sector.

We have developed excellent working relationships with nearly all UK hospitals.
both public & private and are in a very
strong position to bring the benefits of
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Barristers for sourcing robust
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the leading Personal Injury and Medical
Negligence lawyers to fast track the
instruction process.
The Expert Witness Journal
complements these two formats,
stimulating dialogue and relationship
building between the medical and legal
communities.
As ‘Orthopaedics’ is the main search
term, Expert Witness meets
requirements for instant reference to a
bank of reliable Consultants and
Surgeons who can submit reports or
make court appearances.

GE Healthcare
71 Great North Road, Hatfield, AL9 5EN,
United Kingdom
Tel: 01707 263570
http://www3.gehealthcare.co.uk/

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GE Healthcare provides transformational
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enhanced quality and more affordable
healthcare around the world. GE (NYSE:
GE) works on things that matter – great
people and technologies taking on tough
challenges. From medical imaging,
software & IT, patient monitoring and
diagnostics to drug discovery,
biopharmaceutical manufacturing
technologies and performance
improvement solutions, GE Healthcare
helps medical professionals deliver great
healthcare to their patients.

Gilbert & Mellish are a leading private
health care company that has been
operating in the field of Orthotics for
over 50 years. Our long-standing
reputation has been maintained, by
distributing Orthotic products of the
highest quality.
G&M play a major role as distributors
for a number of manufacturers including
Piedro, Jobskin, Med Spec, VQ
Orthocare, Cybertech., Knit-Rite and
more...
Through our passion and the
commitment of helping aid the needs of
individuals, Gilbert & Mellish is a highly
respected and trusted member of a
specialist industry and a main
contributor towards its future.
At HBSUK we set up and manage healthcare businesses on behalf of Consultants for patients. We remove all conflicts of interest between consultants and their NHS Trust and provide Commissioners with a model to flexibly manage capacity at optimal cost.

Our services include: Business Management, Commercial Management, Infrastructure & Investment, Business Development and Governance & Efficiency.

HBSUK’s focus is excellence, not compliance. We provide solutions that are sustainable and scalable to meet tomorrow’s healthcare challenges. We believe now is the time to challenge the norms and build a healthcare service that plays to the strengths of all stakeholders.

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Healthcode’s ePractice system is designed and tailored to the needs of private practices. Whether you’re just starting out, or already established in private practice, it delivers high quality, cost effective, online practice management solutions, providing you with the latest tools to take direct control to expand your practice... ‘code for success. With an established secure online network, Healthcode is a truly multi-locational system that is trusted by leading insurers, hospitals and private practices. Visit us at stand no. 78 for more information and a demonstration.

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Tel: +44 (0) 1635 760179
contact.medical@heraeus.com
http://www.heraeus-medical.com

Heraeus Medical
Expertise in Infection Management,
Heraeus Medical concentrates on medical products for orthopaedic surgery and traumatology. As industry leader for bone cements, the company develops, produces, and markets biomaterials and accessories to make an essential contribution to improving surgical results in bone and joint surgery as well as infection management.

Impact Medical Ltd
Unit 7J, Topham Drive, Aintree, Liverpool, L9 5AL
Tel: +44 (0)151 5222520
office@impactmedical.co.uk
www.impactmedical.co.uk

Impact Medical are market leaders and innovators in Extracorporeal Shockwave Therapy (ESWT).
Utilising the focussed Richard Wolf Piezowave, we are UK agents for Elvation GmbH, worldwide distributors for Richard Wolf Shockwave devices, to provide sales/lease/rental in addition to our extensive clinical expertise as a result of our comprehensive visiting clinical services.

Ideal Med Ltd
Suite F8 Oaklands Business Park, Hooton Road, Hooton, CH66 7NZ, United Kingdom
Tel: 0844 218 3804
sales@idealmed.co.uk
http://www.idealmed.co.uk

Founded in 2011, Ideal Med specialises in distributing Orthopaedic products for all aspects of limb reconstruction and is the only company dedicated to the area of Orthopaedics.

The company portfolio is constantly developing under the management team which has over 50 years experience in fracture management and orthopaedics, gained from working within the NHS and with multi-national manufacturers.

Being independently owned allows Ideal Med to acquire a range of innovative, quality products for its locally served markets at a competitive price.

Our commitment to service includes customer support, education and training with leading surgeons with world renowned reputations.
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info@kmt-uk.com
www.kmt-uk.com

KMT Ltd develops and markets a range of innovative Single Use Surgical Power Tools for use in Orthopaedic Surgery. We are based in the United Kingdom and distribute through most EU countries. Together with our design and manufacturing partners we aim to offer a versatile and cost-effective solution to meet any Power Tool requirements. In the Solomax range we offer disposable Power Tools for use in large & small bone surgery and battery powered Pulse Lavage Systems with accessories.

Maquet UK Ltd
14 – 15 Burford Way, Boldon Business Park, Sunderland, NE35 9PZ, United Kingdom
Tel: 0191 519 6200
tim.bryant@maquet.com
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With you as an expert and experienced partner, Mathys develops innovative products and user friendly instruments. Your input, proven
MatOrtho was established by Mike Tuke in 2010 to continue the pioneering work of almost four decades conducted by his previous company, Finsbury Orthopaedics Limited.

Based in Leatherhead, MatOrtho continues to employ many original Finsbury staff as well as the equipment manufacturing the supply of internationally-recognised orthopaedic implant devices such as the Medial Rotation Knee™, the BOX® Total Ankle Replacement and the Saiph® Knee System.

Our heritage is a true reflection of our commitment and responsibility as suppliers to medical professionals and, through continued investment in new technologies and product development, we aim to further demonstrate that commitment.

MatOrtho Limited
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info@matortho.com
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Medacta International is a Swiss company developing, manufacturing and distributing orthopaedic medical devices worldwide. Responsible product innovation and best-in-class medical education are key to the company’s success. Medacta® is a recognised leader in THR due to AMIS® Anterior Minimally Invasive Surgery, and MyKnee® patient matched TKA instruments. In 2009 Medacta® entered the spine business focusing on anatomical design, implant modularity and efficient instrumentation.

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Medacta® International is a Swiss company developing, manufacturing and distributing orthopaedic medical devices worldwide. Responsible product innovation and best-in-class medical education are key to the company’s success. Medacta® is a recognised leader in THR due to AMIS® Anterior Minimally Invasive Surgery, and MyKnee® patient matched TKA instruments. In 2009 Medacta® entered the spine business focusing on anatomical design, implant modularity and efficient instrumentation.

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Medartis Limited
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Tel: 01924 476699
orders_UK@medartis.com
http://www.medartis.com

Medartis develops, manufactures and sells titanium screws and plates, surgical instruments and system solutions for fracture fixation. Our motto is “Precision in fixation”.

The APTUS brand covers predominantly upper limb (Hand & Wrist, including Arthrodesis, Elbow and Shoulder) and also covers Foot trauma. All APTUS products are anatomically designed and feature a low plate profile and TRILOCK locking technology.

A new generation of cannulated screws completes the APTUS portfolio.

Mediracer®NCS is a hand held nerve conduction device used to test for Carpal Tunnel Syndrome and Ulnar Nerve
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Raheen Business Park, Limerick, Ireland

www.olympusbiotech.eu

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Olympus Biotech International, headquartered in Limerick, Ireland, is a leading innovator in Biomaterial and Regenerative Medicine technologies industry for orthopaedics and wound-care regeneration market.

Our Vision at Olympus Biotech is to improve patient’s quality of life by developing and distributing Regenerative Medicine that stimulates the intrinsic Healing Capacity in the living body by the technological development of signals, scaffolds and stem cells.

Orthodynamics Ltd

Industrial Park, Bourton-on-the-Water, Gloucestershire, GL54 2HQ, United Kingdom

Tel: +44 (0) 1202 481153

info@orthodynamics.co.uk

www.orthodynamics.co.uk

Orthodynamics develops, manufactures and supplies orthopaedic accessories and specialist implants to the worldwide primary, revision and trauma markets. The company’s innovative and expanding portfolio contains the following innovative solutions:

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- Cannulok® Plus – a unique revision femoral stem with a distal locking intramedullary nail
- aMace® Acetabular Revision/Reconstruction System
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- Vancogenx & Gentamicin Spacers for 2 stage revision & Bone Cement

Orthofix Limited

5 Burney Court, Cordwallis Park, Maidenhead, Berkshire, SL6 7BU

Tel: 01628 594500

enquiries@orthofix.co.uk

http://www.orthofix.co.uk

Orthofix research and provide innovative solutions to Orthopaedic surgeons for trauma and elective surgeries, with a focus on complex procedures. Orthofix is currently implementing a 360° approach to offer different solutions to effectively address complex distal radius fractures. 2013 will see the launch of the Contours VP53 distal radius plate and Galaxy Wrist External Fixator.

Contours VP53 is an anatomical, comprehensive volar plating system. It has an extensive selection of plate widths and lengths designed to fit the anatomies surgeons encounter in the operative room for a more aligned bone-plate interface.

Galaxy Wrist is a line extension to the Galaxy External Fixation system and specifically engineered for the treatment of complex distal radius fractures.

Come and visit us at Stand 22 to find out more!

OrthoLink (Scotland) Ltd

1 Wester Shawfair, Shawfair Park, Edinburgh, Scotland, EH22 1FD

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Orthopaedic Research UK is a charitable organisation which funds high quality research and training in orthopaedics. An independent body dedicated to advancing orthopaedic knowledge, we also organise training events which promote collaboration between orthopaedic surgeons, scientists, engineers and industry.

Today we are one of the most significant funders of orthopaedic research in the UK, working alongside many leading academic institutes. We have invested over £7.5m in research with over 35 research institutes over the last 10 years.

We are a member of the Association of Medical Research Charities (AMRC) and the National Institute for Health Research (NIHR).

OTSIS – Orthopaedic and Trauma Specialists Indemnity Scheme

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The Orthopaedic and Trauma Specialists Indemnity Scheme (OTSIS) provides comprehensive indemnity exclusively for orthopaedic surgeons. OTSIS is a not-for-profit company, which is owned by its members, so offers unbeatable service and value in challenging times, delivering the security and expertise you require for your NHS and independent sector practice.

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### Royal Naval Reserve

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The Royal Naval Reserve is an integral part of the Royal Navy with a long history of supporting the regular force in major crisis and enduring operations. Medical Officer reservists work in both a true ‘reserve’ capacity but also augment the enduring medical support requirements of the Royal Navy worldwide. As a reserve Medical Officer of whatever discipline you will carry the rank prefix of ‘Surgeon’ and proudly wear the distinction lace of blood red in your rank epaulettes.

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Sectra provides industry-leading PACS/RIS and orthopaedic solutions. With more than 20 years of leading innovation, Sectra maintains its position at the forefront of medical IT development thanks to close cooperation with top research centers and more than 1,100 customers. Sectra’s orthopaedic solutions enable orthopaedic surgeons to utilize digital technology to reduce costs and increase productivity. They also significantly increase precision in choosing templates in the pre-operative planning phase. The offering comprises a complete set of pre-operative planning tools, Sectra templates service and Sectra’s Calibration Unit.

### Sanofi

#### 214
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Sanofi, a global and diversified healthcare leader, discovers, develops and distributes therapeutic solutions focused on patients’ needs. Sanofi has core strengths in the field of healthcare with seven growth platforms: diabetes solutions, human vaccines, innovative drugs, consumer healthcare, emerging markets, animal health and the new Genzyme. Sanofi is listed in Paris (Euronext: SAN) and in New York (NYSE: SNY).
SEMPRIS was launched in late August 2010 in response to the introduction of restrictive guidelines and withdrawal of critical aspects of indemnity cover by traditional MDOs for doctors treating professional sportsmen and women. Developed in conjunction with doctors, medico-legal advisers and insurers, the scheme provides the most comprehensive medico-legal support and indemnity available from any insurer or medical defence organisation in the UK. Membership covers all aspects of sport and non-sport related independent practice and professional issues not covered by NHS indemnity.

SEMPRIS is a division of Health Partners Europe Ltd., Official Healthcare Advisers to the Premier League & ECB.

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NG31 6LJ, United Kingdom
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http://streamwavemedical.com

Streamwave Medical Limited is an innovative distribution company, working with some of the World’s leading orthopaedic device manufacturers to deliver high quality products. We offer a unique service to the healthcare sector working with our partners to provide a team of fully trained individuals to support surgeons and theatre staff in their day to day use of our products and surgical devices. Our product range is well accepted in hospitals throughout the world, clinically proven with tried and tested technology. Customer support and training is at the heart of our company’s philosophy.

Stryker
Stryker House, Hambridge Road, Newbury, RG14 5AW, United Kingdom
Tel: 01635 262400
enquiries@stryker.co.uk
http://www.stryker.com

Stryker is one of the world’s leading medical technology companies with the most broad based range of products in orthopaedics and a significant presence in other medical specialties. Stryker works with medical professionals to help people lead more active and satisfying lives. The Company’s products include implants used in hip and knee replacement, trauma, craniomaxillofacial and spinal surgeries; biologics, surgical, neurologic, ENT, and interventional pain equipment; endoscopy and surgical navigation. Stryker offers a unique range of solutions and continues to improve this offering via meaningful innovation. Visit us on Stand 112 for a cup of excellent coffee and a chat!

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The Royal College of Surgeons of Edinburgh
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Established in 1505, and with a global membership, The Royal College of Surgeons of Edinburgh (RCSEd) is one of the world’s oldest and largest surgical establishments, with some 20,000 Fellows and Members based in almost 100 countries worldwide.
As well as striving for excellence through education and examinations, RCSEd is committed to advancing surgical training. The recently launched Faculty of Surgical Trainers welcomes membership to all those who have an active interest or involvement in surgical training in the UK and internationally. The College also welcomes the surgical community to debate and discuss ‘emergency surgery in the 21st century’ at its annual President’s Meeting 2014.

The Royal College of Surgeons of England
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education@rcseng.ac.uk
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- Examinations in the UK and internationally
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World Orthopaedic Concern
World Orthopaedic Concern UK is a long established charitable organisation with a membership of over 300 mainly UK Orthopaedic Surgeons. The objectives are to improve the standard of orthopaedic, trauma and reconstructive surgery in developing countries. Our website www.wocuk.org provides much information about the organisation, countries we support, how to volunteer to help and how to join.

Wright Medical UK Ltd
We are a global orthopaedic medical device company specialising in the design, manufacture and marketing of reconstructive joint devices. Our product portfolio includes:
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Our total knee replacement the Advance® medial pivot is increasingly being recognised as the clinically proven innovator to total knee replacement. Offering enhanced confidence and stability to daily patient activities through medially pivoting kinematics, constant radius and mid flexion balance.

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The X-Bolt® systems, developed by Mr. Brian Thornes, MCh, FRCSI, give significantly better hold vs. existing hip screw systems. The X-Bolt® is expanded or retracted with a standard screwdriver, and has concise instrumentation making surgery easier and faster. Better fixation allows greater confidence to mobilise FWB; reduces complications and bed stay; providing significant healthcare savings.
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Xpert Orthopaedics combines optimal solutions from Lima and Merete: Lima’s range of Hip & Shoulder products include the Delta TT range of acetabular cups separating fixation (with Trabecular Titanium) from biomechanics with face changing cups providing optimal stability. The SMR shoulder system is the only ‘true’ platform system with over 10 years of clinical experience.

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Zimmer is a world leader in musculo-skeletal health and a creator of innovative and personalised joint replacement technologies. After nearly a century, we remain true to our purpose of restoring mobility, alleviating pain, and helping millions of people around the world find renewed vitality. Founded in 1927 with headquarters in Warsaw, Indiana, Zimmer designs, develops, manufactures and markets orthopaedic reconstructive, spinal and trauma devices, dental implants, and related surgical products.

Zimmer’s Trabecular Metal™ Technology is among the greatest innovations in orthopaedics in the last 15 years. Made of tantalum, it has more than 15 years clinical history, and the performance of specific components has been well-documented in over 250 peer-reviewed journal articles and abstracts.
15th EFORT Congress
A combined congress with BOA sessions
London, United Kingdom: 4 – 6 June 2014

Congress Highlights – Main Theme: Patient Safety

General Orthopaedics
- Reconstruction on upper limb
- Salvage procedures for hip & knee replacement
- What is evidence based orthopaedics?
- How to diagnose deep infection?
- Sarcopenia and osteoporosis
- Pain control in Paediatric Orthopaedics
- ACL revision
- The championship of materials

Upper Limb
- Finger fractures
- The complicated reverse shoulder

Spine
- Spine Surgeon: European Diploma

Lower Limb
- Ankle fusion or arthroplasty?
- Conservative approaches
- Knee osteoarthritis

Trauma
- The periprosthetic fracture
- Treatment of bone defects
- Polytrauma in the elderly

Paediatrics
- New approaches in managing children’s pain

Key dates
Abstract submission & registration opens: 1 August 2013
Abstract submission closes: 1 November 2013
Early Registration Deadline: 31 January 2014
On-site rates apply: 16 May 2014
BOA TRAVELLING FELLOWSHIPS
for BOA Members

Up to 19 Fellowships Available
Applications open throughout October 2013

bit.ly/BOAtavfell
Terms & Conditions available online

Specialist & General Fellowships Available

BOA Instructional Course 2014
10-12 January

British Orthopaedic Association
Caring for Patients, Supporting Surgeons

Manchester Conference Centre

BooK Hotel (Days Inn)

go here for more info

Sessions & Chairs
Knees - Colin Esler
Elbow - David Stanley
Paeds - Martin Gargan
Basic Science - Kevin Sherman
PLUS - DePuy Synthes & Alan Apley Memorial Lectures

@BritOrthopaedic  BritOrthopaedic

email for info
eventsteam@boa.ac.uk
Abstract Information

Over the last 3 years I have tried to increase the Instructional/Revalidation Sessions at our Annual Meeting in order to provide a “One Stop Revalidation Service” for Orthopaedic Surgeons. Associated with this there has been a deliberate reduction in “Free Papers” in order to make the accepted Podium Presentations more Prestigious and of Higher Standard – only the best get accepted as far as can be judged by the abstracts.

I thought that as a result of these changes it was important to explain the process of Free Paper selection. Essentially all who submit an abstract are allowed to identify which section of the programme they wish to enter ie Hip, Knee, Shoulder and Elbow etc. The abstracts that are received are then forwarded to the relevant Specialist Societies who are asked to provide a minimum of 3 reviewers to score each abstract. The scores are then returned to the BOA and a preliminary selection of papers is made by the Hon Sec based on the scores achieved and the ability to fit them all into the programme. All abstracts above the cut point (based on programme space) are accepted. Abstracts receiving the same score are not in any way judged as being more or less acceptable for podium presentation. They are either all “in” or all “out” depending on space available.

Finally there is a BOA Programme Selection Meeting comprising the BOA Executive Group (the elected officers and the CEO), the Editorial Secretary, and a representative from the BJJ. This group look at the titles of all the abstracts that have been preliminarily accepted to make sure that there has been no “salami slicing” by individual authors or institutions. It is only when this has been completed that confirmation of acceptance or rejection is made to individual authors.

The accepted papers therefore are the best that we have received and as such I would like to congratulate the authors and their institutions for having their work accepted for Podium Presentation. I would also like to thank the Specialist Societies for all the hard work they have done reviewing the abstracts - without this work we would not be able to achieve our aim of having high quality Free Papers at our Annual meeting.

David Stanley
Honorary Secretary
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- Abstracts are organized by Name, Abstract No., Topic, Day, and Time.
- Each entry includes the author's name, abstract number, topic, and presentation day and time.
- The program covers a variety of orthopaedic specialties, including General Orthopaedics, Hip Surgery, Hand Surgery, Foot & Ankle Surgery, and others.
- Presentations are spread across different days and times, with a mix of morning and afternoon slots.
- The program includes presentations on trauma, research, and clinical topics.
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### Name

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T&O has a history of leading the way in embracing technology for learning, and we have done it again.

The brand new 2013 T&O curriculum has gone mobile.

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668 08:04

Is hip replacement using all cemented fixation and a conventional polyethylene bearing the gold standard for patients aged over 60 years? An analysis of patient reported outcome scores and implant survival

S Jameson, P Baker, J Mason, P Gregg, D Deehan, M Reed
Durham University, Durham

Revision and PROMs were compared across implant types in 79,995 patients >60 years, with reference to a standard THR (cemented stem/polyethylene cup/standard head size). In males, after selecting components with lowest revision risk, revision was significantly higher in cementless (HR=3.34, p=0.041) and large head resurfacings (RH=4.78, p=0.013). Significantly greater improvements in PROMs were seen in hybrid and hard bearing cementless implants. In females, revision was significantly higher in hard bearing cementless implants (HR=3.34, p=0.041) and large head resurfacings (RH=4.78, p=0.013). Significantly greater improvements in PROMs were observed in hybrid and hard bearing cementless implants. In males, revision and PROMs improvement was equivalent across all types. Hybrid implants may offer the best balance between early outcome score improvement and revision risk in females. In males there were no benefits of cementless and resurfacing components.

642 08:08

Review of ceramic – ceramic bearings in hydroxyapatite ceramic coated hip implants: a clinical and radiological evaluation with up to twenty year follow-up

J Buchanan, D Fletcher
Sunderland Royal Hospital, Sunderland

Alumina ceramic in 467 hips. Zirconia Toughened Alumina (ZTA) in 160 hips. Results: Aseptic loosening (3 of 1254 components, 0.24%). Five alumina components broke (0.39%). No failure of ZTA ceramic. No thigh pain. No osteolysis. No debris disease. Overall revision rate 2.8% (for co-morbid problems). Conclusions: HA hip arthroplasty with Ceramic bearings causes few complications and succeeds for patients of any age and either sex.

668 08:04

The outcome of the Birmingham hip resurfacing with a minimum ten years follow up

KA Lammin, S Sharma, M Porter
Wrightington Hospital, Wigan

We report the outcome of a single surgeon series of Birmingham resurfacings with a minimum ten-year follow up. 85 were performed in 75 patients. The male:female ratio was 55:20, and mean age 50 years. Mean follow up was 132 months. Indications for surgery were osteoarthritis, developmental dysplasia, post-traumatic arthritis, SUFE, and AVN. The mean modified Oxford score pre-operatively was 17, at one year 42, and ten years 42. The revision rate was 9%. Indications were failure of socket integration 1%, infection 1%, aseptic loosening 2% and ALVAL 5%. The highest failure rate was with head sizes less than 50.

496 08:16

Cemented hip replacement with the Exeter Universal Cemented stem; long term results from an independent centre

R Gogna, J Phillips, C Stevens, G Mundy, P Howard
Royal Derby Hospital, Derby

Our aim was to establish the long-term survivorship of the Exeter femoral stem
at an independent centre. Patients who received a primary cemented Exeter stem with a cemented acetabular component were identified from 1992 to 1997. The primary outcome measure was revision of the stem. 371 patients, with 403 primary cemented Exeter hip replacements were identified with a mean age of 69.6 years. 230 patients died prior to the latest follow up (61%) with no revised stems. Of the 124 surviving patients, there were 3 revised stems (2.2%). We report a survivorship of 97.8% at a mean follow-up of 14.6 years.

**DISCUSSION**

Can we predict which dysplastic hips will require acetabular augmentation at total hip replacement?

A Marsh, A Nisar, M El Refai, RMD Meek, S Patil
Southern General Hospital, Glasgow

The study looks at predictors of acetabular augmentation in dysplastic hips. We looked at preoperatively radiographs for classification of hip dysplasia, centre edge (CEA), Sharp and Tonnis angles. Templating was done on AP and lateral view radiographs. 31/128 hips underwent acetabular augmentation. Comparing the augmented with nonaugmented group, there was no difference in the mean CEA (p = 0.19) and Tonnis angles (p = 0.32). Crowe Type 2 or greater was more likely to require augmentation (p = 0.00274). Preoperative templating can predict which hips would require acetabular augmentation during total hip replacement in dysplastic hips.

**969**

Mid term results of the cup cage construct for treatment of massive acetabular defects

CF Kellett, AE Gross, D Lewallen
Golden Jubilee National Hospital, Glasgow

32 patients (mean age 64.9, range 45 to 83 years) with massive un/contained defects underwent revision arthroplasty with a cup cage. Complications: three deaths unrelated to surgery, one infection, two recurrent dislocations revised to capture liners. One component migration. 5 lost to follow up. Harris Hip Scores averaged 45 pre-op and 77 post-op. Minor radiolucent lines at inferior flange in 14 patients. Survivorship was 87% for the patients followed up at 80.4 months. The mid term Cup Cage results show excellent rates of initial implant stability and bone graft remodelling.

**879**

The impact of supplementary Daptomycin and Vancomycin on the elution of commercially added Gentamicin from Polymethylmethacrylate cement

H Gbejuade, A Lovering, A Blom, J Webb
Musculoskeletal research Unit, Avon Orthopaedic centre, Microbiology research unit, Southmead Hospital, Bristol

Increasing antimicrobial resistance is a concern with the use of antibiotic loaded acrylic cement (ALAC), prompting the use of combination antimicrobial therapy. We studied antibiotic elution from different combinations of ALAC. ALAC prepared with gentamicin, vancomycin and daptomycin in combinations, were eluted for 1h-90 days and antibiotic concentrations assayed thereafter. The mean 90 day gentamicin recovery was 1.1 mg with half mostly eluted within the first 24 hours. 60% increase in gentamicin elution occurred in the presence of daptomycin (p=0.004). The significant increases in gentamicin elution in the presence of daptomycin, along with the superior antimicrobial daptomycin activity, may offer the best combination.

Can frozen section histology be used to reliably rule out suspected prosthetic joint infection in revision arthroplasty surgery?

R Craig, C Fortescue, S Iyer, G Kingston, T Pollard, A Andrade, J Morley
Royal Berkshire Hospital Foundation Trust, Reading

Based on recent literature, we adopted a new protocol for the use of frozen section histology to diagnose prosthetic joint infections. A cut-off of 23
polymorphonuclear neutrophils per ten high powered microscope fields was applied. Between 2010 and 2011 we collected data for 62 revision hip and knee arthroplasty cases, comparing histological to microbiological and clinical diagnosis. In this group of patients the pretest probability was low. Frozen section histology allowed intra-operative diagnosis of seven patients with infection. There was one false positive result. There was agreement between histology and clinical outcome for 20/21 second stage procedures.

**DISCUSSION** 08:45

Can the pre-operative Western Ontario and McMaster (WOMAC) score predict patient satisfaction following total hip arthroplasty? An analysis of patient-reported outcomes for joint replacement

BA Rogers, A Carrothers, H Kreder, RJ Jenkinson
Addenbrooke’s Hospital, Cambridge; Sunnybrook Health Sciences Centre, Toronto, Canada

This prospective study compared pre-operative and one-year post-operative WOMAC scores for 439 hip replacement 439 patients with a satisfaction/questionnaire. Satisfaction scores were dichotomized into either an improvement or deterioration relative to pre-operative expectations and compared using receiver operating characteristic (ROC) analysis against; pre-operative, post-operative and delta-WOMAC scores.

Statistical analysis showed no relationship between WOMAC and patient satisfaction. Thus, pre-operative WOMAC does not predict patient satisfaction and does not support the use of pre-operative WOMAC scores in prioritizing patient care.

**417** 08:54

Does total hip replacement have an effect on patient activity levels or actual patient activity precipitation one year post surgery? An analysis of patient-reported outcomes for joint replacement

AD Carrothers, B Rogers, T Vassarheyli, SJ MacDonald, HJ Kreder, RJ Jenkinson
Addenbrooke’s Hospital, Cambridge, Sunnybrook Health Sciences Centre, Toronto, Canada

Anecdotally patients aspire to higher activity levels post Total Hip Arthroplasty (THA). 460 patients underwent primary THA and a standardized rehabilitation protocol. Prospectively demographics, THA type and bearing combinations, activity data and WOMAC scores, prior to and one-year following surgery, were independently recorded. Fifty different activity categories were analyzed with the actual time spent engaged in each activity. Basic physical activities increased but analyzing actual hobby/sporting activities, no increase reached statistical significance nor was there statistical change in BMI. Popular retirement activities such as golf did not show an increase in participation nor participation duration post THA.

**845** 09:02

Outcome of open reduction and internal fixation of Vancouver type B fractures around a cemented tapered polished stem

S Patil, S Goudie, S Patton, J Keating
Edinburgh Royal Infirmary, Edinburgh

We retrospectively identified the patients with Vancouver type B fractures around a cemented tapered polished stem (CTPS) treated with ORIF. Bicortical screw fixation was obtained in the proximal and distal fragments. Of the 70 patients with a minimum 6 month follow up, 63 united. 3 patients developed infected non-union and 4 aseptic failure. Infection, lack of anatomical reduction and inadequate proximal fragment fixation were the most common predictors of failure. This is the largest series of a very specific group of periprosthetic fractures treated with osteosynthesis. We recommend osteosynthesis provided these fractures can be anatomically reduced and adequately fixed.
All-cause mortality following total hip arthroplasty: Cement vs. Cementless vs. Hybrid

T Malak, D Prieto-Alhambra, K Javaid, F Pallisó, A Carr, M Espallargues, C Cooper, N Arden, A Judge, S Glyn-Jones
Nuffield Orthopaedic Centre, Oxford

The recent National Joint Registry (NJR) report showed increased mortality rates with use of cement following primary Total Hip Arthroplasty (THA). Causes may include patient, surgical and implant-related variables, but data is scarce. RACAT is a local record of hip replacements performed matched closely to GP records. We conducted a retrospective cohort study examining the association between cement use and mortality following THA surgery. Overall mortality showed a Hazard Ratio 1.94[1.11-3.37] for cemented versus cementless fixation Independent of age, demographics, pharmaceutical use, co-morbidities, socio-economic status and life-style factors. This increase was driven by early mortality rates.

DISCUSSION

Mortality Following Hip Replacement – Results from the UK National Joint Registry

BJRF Bolland, SL Whitehouse, JR Howell, R Crawford, AJ Timperley
Southampton General Hospital; Institute of Health and Biomedical Innovation, QUT, Australia; Princess Elizabeth Orthopaedic Centre, Exeter

To determine if a true cause and effect on mortality risk by hip fixation type could be established using NJR data. Analysis performed using Cox proportional hazards regression using all relevant variables from NJR dataset. Postcode data included determining effect on model. Mortality rates were lower than in age-matched population across all hip types. Multiple variables had significant effect on mortality rates. Approach was not significant. With the addition of postcode data to the model, approach became significant. This study demonstrates that true cause and effect on the risk of mortality cannot be adequately modelled from currently available Registry data.

The validity and reliability of the modified forgotten joint score

J Lavery, I Anthony, M Blyth, B Jones
University of Glasgow, Glasgow

The Modified Forgotten Joint Score (MFJS) is a new patient-reported outcome measure in hip and knee arthroplasty which we have validated against the UK’s gold standard Oxford Hip and Knee Scores (OHS/OKS). The MFJS measures a new appealing concept; the ability of a patient to forget about their artificial joint in everyday life. Postal questionnaires were sent to 400 THR and TKR patients, with a return of 212 questionnaires. The results showed that the MFJS provided a more sensitive assessment of hip/knee arthroplasties especially in the well performing patients and therefore should be used as adjunct to the OKS/OHS.

DISCUSSION

Total knee replacement in octogenarians: does age matter?

JW Kennedy, L Johnston, L Cochrane, PI Boscainos
Ninewells Hospital & School of Medicine, University of Dundee, Dundee

Total knee arthroplasty (TKA) is one of the most commonly performed procedures in the elderly, yet whether age influences postoperative outcomes is not fully understood. We retrospectively reviewed 438 patients over 80 years who underwent primary TKA between 1995 and 2005. We established a comparator group of 2754 patients younger than 80 years. We found no difference in pain scores at 3, 5, and 10 years between groups. The Knee Society Score was comparable at Year 5, but the Knee Society Function Score was lower in the elderly. Major complication rates were higher in the over 80’s group.

Poorer Outcomes of Total Knee Replacement in Early Radiological Stages of Osteoarthritis

C Peck, J Childs, G McCauchlan
Lancashire Teaching Hospital NHS Trust, Preston

We identified 63 primary total knee replacements in 61 patients with a Kellgren-Lawrence grade of three or less. The mean (SD) age was 63 (9.2) years and the mean reoperative OKS was 15 (6.0). At a mean follow-up of 38 months the mean OKS was 30 (10.1) and only 44 patients (70%) were either satisfied or very satisfied. Eleven knees (17%) underwent a further procedure, the majority (6) being manipulation under anaesthesia. This study shows that outcomes of TKR in patients with early radiological changes of OA are inferior to those with significant changes and should be performed with caution.
Early outcome and economic benefits using the ShapeMatch Total Knee Replacement with kinematic alignment philosophy

B Waterson, A Toms
Royal Devon and Exeter foundation trust, Exeter

We identified 63 primary total knee replacements in 61 patients with a Kellgren-Lawrence grade of three or less. The mean (SD) age was 63 (9.2) years and the mean reoperative OKS was 15 (6.0). At a mean follow-up of 38 months the mean OKS was 30 (10.1) and only 44 patients (70%) were either satisfied or very satisfied. Eleven knees (17%) underwent a further procedure, the majority (6) being manipulation under anaesthesia. This study shows that outcomes of TKR in patients with early radiological changes of OA are inferior to those with significant changes and should be performed with caution.

Proximal tibial strain in unicompartmental knee replacements: A biomechanical study of implant design

C EH Scott, RW Nutton, P Pankaj, MJ Eaton, SL Evans
University of Edinburgh, Edinburgh, Cardiff

The effect of UKR implant design and material on proximal tibial cortical strain and cancellous microdamage was examined using digital image correlation (DIC), and acoustic emission (AE). Fixed bearing all-polyethylene (FB-AP), fixed bearing metal-backed (FB-MB), and mobile bearing metal-backed implants (MB-MB) were cemented into composite tibias and loaded to 2500N. Intact tibias were used as controls. Differences existed in cortical strain in the proximal 10mm (p<0.001) with strain shielding in metal-backed implants. FB-AP implants showed 14x the microdamage (AE hits) of controls, FB-MB 5.5x and MB-MB 2.5x. Microdamage was significantly greater in FB-AP implants at all loads (p=0.001).

Does robotic surgical assistance improve surgical accuracy in unicompartmental knee replacement?

M Blyth, B Jones, A MacLean, J Anthony, J Smith, P Rowes
Glasgow Royal Infirmary, Glasgow

100 patients were randomised to receive UKA with or without the aid of Robotic Assistance. Post-operative CT scans were used to calculate the deviation from planned target for both tibial and femoral implant position in 3 planes: varus/valgus, flexion/extension and internal/external rotation. In 5 of 6 dimensions measured a significant difference was found between the accuracy of Robotic Assisted and traditional surgery. Robotic Assisted UKA using the MAKO RIO system enhances the accuracy of implant placement during surgery. Lower early post-operative pain scores and greater 3 month clinical scores were also noted in the Robotic Assisted group.
Fixed bearing lateral unicompartmental knee arthroplasty - short to midterm survivorship and knee scores for 101 prostheses

JRA Smith, JR Robinson, JRD Murray, AJ Porteous, MA Hassaballa, N Artz, JH Newman
North Bristol NHS Trust, Bristol

Lateral unicompartmental knee arthroplasty (UKA) constitutes only 1% of all knee arthroplasty performed. Unlike medial UKA, results of lateral UKA have been mixed. We present the largest series to date using a single prosthesis. Survivorship for 101 prostheses using revision for any cause as the end-point was 98.7% and 95.5% at 2 and 5 years respectively. 33 knees were fully scored at 5 years. Mean AKSS, OKS and WOMAC scores were 159, 37, and 22 respectively.

Unicompartmental knee arthroplasty provides a valuable alternative to total joint replacement in the treatment of isolated degenerative lateral tibio-femoral joint disease.

DISCUSSION

The evolving indications for osteotomies around the knee. Analysis of early results from a UK centre

T Nancoo, G Cox, M Risebury, N Thomas, A Wilson
Basingstoke and North Hampshire Hospital NHS Foundation Trust, Basingstoke

The introduction of strong, fixed angle, locking plates has reduced the risk of loss-of-correction and allowed an expansion of the patient-specific indications (e.g. BMI, age, gender) for osteotomy. Traditionally, the ideal candidates have been thin, young, active, non-smoking, male, manual labourers with symptomatic early unicompartmental osteoarthritis and frontal plane joint malalignment. Analysis of 3.5 year results from the Basingstoke Osteotomy Database challenge these traditional indications suggesting that good outcomes can be achieved when the lower limb is accurately aligned (mean weight-bearing axis pre-op = 25.1±11.6% changed to 55.9±10.8% post-op). Results were independent of age, gender, BMI and grade of arthritis.

The influence of radiological parameters on clinical outcomes after open wedge high tibial osteotomy

T Nancoo, G Cox, M Risebury, N Thomas, A Wilson
Basingstoke and North Hampshire Hospital NHS Foundation Trust, Basingstoke

Based on Bonin’s work, it is now widely accepted that tibial bone varus angle(TBVA) is the primary radiological parameter for predicting clinical outcomes after medial-open-wedge high tibial osteotomy (MOWHTO). We hypothesised that radiological parameters of varus malalignment, including TBVA, are all positive prognostic factors for clinical outcomes. Prospectively collected data from 156 consecutive MOWHTOs were analysed. Interestingly, increasing TBVA did not correlate with better outcomes. The only statistically significant correlation was found between the pre-operative weight-bearing axis (mean 24.2%±11.8%) and postoperative Oxford Knee Scores suggesting that the WBA is the only factor that should be used to determine prognosis after MOWHTO.

Outcome of meniscal allograft transplantation related to chondral wear: advanced degenerative change should not be a contraindication

T Spalding, C Robb, P Kempshall, A Getgood, P Thompson
University Hospital, Coventry

Outcome following Meniscal Allograft Transplantation (MAT) in 29 knees with bare bone (ICRS grade 3b/3c group B) was compared to 36 patients with good surfaces (group G). Mean follow-up 2.3 years, age higher in group G (37 v 20). Outcome scores significantly improved in both groups at 1 year with no difference between groups. Group B showed higher complication rate implant removal Sv1 at mean 1.0 years (0.47-1.77). 2 yr Kaplan-Meier implant removal survival was 95.5%(G) and 82.2%(B) (p=0.043). MAT in presence of bare bone is therefore acceptable at short term follow-up and should not be discounted as an option.

The radiographic factors in failure of medial patellofemoral ligament reconstruction

GP Hopper, JA Wells, WJ Leach, BP Rooney, CR Walker, MJ Blyth
Glasgow Royal Infirmary, Glasgow

This study determines the relationship between trochlear dysplasia, femoral tunnel placement and outcome following MPFL reconstruction. 68 patients with recurrent dislocation of the patella underwent MPFL reconstruction. Mean follow-up was 31.3 months. Clinical outcomes and radiographic parameters were recorded. The mean congruence angle, lateral patellofemoral angle and patellar height improved significantly. 12 patients had postoperative patellar dislocations relating to raised trochlear boss height, high grade trochlear dysplasia and non-
anatomical femoral tunnel placement. This study demonstrates the importance of anatomic restoration and proposes that this procedure not be performed in isolation in patients with high grade trochlear dysplasia.

Cell viability of chondrocytes seeded onto a collagen I/III membrane for matrix-assisted autologous chondrocyte implantation

P Hindle, A Hall, L Biant Royal Infirmary of Edinburgh, University of Edinburgh, Centre for Integrative Physiology, Edinburgh

Confocal laser scanning microscopy was used to image live and dead chondrocytes on a collagen membrane. Cell density ranged from 1.14-1.67x10^6 cells/cm^2, in specimens without significant trauma, to 2.58x10^5 cells/cm^2 in the specimen grasped with forceps. The percentage of live cells on delivery grade membrane was 86.6%. This dropped to 76.4% after handling and 33.9% after crushing. Where the membrane was cut there was a band of cell death and the viability dropped to 16.6%. Visualisation of the cells using the x63 objective revealed cells that did not have the typical rounded phenotype of chondrocytes.

**DISCUSSION**

How does post op BMI change after TKA impact on outcome?

A Mackie, K Muthumayandi, C Gerrand, D Deehan Freeman Hospital, Newcastle upon Tyne

This study aimed to examine the medium term relationship between outcomes after primary TKR and change in BMI one year after surgery. We have examined a consecutive cohort of prospectively studied patients who have undergone knee replacement in a single institution. We have found a significant negative association between improvement in key patient reported outcome measures and post-operative weight gain, increasing weight met with lower final functional score. This effect was gender specific with males exhibiting a greater improvement than females. A threshold of 10% BMI increase significantly was associated with reduced pain relief following joint replacement.

**DISCUSSION**

Effect of Body Mass Index (BMI) on the results of Primary Total Knee Arthroplasty (TKA)

D Hartwright, A Nicholls, S Ahmad, E Matthews, J Walding Hampshire Hospitals Foundation Trust, Winchester

A prospective cohort of 315 consecutive patients (319 TKAs) were divided into 3 groups according to BMI (≥35, 30-35, <30). Groups were compared using: Oxford Knee Score (OKS), EQ-SD, EQ-VAS, blood loss, Length of Stay (LoS), pain and satisfaction (VAS). Assessments were made pre-operatively, at 6 weeks, 6, 12 and 24 months post-operatively.

Patients with a high BMI presented earlier for TKA surgery. All patients, regardless of BMI, demonstrated significant improvements following primary TKA surgery. Those, however, with a lower BMI have better early results and are more satisfied particularly when compared against those with a BMI >35.

MRI performed on dedicated knee coils is inaccurate for measurement of tibial tubercle trochlear groove distance

A Aarvold, V Sakthivel, R Ayers Poole Hospital NHS Foundation Trust, Poole; University Hospital Southampton, Southampton

Initially described on scans of knees in full extension, the introduction of dedicated knee MR coils has resulted in TTD measurements performed on scans of partially flexed knees. Comparison of TTD of 32 knees scanned in a both an MR body coil (that permits knee extension) and a dedicated knee coil revealed a significant difference in mean TTD measurement (20.0mm versus 11.3mm respectively, p< 0.0001). Falsely low TTD measurements from dedicated knee coils may result in symptomatic patients being falsely reassured or erroneously denied surgery. It is critical for surgeons and radiologists managing patello-femoral instability to appreciate this profound difference.

Anterior tibio-femoral impingement in the hyperextending knee – a cause for anterior knee pain

A Singh, B Singh Sunderland Royal Hospital, Sunderland

We present a case series of eleven patients with anterior knee pain and hyperextension. The aim is to highlight anterior tibio-femoral impingement as cause for this pain. Conservative treatment failed to resolve symptoms and an arthroscopy was performed to look for the cause. We observed
evidence of clear impingement and this was recorded using intraoperative pictures and video. Subsequent physiotherapy was aimed at hamstring strengthening and limiting hyperextension. All patients had significant improvements by 12 months. Anterior tibio-femoral impingement is a poorly recognized cause of anterior knee pain and current methods of rehabilitation may actually exacerbate the problem.

**Elbow & Shoulder**

**Study of rotator cuff pathology using the health improvement network database**

JJE White, AG Titchener, AA Tambe, A Fakis, RB Hubbard, DL Clark, Royal Derby Hospital, Derby

We have undertaken an epidemiological study of rotator cuff pathology using a large general practice database. The incidence rate of rotator cuff pathology was 87 per 100,000 person-years. This was more common in women than in men. The highest incidence rate of 198 per 100,000 person-years was found in the age group 55 to 59 years. Regional distribution analysis demonstrated Wales as an outlier with a significantly higher incidence. The lowest socioeconomic group had the highest incidence rates. Incidence rates have risen since 1987 and as of 2006, show no signs of plateau.

**Use of Isolated Latissimus Dorsi Tendon to reconstitute External Rotation in Adult Brachial Plexopathy patients**

SG Ghosh, V Singh, L Jayaseelan, M Fox, North West Thames Orthopaedic Training Programme, Peripheral Nerve Injury Unit, Stanmore

In adults with brachial plexus injuries, lack of active external rotation at the shoulder is one of the most common residual deficits. We present our experience of isolated latissimus dorsi muscle transfer to achieve active external rotation. The mean improvement in active external rotation from neutral, arc of rotation and power of the external rotators was 24°, 52° and 3.5 MRC grades. A total of 21 patients (88%) were back in work, 13 had returned to their pre-injury occupation. This is a simple and reliable method of restoring useful active external rotation in this group of plexopathy patients.
Displaced olecranon fractures: outcome in a busy district general hospital
C Shaw, G Ayana, J Badhiesha, S Spence
Royal Alexandra Hospital, Paisley

Methods: All olecranon fractures admitted in calendar years 2007-2010 were identified. Xrays were analysed to classify the fractures and assess outcome of treatment. Results: Average DASH post scores improved for all groups. Mayo Classification: Type I A: 5 (7.8%) all treated CONS; Type I B: 2 (3.1%) - all treated CONS | Type II A: 35 (54.7%) TREATED:1 PLATE/6 CONS/28 TBW | Type II B: 16 (25%) TREATED:5 PLATE/1 CONS/10 TBW | Type III A: 3 (4.7%) TREATED:2 PLATE/1TBW | Type III B: 3 (4.7%) TREATED:3 PLATE Conclusion: We have demonstrated lower metalware removal with a high rate of patients treated conservatively who do well.

A case series of old neglected fracture dislocation of elbow with entrapped medial epicondyloids
S Singh, Dr Anand Swaroop
Dr Ram Manohar Lohia Hospital, New Delhi

Achieving a functional elbow after fracture dislocation is challenge for any surgeon. The goal of study was to assess the outcome after surgical release and debridement of joint and reattachment of medial epicondyloids. Study included 12 cases of old, neglected, elbow dislocation with intra-articular entrapped medial epicondyloids. Surgery was followed by early supervised physiotherapy. Outcome was measured by MAYO’s score. In our study ten out of twelve achieved excellent result. All were painless and stable except two cases which were mild painful and moderately unstable.

Short- to mid-term outcomes of complex radial head fractures treated by a modular radial head replacement
S Hassan, O Solar, M Espag, T Cresswell, D Clark
East Midlands Deanery (North), Derby

Purpose: To report functional and post-operative outcomes of complex radial head fractures with elbow instability, treated by arthroplasty using un cemented modular anatomic prosthesis. Methods: Over 3-year period (2007-2010), 21 patients (mean-age 51.9 years; mean-F/u 27.1 months) were treated. Data was collected retrospectively, including: Oxford Elbow Index, Quick-DASH, and Mayo Elbow Performance Score, and radiographic assessments. Results: Mean Scores: Oxford Elbow=34.80; Quick-Dash=26.01. Mayo Performance= 6 scored excellent. 11 patients had an associated ligamentous injury of which 6 were Terrible Triad, 7 patients’ radiographs showed early signs of implant loosening. 3 patients underwent further surgery. Conclusion: Patient scores showed good functionality and satisfaction despite radiographic loosening. Findings support use for this prosthesis in complex elbow fractures and dislocations.

Recovery of grip strength after surgical release of lateral epiconditis
N Siddiqui, J Sonderegger, M Robinson
Princess Alexandra Hospital, Brisbane, Australia; Avon Orthopaedic Centre, Bristol

Loss of grip strength may be used as part of the decision-making process to enlist patients for surgery for lateral epiconditis. A consecutive series of 55 patients with unilateral lateral epiconditis were surgically treated with open release, debridement and repair. We assessed bilateral grip strength pre- and post-operatively. Mean grip strength of the affected side compared to the unaffected side was 55.6% (SD 20.9) preoperatively, 40.8% (SD 20.1) at two weeks, 72.2% (SD 17.7) at six weeks, 80.7% (SD 21.4) at 12 weeks and 85.5% (SD 20.9) at 18 weeks. Grip strength had returned to pre-operative levels by 26 days.

Effectiveness of extracorporeal shock wave therapy, injection and physiotherapy in lateral epiconditis in long term follow up
R Mittal, A Malpura, Hl Nag, S Gamanagatti
All India Institute of Medical Sciences, New Delhi

Type of study - Prospective randomized trial. Objective - To evaluate the effectiveness of extracorporeal shock wave therapy, injection steroid and physiotherapy in lateral epiconditis in long-term. Methods - Adults (N = 90; ages, 18-55) with clinically diagnosed lateral epiconditis were selected according to preset inclusion criteria. Patients were randomized and assigned to 1 of 3 interventions: extracorporeal shock wave therapy, injection steroid and physiotherapy. All the patients were advised daily activities modifications and followed up at one month, three months, six months and one year after treatment. The functional outcome was measured at each visit in all three groups using visual analogue scale (VAS) for pain, Mayo performance elbow score (MEPS) for function of elbow and SF-12 questionnaire for general health outcome. Results - The groups did not differ in demographic data and VAS, MEPS and SF-12 scores at beginning of the study. VAS at the end of 12 months was 1.69 +/- 1.834, 5.24 +/- 2.641, 5.0 +/- 1.678 for the EWST, steroid injection and physiotherapy groups respectively. MEPS at the end of 12 months was 86.21 +/- 10.910, 64.66 +/- 15.349, 66.25 +/- 9.682 for EWST, steroid injection and physiotherapy groups respectively. SF-12(MCS) at the end of 12 months was
56.197 +/- 6.6862, 34.689 +/- 13.8918, 41.711 +/- 32.97 for the EWST, steroid injection and physiotherapy groups respectively. Conclusions - Our study found that ESWT is most effective treatment for lateral epicondylitis in long-term at one year. Although steroid injection was effective in short term, but there was high rate of recurrence.

DISCUSSION 08:42

Histological evaluation of retrieved copeland resurfacing shoulder arthroplasties
C Wek, CP Kelly, J John, G Blunn
University College Hospital, John Scales Centre for Biomedical Engineering, London

We performed a histological and histomorphometric analysis of six retrieved Hydroxyapatite-coated Copeland humeral resurfacing prostheses to determine if osteonecrosis was a mechanism of failure. The specimens were analysed using Light and Back-scattered electron microscopy. We found no evidence of osteonecrosis in the revised specimens as the vasculature was intact under the surface of the implant. Bone ongrowth was observed at the bone-implant interface and the average bone-implant contact ranged from 11.1-36.6% between the specimens. In this study, we found evidence of good osteointegration within the prosthesis with no evidence of osteonecrosis as a mechanism of failure.

A multi-station glenohumeral prosthesis wear simulator
T Joyce, L Li, G Johnson, S Smith
Newcastle University, Newcastle upon Tyne

Wear of polymeric components has been identified as a cause of loosening and failure of shoulder implants in vivo. A multi-station shoulder simulator was designed which moves five test glenohumeral prostheses simultaneously in the flexion-extension, abduction-adduction, and internal-external rotation axes. ‘Mug to Mouth’ was selected as an activity of daily living for initial testing in the simulator. A 2 million cycle wear test was performed with JRI Orthopaedics Reverse VAIOS shoulder prostheses tested in 50% bovine serum. The average polymeric component wear rates were 14.1 ± 2.1 mm3/106cycles. The multi-station shoulder simulator is the first of its kind.

DISCUSSION 09:00

Incidence of symptomatic venous thromboembolism (VTE) following shoulder surgery. Review of 2341 cases.
K Wronka, A Sinha
West Wales General Hospital, Carmarthen; Glan Clwyd Hospital, Rhyl

Background: This study was performed to establish incidence of symptomatic VTE complicating shoulder surgery.

Methods: Retrospective review of clinical records of 920 consecutive patients who had any shoulder surgery in Glan Clwyd Hospital-North Wales and further 1421 consecutive patients operated in Morriston and Singleton Hospitals, South Wales. Records were assessed for: re-admissions due to proven VTE; radiological results suggestive of VTE; deaths. Results: In 2341 patients identified, there was 1 fatal PE. There were further 3 cases of symptomatic PE and 4 of DVT (lower limb). The incidence of symptomatic VTE is: -0.43% after any procedure; -1.11% after shoulder arthroplasty; -0.23% after arthroscopy.

Acromioclavicular joint reconstruction - outcomes from the Surgilig device in a non-specialist centre
J Wright, O Osarumwense, Y Umebuani, F Ismail, S Orakwe
Queen Elizabeth Hospital, London

Surgilig is a braided polyester prosthetic ligament used to reconstruct the coracoclavicular ligaments following acromioclavicular joint dislocation. Twenty-one patients with ACJ dislocation were reconstructed using Surgilig. Clinical and radiographic follow up was to a mean of 30 months (7-67). Twenty patients were satisfied with their outcomes (95%). The mean Constant
ABSTRACTS

ABSTRACT

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score for the group was 88.4 (62-100), with an Oxford score of 43.1 (28-48). One implant failed following further trauma. Surgilig has been shown in this cohort of patients to have a good outcome in reconstruction of acromioclavicular disruption with a low rate of complication in a non-specialist unit.

246 09:12

The outcome of scapulothoracic arthrodesis using allograft in facioscapulohumeral dystrophy

AD Cooney, I Gill, PR Stuart
Freeman Hospital, Newcastle upon Tyne

We report the early results of 14 consecutive scapulothoracic arthrodeses in patients with facioscapulohumeral dystrophy. Shoulder movement, DASH scores and forced vital capacity (FVC) were recorded pre and six months postoperatively. Forward flexion improved from 70° to 115° (p=0.001). DASH scores improved from 48 to 34 (p=0.005). FVC decreased from 98% to 92% predicted (p=0.021), although this was not clinically significant. One symptomatic non-union occurred. Scapulothoracic arthrodesis can be performed successfully with allograft. The non-union and complication rates are similar to the existing literature. A small decrease in FVC does occur but not to a clinically significant level.

464 09:20

Investigation into variation in the path of the suprascapular nerve, morphology of the superior transverse scapular ligament, and prevalence of the spinoglenoid ligament

C Hannan, A Al-Modhefer, M Eames
Queen’s University Belfast, Belfast

Suprascapular nerve entrapment syndrome (SNES) is estimated to account for 1-2% of shoulder pain. Commonly this entrapment occurs as the nerve passes under the superior transverse scapular ligament (STSL) and spinoglenoid ligament. Anatomical variations of these ligaments may make entrapment more likely. 28 formalin fixed cadaveric scapulae were dissected to visualize the suprascapular and spinoglenoid notches. An anatomical variation was observed, with 1 of the 28 (3.6%) scapulae having an ossified STSL, a known risk factor for SNES. A spinoglenoid ligament was present in 82% of specimens: 17% of these ligaments were found to be more substantial type 2 ligaments.

DISCUSSION

10:00 – 11:30
Hall 9

Trauma 1

366  10:00

Timing of surgery for internal fixation of displaced intracapsular hip fractures; a clinical study of 962 patients

E Griffiths, R Brankin, P Domos, M Parker
Peterborough Hospital, Peterborough

Patients who had undergone internal fixation of an intra-capsular fracture were identified from a prospective database. Those suffering from subsequent AVN or non-union were compared to those that had had an uneventful recovery. We reviewed differences between rates of complication and time to surgery and also compared the adequacy of reduction with outcome. There was no obvious trend towards earlier surgery leading to reduced rates of AVN or non-union. However, surgery undertaken before 18 hours had a significantly reduced chance of these complications (p=0.0001). Adequacy of reduction had no significant impact on rate of non-union or avascular necrosis.

199  10:04

Time to Internal fixation of femoral neck fracture in patients under 60 years – does this matter in the development of avascular necrosis of femoral head?

H Soueid
Guy’s & St Thomas’ NHS Trust, London

We aim to assess the effect of time delay and method of internal fixation on the development of AVN FH in those less than 60 years of age. We retrospectively analysed 182 patients presenting with...
#NOF with 92 under 60 years. 92 ICF, 46 CS, 37 DHS, and 9 both. These patients were subdivided into Groups A to F based on time delay between injury and fixation. 13 patients (14.1%) developed AVNFH, the highest incidence being in CS group with an AVNFH rate of 26%. we demonstrated that the method of IF rather than delay in IF was predictive of AVNFH.

Raised white cell count in patients admitted with fractured neck of femur: Should there be a delay in surgery?

P Vinayakam, M Prasad, A Aframian, PJS Jeer QEQM, Margate

Introduction: To examine association between fracture neck of femur patients admitted with raised white cell count (WCC) with clinically proven concurrent infection & delay in surgery, and wound infection & mortality. Methods: 100 consecutive patients. Results: 51% of patients had raised WCC on admission, of which 23% had clinical evidence of infection. No deep infection or increased deaths in raised WCC group. Conclusion: Our findings suggest no correlation between clinically proven infection and raised WCC and no association between raised white cell count on admission and post-operative wound infection or one year mortality. We recommend WCC alone does not delay surgery.

Serum lactate is a prognostic indicator in patients with hip fracture: prospective study

M Venkatesan, S Balasubramanian, A Khan, R Smith, C Uzoigwe, T Coats, S Goddif University Hospitals of Leicester, Leicester

In this prospective study we sought to determine if admission serum venous lactate can predict 30-day mortality and early survivorship in patients with hip fractures. Over a 12-month period the admission venous lactate of all patients presenting to our institution with hip fractures was prospectively collated. 770 patients were included in the study. The mean age was 80 years. The overall 30-day mortality for this cohort was 9.5%. Admission venous lactate was associated with 30-day mortality and early survivorship. Mortality rate in those with a lactate level of less than 3mmol/L was 6.8% and 24% for those whose level was 3mmol/L or greater (p < 0.0001).

DISCUSSION

The financial cost of managing tibial plateau fractures at a specialist trauma centre

R Myatt, J Miles, G Matharu, S Cockshott, J Kendrew Queen Elizabeth Hospital, Birmingham

This study aimed to determine the cost of treating tibial plateau fractures. Over 15 months 40 patients presented with tibial plateau fractures. Mean treatment cost per injury was £4941.31 (median £3113.67). Ward costs were responsible for 57.6%, operative costs 34.1%, imaging 4.6% and lab investigations 1.3%. Mean cost of managing fractures sustained in polytrauma (£7669.65) was greater than managing isolated fractures (£3304.30). There was no specific injury code for tibial plateau fractures. The cost of managing tibial plateau fractures was greatest when sustained as a component of polytrauma. Ward costs accounted for the majority of total expenditure.

Open tibial fractures – a major trauma centre experience

A Dick, A Trompeter, C Hing, M Vesely, D Nielsen St George’s Hospital, London

St George’s Hospital became a Major Trauma Centre (MTC) in 2010. A retrospective review of open tibial fracture management in the three years since found a decreased proportion of patients attended another hospital before reaching definitive care (47% to 17%) with a significant reduction in mean transfer time from 31h to 4h (p=0.032). Appropriate antibiotic prescription improved (59% to 77%) and time to administration decreased (94min to 67min). Time to initial debridement, definitive soft tissue coverage and skeletal stabilisation remained within BOA/BAPRAS guidelines. Quality of care was found to have improved with the establishment of a regional MTC.

Locking plate fixation versus circular frame fixation for distal tibial metaphyseal fractures

A Haque, R Berber, S Ahmed, A Abraham Leicester Royal Infirmary, Leicester

The aim of our study was to retrospectively compare clinical and functional outcomes between locking plates and circular frames for the treatment of distal metaphyseal fractures of the tibia. We identified AO 43-A, B1, C1 fractures over an 18 month period and compared clinical outcomes such as radiographic time to union, non-union, infection rates and re-operation.
Distal tibial fractures – an antero-lateral or medial plate? A comparative study of 43 patients.
V Palial, A Arora, S Daivajna, V Khanduja
Addenbrooke’s Hospital, Cambridge

A retrospective comparative study was undertaken on 43 patients who sustained a distal tibial fracture treated with either an antero-lateral or medial locking plate. The average radiographic and clinical follow-up was 13 months. 29 patients had a medial plate while 14 had an antero-lateral plate. No differences were found in time to union between the two groups. The majority of patients treated with an antero-lateral plate had an intra-articular fracture (86%) compared to those who had a medial plate (42%). There were more complications of plate prominence and superficial infection in the medial plate group.

Are standard Anteroposterior and 20 degree caudal radiographs a true assessment of midshaft clavicular fracture displacement?
J Wright, C Heuvelings, L DiMascio
Barts and The London NHS Trust, London

Assessment of clavicle fractures commonly utilises standard antero-posterior and cephalic tilt radiographs. Displacement and shortening was assessed on standard views and axial CT images of 26 clavicle fractures. Displacement measured on the CT was a mean of 19% (p=0.019) greater than the AP view and 11% (p=0.211) greater than the 20 degree caudal. There were no significant differences found between the two modalities on assessment of shortening. Plain radiographs give an accurate representation of the shortening present in midshaft clavicular fractures. Displacement however may be underestimated if the standard AP and 20 degree caudal views alone are relied upon.

Patient reported outcome measures in the non-operative management of clavicle fractures
R Morrell, R Jeavons, J Kent, A Gower
Northern Deanery, Newcastle

Optimal management of adult clavicle fractures remains debatable: we analysed Patient Reported Outcome Measures (PROMs) retrospectively in 117 clavicle fractures treated non-operatively. Fractures were classified using Craig Modified Allman Classification. Patients received Oxford Shoulder Scores (OSS) and Quick DASH Scores. Mean age was 42 years. Response rate was 83%. 53 Type I, 34 Type II and 3 Type III fractures. Mean OSS was 56.2, 48.5, 53 in Type I/II/III fractures, respectively; mean QDASH was 10.5 in Type I/II, 18.2 in Type III. 64.2% Type I reported OSS reflecting excellent outcomes. PROMs data suggests non-operatively treated Type I clavicle fractures have excellent outcomes with Type II/III being less favourable.

Proximal humerus fractures - how serious are they?
L Wilson, B Gooding, P Manning, J Geoghegan
Nottingham University Hospitals, Nottingham

This retrospective review of prospectively collected data of proximal humeral fractures over an 11-year period is the first to combine the epidemiology and risk factors for mortality with socioeconomic rank. 529 patients (28%) died within the study period with a 10.1% one-year mortality rising to 28.9% at five years. Female gender, operative management, increasing age and increased number of co-morbidities were independent variables for increased mortality. One-year mortality risk is twice that of the background matched population; the risks and benefits of operative treatment need to be balanced against a further independent increase in mortality risk by performing surgery.
extended anterolateral acromial approach is undertaken.

The results of treating distal third diaphyseal humeral fractures with the LCP DHP Plate: A two-year prospective study.

H Fawi, P Rao, D Parfitt, J Lewis, A Ghandour, K Mohanty
University Hospital of Wales, Cardiff

Objectives: To evaluate the benefits of treating distal humeral extra-articular fractures with the new Synthes LCP D.H. plate. Two years prospective study.

Methods: Nineteen patients with displaced fractures (13-A(1-3)) underwent fixation between April 2010 - May 2012. Post-operative care involved poly-sling immobilisation for two weeks followed by physiotherapy. Results: Seven females and twelve males, average age was 38 years. Radiological and objective assessments follow-up were very satisfactory. Average time to union was 3 months. Conclusion: Managing extra articular fractures of the distal humerus with this plate has become the technique of choice in our department due to the excellent results.

Ulna nightstick fractures - simple fracture, complex problem?

J Tomlinson, R Stevens, J Wright
Chesterfield Royal Hospital, Chesterfield

Introduction: The optimum treatment of isolated ulna shaft fracture or ‘nightstick’ injuries is still unknown despite the simple nature of the injury.

Methods: All cases of nightstick fracture over a five year period were retrospectively reviewed with treatment method, time to union, stiffness and need for physio all documented. Results: 86% of patients were treated conservatively. The immobilisation method varied widely. Stiffness rates were high with above elbow casts (57%) but non-union rates were low (6%) versus short arm cast (21%). Conclusion: There is wide variation in the treatment of this simple injury. The optimal treatment remains unclear.

DISCUSSION

Should magnetic resonance imaging for tumours of the musculoskeletal system be performed in a sarcoma-designated health care centre?

K Goulding, H D’Sa, K McWatters, Y Chang, M Schweitzer, J Werier
University of Ottawa, Canada; Royal Orthopaedic Hospital, Birmingham

A retrospective review identified 304 consecutive surgical referrals to a multi-disciplinary sarcoma centre with an MRI performed in a referring centre from 2007 to 2011. An adjudication panel of two musculoskeletal-trained radiologists and one orthopedic oncologist evaluated all studies; 197 of 304 reports (65%) showed discordance between the initial report and secondary interpretation. The most frequent errors were those of tumour description and interpretation; 55% of discordant reports had the capacity to alter clinical care. More accurate reporting for suspected musculoskeletal neoplasia may be achieved by synoptic reporting, or by referral to a centre with expertise in musculoskeletal neoplasia.

Myxofibrosarcoma: medium-term results from a specialist centre

C Green, J Daniels, A Freemont, A Paul
Manchester Royal Infirmary, Manchester

29 patients (mean age 61 years) were treated within our centre between 2001-2012 following diagnosis of myxofibrosarcoma, with 26 patients presenting with primary disease. All underwent initial limb-salvage surgery with 22 patients receiving adjuvant radiotherapy and three receiving neo-adjuvant radiotherapy. Tumour excision was complete in 25 cases with three patients requiring further resection and one treated with further radiotherapy. Local recurrence was present in 7 patients (24.1%) with six requiring above knee amputation. Metastatic disease developed in 7 patients (24.1%). 5-year
WEDNESDAY

568 10:12

Early results of the outcome of myxoid liposarcoma of the lower limb managed with neo-adjuvant or adjuvant radiotherapy

C Green, N Nguyen, J Wylie, A Choudhury, A Freemantle, J Gregory
Manchester Royal Infirmary, Manchester

14 patients were treated between 2006-2012 following a diagnosis of lower limb myxoid liposarcoma within our centre. Mean follow-up was 26.1 months. Six patients received neo-adjuvant radiotherapy and showed a mean reduction in maximal tumour diameter of 93.8mm to 69.4mm, with all showing negative margins on resection and three patients developing minor complications. Eight patients were treated with adjuvant radiotherapy, with two patients showing positive margins on resection and three developing minor complications. TESS scores were similar for both groups. Initial results show neo-adjuvant radiotherapy may confer benefits to patients due to a lower administered dose of radiotherapy.

DISCUSSION 10:16

216 10:20

Eight year experience of a bone metastasis MDT at an acute teaching hospital and its impact on patient care

R Afinowi, R Barton, N Kumar, D Nag, R Raman, R Hamilton, H Cattermole
Hull and East Yorkshire NHS Trust, Hull

BOA/BOOS guidelines recommend dedicated metastatic bone disease MDT led by a consultant orthopaedic surgeon. We describe the impact of a dedicated Bone Metastasis MDT on patient care in an acute teaching hospital with a cancer centre. 199 new patients were discussed at the MDT over 7 yrs. After an initial rise due to the awareness of a new service, there was a sustained reduction in patients referred with pathological fracture, and a corresponding increase in referrals of patients without fracture for consideration of prophylactic surgery. It has increased awareness and uptake of surgical prophylaxis and reduced incidence of pathological fractures.

687 10:24

Prognostic factors in the operative management of sacral chordomas at a specialist referral centre

B Kayani, S A Hanna, RC Pollock, JA Skinner, SR Cannon, WI Aston, TWR Briggs
Royal National Orthopaedic Hospital, Stanmore

Sacrococcygeal chordomas are rare, low to intermediate grade tumours with a tendency for late metastases. This study presents the results of 58 patients undergoing sacrectomy for sacral chordomas at a specialist oncologic centre. The aim of the study was to identify prognostic factors associated with increased risk of disease recurrence and reduced survival. The average overall follow-up time was 45.3 months. The presence of large tumour size, sacroiliac joint infiltration and inadequate surgical margins were associated with increased risk of disease recurrence and reduced survival. We would advocate regular long-term follow-up to enable early identification and treatment of recurrent disease.

DISCUSSION 10:36

210 10:40

A discrete finite element analysis model for the assessment of pathological fracture risk

G Roberts, J Jones, I Pallister
Swansea

The accurate diagnosis of pathological fracture risk remains difficult and challenging even for the most experience practitioner. Recently a number of studies have suggested that Finite Element Analysis could aid in the assessment of metastatic fracture risk. These studies however are difficult to interpret for the non-engineer. We present a method which uses discrete finite element analysis (Elfen, Rockfield) to model pathological fractures occurring during falling and daily

Notes
activities. The advantage of this method is its dynamic nature which means that it is easily interpreted by both the clinician and the patient.

141 10:44

Computer navigation assisted surgery for pelvic and sacral tumours: lessons learnt from the first 25 cases
L Jeys, G Matharu, R Nandra, R Grimer
Royal Orthopaedic Hospital, Birmingham

This study reports our initial experience with computer navigation assisted surgery for 25 pelvic and sacral tumours (16 primary malignant bone tumours and 9 metastases). In all cases mean registration error was <1mm and the bony resection margins were wide (>5mm). In 2 cases there was tumour contamination. There have been no cases of local recurrence to date. Navigation allowed more complex resections and reconstructions to be performed by avoiding hindquarter amputations (n=3), preserving sacral nerve roots (n=4), and resecting otherwise inoperable disease (n=4). This technique has reduced our intralesional resection rate and allowed more complex surgery and reconstruction.

851 10:48

Forearm deformity in patients with hereditary multiple exostoses: predicting function and radial head dislocation
N Clement, D Porter
University of Bath Edinburgh, Edinburgh

One-hundred and six patients with hereditary multiple exostoses aged <16 years old were identified from a previously compiled database. One in seven patients had a dislocated radial head. Radial head dislocation (p<0.001) and proportional ulna shortening (p<0.001) were confirmed to be independent predictors of forearm rotation on multivariable regression analysis. In addition proportional ulna length was also an independent predictor of radial head dislocation (p<0.001). Hence, proportional ulna length could be used as a tool to identify patients at risk of diminished forearm motion and radial head dislocation during childhood.

938 10:52

Giant cell tumour of the distal radius: a review of 75 cases
K Goulding, A Gullia, A Puri
University of Ottawa, Ottawa, Canada; Tata Memorial Hospital, Mumbai

Seventy-five consecutive patients with Giant Cell Tumour (GCT) of the distal radius from 2005 to 2011 were retrospectively analysed. Thirty-eight patients presented with a primary GCT; 37 had recurrences initially treated at peripheral hospitals. Grade 3 Campanacci lesions were present in 53 patients. The mean follow-up was 24 months. Nineteen patients (25.3%) had a local recurrence. Previous intervention, intralesional excision and Grade 3 Campanacci lesions were significantly associated with an increased risk of local recurrence. Similar functional results (MSTS) were observed in intralesional excision and wide resection, the latter being the preferred option for Campanacci Grade 3 lesions.

319 10:56

Aneurysmal bone cysts - Does simple treatment work?
K Reddy, L Gaston, R Nandra, F Sinnaeve, R Grimer
Royal Orthopaedic Hospital, Birmingham

Numerous treatments have been described for Aneurysmal bone cysts (ABCs). We observed that a number of ABCs will ’heal’ following biopsy alone. We describe a novel biopsy technique called curopsy. Two hundred consecutive patients, diagnosed with an ABC were included. 102 patients had a biopsy/curopsy. Of these 102 patients, 82 (80%) required no further treatment. Twenty patients had no evidence of healing at 6 weeks and underwent definitive curettage. Overall recurrence rate in these 200 patients was 15%. Cure rates following curopsy/biopsy alone needs consideration when evaluating the results of treatments for ABC, suggesting simple treatment strategies work for ABCs.

DISCUSSION 11:00

Can medical students successfully engage with their peers to encourage interest in musculoskeletal medicine and surgery? The first National Undergraduate Musculoskeletal Conference
MD Scally, KA Watt
University of Glasgow, Glasgow

In 2012 the University of Glasgow Orthopaedic and Rheumatology society extended the educational opportunities they offer beyond Glasgow by hosting the first NUMC. All UK medical students and FY1s were invited and delegates evaluated each component of the day using a 5-point Likert scale and free text comments. 75/97 delegates returned their questionnaire. The main clinical interest was orthopaedics (48%), rheumatology (16%) or both (20%). 100% rated the day as good, very good or excellent and 93% stated they would re-attend suggesting that enthusiasm exists amongst undergraduates to foster a musculoskeletal career at an early stage in their education.
How educationally valuable do orthopaedic trainees and trainers regard work-based assessments?
A pentlow, F Bintcliffe, J Field
Bristol Royal Infirmary, Bristol
Aims: This study explores the educational value of work-based assessments (WBAs), identifying barriers to learning. Methods: Questionnaires were sent to Severn Deanery orthopaedic trainees and Consultants. Results: 59% of trainees had difficulty completing WBAs. Lack of Consultant’s time was the commonest problem. 27% of Consultants and 11% of trainees identified education as the purpose of WBAs. Procedure-based assessments were the most valued assessment. 52% of trainees found them helpful. Respondents wanted fewer, higher quality WBAs. Over 85% felt 40 per-year was too many. Conclusions: More engagement, training and a smaller burden of assessments could improve the educational value of WBAs.

Is the quality of Orthopaedic research getting better?
S Newman, A Dodds, D Spicer
St Mary’s Hospital, London
The top 10 clinical orthopaedic journals by impact factor in 2002 and 2012 were identified. The clinical papers published between January and June were independently reviewed by two orthopaedic surgeons and assigned a level of evidence according to the 2011 Oxford Centre for Evidence Based Medicine guidelines. The number published had increased dramatically (379 to 642). The quality of methodology had also improved (e.g. Level 1-3 to 26), but not at the same rate as overall numbers. This study suggests that quality of orthopaedic research is improving, but the majority of current published output is of low methodological standard.

The validity of claims made in orthopaedic print advertisements
D Davidson, K Rankin, C Jensen, A Sprowson
St Mary’s Hospital, London
The purpose of this study was to re-evaluate the claims made in orthopaedic print journal advertisements. Fifty claims from fifty advertisements were chosen randomly from six highly respected peer-reviewed orthopaedic journals. The evidence supporting each claim was assessed and validated. The assessors, blinded to product and company, rated the quality of supporting evidence and whether the claim would influence their practice. Only twelve claims were considered to cite high-quality evidence and only eleven claims were considered to have enough support to influence clinical practice. Orthopaedic surgeons require high-quality evidence to influence practice and must remain sceptical about print advertising claims.

Ceramic on metal total hip arthroplasty (tha): early results, metal ion levels and chromosome analysis
HA Kazi, JR Perera, E Gillott, FA Carroll, TW Briggs
Wirral University Teaching Hospital NHS Foundation Trust, Upton; Royal National Orthopaedic Hospital, Stanmore
We prospectively assessed the efficacy of a ceramic on metal hip couple. 94 arthroplasties were performed in 83 patients (M:F - 1:0.73, mean age 58 years). Functional scores significantly improved (p<0.05). Whole blood metal ions and chromosomal analysis was performed at 2 years. All metal ions except for vanadium were elevated. Chromium, cobalt, molybdenum and titanium were significantly higher in the bilateral group (p<0.0001). Chromosome analysis revealed structural and aneuploidy mutations. There were significantly more breaks and losses than the normal population (p<0.0001). Short term efficacy has been confirmed. The significance of chromosomal aberration is unclear.
Prospective randomised controlled trial comparing ceramic-on-metal versus metal-on-metal THR – early results of metal ion analysis and functional outcome scores

J Higgins, A Pearce, T Briant-Evans, M Price, K Conn, G Stranks, J Britton
Basingstoke and North Hampshire Hospital NHS Foundation Trust, Basingstoke

Introduction and Methods: We recruited 163 patients to an ethically approved, double-blinded prospective randomised controlled trial comparing ceramic-on-metal with metal-on-metal bearings in large head THRs. We present the early results of metal ion analysis performed at 1 year, functional scores and revision rate with average follow up 2.7 years. All patients received a cobalt-chrome acetabular component with either a ceramic or metal femoral head. Results: There were 4 all-cause revisions in each group, and no difference in functional outcomes at short term follow up.

Effect of implant modularity on metal on metal ion levels in patients with the Birmingham Hip bearing

SS Mahmoud, I Malik, R Gwyn, D Woodnutt, A John, S Jones
University Hospital of Wales, Swansea

There is increasing concern over the biological effect of metallic debris produced from modular junctions in THA but limited data is available on this. Our aim was to study the effect of increasing modularity with the same bearing to understand the influence of taper junctions and how that can also be used as guidance for patient management and follow-up. A retrospective cohort of 616 patients was studied and statistical analysis using linear regression model demonstrated a significant positive linear relationship between number of modular junction and the observed serum cobalt level.

DISCUSSION

The ‘Enhanced Recovery’ programme for primary hip and knee arthroplasty: short-term results from 6000 consecutive procedures.

S Khan, A Malviya, S Muller, P Partington, M Reed
Northumbria Healthcare NHS Trust, Ashington

We commenced an enhanced recovery (ER) programme for lower limb arthroplasty in May 2008. We report the results of a consecutive series of 6000 procedures, half of which (‘ER-3000’) were performed according to this protocol and 3000 using traditional pre-ER protocol (‘Trad-3000’). The mean length of stay and blood transfusion rates reduced significantly in ER-3000 (both p<0.05). ER-3000 suffered fewer MIs and deaths at 30 days (both p<0.05) and had fewer returns to theatre (p=0.05). This is the largest study yet to report patient safety data in enhanced recovery arthroplasty, confirming it as safe, implementable and cost-effective.

Utility of novel bone turnover markers for screening patients for osteolysis after total hip arthroplasty

N Lawrence, R Jayasuriya, F Gossell, M Wilkinson
The University of Sheffield, Sheffield

Serological or urinary biomarkers may provide a useful alternative to plain radiography for screening patients for implant failure. We examined the utility serum CTX-MMP, Dkk-1, Sclerostin and Trap5b, and urinary αα-CTX-I, measured in 24 subjects with osteolysis versus 26 subjects of similar age and sex distribution but without osteolysis after THA. We were able to conclude that CTX-MMP is a highly sensitive biomarker for detecting periprosthetic osteolysis. Dkk-1 shows potential as a specific biomarker for detecting osteolysis around the acetabular portion, and Trap5b shows potential as a specific biomarker for detecting osteolysis around the femoral portion of a prosthesis.
Is the patient warm enough? Perioperative core temperatures in arthroplasty patients

R Gogna, R Westerman, J Rowles
Royal Derby Hospital, Derby

Intraoperative hypothermia (core temperature < 36°C) is associated with increased surgical blood loss, cardiac morbidity, delayed wound healing and prolonged hospital stay. We performed a prospective, consecutive cohort study of 300 elective Total Hip (THR) and Total Knee (TKR) Replacements, comparing them to our fractured Neck Of Femur (NOF) population. Elective arthroplasty patients were cooler, with mean post-operative core temperature 35.7°C (THR) and 35.8°C (TKR), than NOF patients (36.4°C). 62% of THR and 58% of TKR patients were found to be hypothermic. In contrast, only 28% of NOF patients were hypothermic. Intraoperative hypothermia remains common in elective arthroplasty patients.

Outcomes of scaphoid fracture fixation using the Headless Compression Screw®: The Birmingham Hand Centre experience

U Ahmed, S Malik, C Simpson, S Tan, D Power
Queen Elizabeth Hospital, Royal Orthopaedic Hospital, Birmingham

The Headless Compression Screw® (HCS) is a cannulated non-variable pitch screw that allows compression of fracture fragments before allowing the screw head to be countersunk into subchondral bone. The HCS has been used at our institution since 2010 for acute fractures and non-unions of the scaphoid. We retrospectively evaluated 57 patients (between 2010-2012) and determined a good outcome (union with no complications) for the acute fractures, however, 4/30 non-union fixations had screw protrusion. Our results suggest the HCS is adequate for treatment of scaphoid fractures, but the rate of screw protrusion indicates the importance of screw selection and surgical technique.

Fixation of scaphoid non-union with 3.0 mm headless cannulated compression screw: Breakage of guide wires and drill bits and their management – a report of 4 cases

K Marenah, Y Morar, A Arya
Kings College Hospital, London

We use AO Headless Cannulated Screws for fixation of scaphoid non-unions. We encountered previously unreported problems in 4 cases, such as intra-operative breakage of the guide wire or drill bit; and had to use a different strategy in each case to salvage the situation, with no adverse outcomes. We believe that the AO headless compression screw is a safe and simple system to use, but like any other implant, thorough knowledge of the system as well as the potential pitfalls must be known to ensure safe and effective usage.
trapeziectomy. We identified 5 patients who developed painful subsidence of the metacarpal following trapeziectomies from the database. Three patients were treated with fusion of the bases of the first and second metacarpals using K-wires or compression screw. 2 patients underwent a mini tight-rope suspension reconstruction. Average preoperative pain on Visual Analogue scale was 8 which improved to 3.4 at final follow up.

26 15:35

Wrist denervation of the posterior interosseous nerve through a volar approach: A new technique with anatomical considerations.
S Lidder, M Dreu, C Dolcet, P Sadoghi, S Grechenig, M Champion, W Grechenig
Eastbourne District General Hospital, Eastbourne

Chronic wrist pain can be treated by denervation of the wrist. We hypothesized that the Posterior Interosseous Nerve (PIN) can be denervated through a volar approach to the wrist. The course of the AIN, PIN and interosseous artery were identified in 20 cadavers. In a further 20 specimens, a volar approach to the wrist was performed to transect the PIN via a single volar incision. This was successful in 18 out of 20 forearms studies. In this study we show that the posterior interosseous nerve can also be denervated through a volar approach to the wrist.

DISCUSSION 15:35

665 15:42

Nocturnal variation in upper limb volume as a contributory factor to carpal tunnel syndrome
N Siddiqui, M Wiemann, K Krishna, M Robinson
Avon Orthopaedic Centre, Bristol; Princess Alexandra Hospital, Brisbane

We believe there is a tendency for the volume of the whole arm to increase at night while lying down, due to redistribution of extra-cellular body fluid. This results in greater pressure within the carpal tunnel, contributing to worsening of carpal tunnel symptoms at night. We measured arm volumes of 15 healthy volunteers. Volume on waking in the morning was 43.9 cm³ (range 0-80, SD 5.74) greater than the night before. Thirty minutes later the increased volume had dropped to 15.6 cm³ (range 0-60, SD 4.3). The nocturnal increase in volume may be enough to cause carpal tunnel symptoms at night.

392 15:46

Carpal tunnel syndrome in two groups of metalworking fitters exposed to vibrating machinery
M Jenkinson, P Jenkinson
Altnagelvin Area Hospital, Londonderry

Vibrational exposure and forceful grip in various industries have been linked with the development of CTS. The prevalence of CTS was determined from the health surveillance data of 1143 metalworking fitters divided into 2 groups determined by assessing their weekly exposure to vibrating machinery. 59 of 943 of the lower exposure group were diagnosed with CTS compared with 20 of 200 of the higher exposure group. The population with a higher exposure to vibrating machinery requiring a forceful grip were significantly more likely to develop CTS than the population with less exposure. They develop CTS younger, after shorter employment.

DISCUSSION 15:54

201 15:59

Haemoglobin A1c in patients undergoing surgery for stenosing flexor tenosynovitis
A Winter, H Bradman, A Hayward, A Stirling, S Gibson
Ayr Hospital, Orthopaedics, Ayr

The aim of our study is to quantify glycaemic control in patients undergoing surgical A1 pulley release. Guidelines on management of diabetes suggest treatment should aim to maintain HbA1c at <6.5%. We retrospectively reviewed the blood results of 78 patients who underwent FTS surgery. 27 of these had an HbA1c checked within 6 months of their surgery and we therefore
presumed these patients were diabetic. In this cohort 33% of patients were presumed diabetic and 74% of these had a documented HbA1c above the national target suggesting a significant number presenting for surgery have poor glycaemic control.

Steroid injections for trigger finger; delaying the inevitable?

P Rushton, S Thomas, C Gibbons
Wansbeck General Hospital, Ashington

longer term. We retrospectively assessed the outcome of injections in a single surgeons clinic. Of 104 consecutive digits injected 78% had a resolution of symptoms for a time. Yet recurrence of symptoms was common with 61% of all digits eventually being released surgically. All digits receiving 2 injections went on to surgery. Surgeons and patients should be aware that whilst steroid injections may be successful initially many of this group will go on to surgery. Repeated injections do not appear beneficial.

X- Ray guided steroid injections for interphalangeal joint arthroses of the fingers

C Miller, S Dalgleish, Q Cox
NHS Highland, Orthopaedics, Inverness

Intra-articular steroid injections are frequently used for osteoarthritis of the Proximal Interphalangeal Joint (PIPJ) of the hand; but there is little research assessing this treatment option. This was a prospective audit of patients undergoing intra-articular steroid injections into the PIPJ under image intensifier guidance. The aims were to assess the effects on hand function, range of movement and pain relief. 50 injected joints were followed up at 6 weeks, 3 and 6 months. There were significant improvements in both the range of movement and pain scores for up to 3 months, but these had deteriorated by 6 months.

Audiovisual distraction as an adjunct to anxiety relief in hand surgery with regional anaesthesia

F Wu, M Shahid, M Lawson-Smith, S Hayward, G Rees, M Waldrum
Queen Elizabeth Hospital, Birmingham

This study reports the effects of using tablet-computers as audio-visual distraction devices for anxiety relief in patients undergoing hand surgery. Forty patients undergoing elective and trauma hand surgery under regional anaesthesia were randomly allocated to receive tablet-computers + standard-care or standard-care alone. Anxiety was evaluated subjectively with a visual-analogue-scale (VAS) and objectively by respiratory-rate and heart-rate monitoring. Patients using tablet-computers were found to experience significantly lower anxiety intra-operatively and post-operatively compared to standard-care alone. In conclusion, tablet-computers are useful distraction tools for the alleviation of patient anxiety undergoing hand surgery with regional anaesthesia.

Predicting need for follow-up using patient-centred outcome measures in day case hand surgery

S Bezzaa, A Morthi, A Procter, B Ollivere, P Johnston
University of Cambridge, School of Clinical Medicine, Cambridge University Hospitals NHS Foundation Trust, Addenbrooke’s Hospital, Cambridge

The aim of this study was to assess how closely two PROMs (PEM and qDASH) correlate with surgical outcome and whether it was possible to define a threshold score to limit unnecessary clinic visits. Surgical outcomes were defined using postoperative letters as: ‘Good’ (no concerns, discharged); ‘Moderate’ (some patient concerns, reassured, discharged) and ‘Poor’ (requiring further follow-up/referral). ROC analysis assessed each PROM in distinguishing patients requiring follow-up (‘Moderate’ and ‘Poor’) from those not (‘Good’). Threshold/Sensitivity/Specificity (95% CI): PEM 25/0.77 (0.64-0.90) / 0.72 (0.58-0.86); qDASH 33/0.64 (0.49-0.79) / 0.81 (0.67-0.92). Post carpal tunnel release, patients with PEM < 25 or qDASH < 33 at 6 weeks can safely be discharged without review.

Effect of sex and ethnicity on range of movement of hand and wrist joints in normal subjects

M Shahid, S Mahroof, K Bourne, F Wu, C Simpson, M Lawson-Smith, R Jose, G Titley
Queen Elizabeth Hospital, Birmingham, United Kingdom

Abstract not supplied

The in-vivo measurement of DRUJ translation in forearm rotation and wrist deviation

G Pickering, H Nagata, G Giddins
Royal United Hospital Bath NHS Trust, Bath

We developed a jig to measure DRUJ instability. Methods: We assessed 50 healthy adult volunteers and patients with instability. Results: Normal mean DRUJ translation is 6.1mm (SD 1.0). The intra-class correlation coefficient was 0.93. There was no difference between men and women. DRUJ translation reduced significantly with the wrist ulnar or radially deviated, or the forearm into pronated or supinated. The mean translation in patients with instability was 14.5mm (p< 0.001). Discussion: We have also defined the normal ranges of DRUJ shear translation and for the first
In-vivo confirmation of the use of the dart thrower’s motion during activities of daily living

G Brigstocke, A Hearnden, C Holt, G Whatling
Royal Surrey County Hospital NHS Foundation Trust, Guildford; University of Wales, Cardiff

Global wrist motion of ten right hand dominant male volunteers was recorded using a 3D optoelectronic motion capture system. Analysis of global wrist motion during ADL tasks revealed that wrist motion approximated to the dart thrower’s motion when hammering a nail, throwing a ball, drinking from a glass, pouring from a jug and twisting off and on the lid of a jar. This study predicts that arthrodesis of the radiocarpal joint instead of the midcarpal joint for carpal instability refractory to soft tissue stabilisation procedures will confer marked improvements in outcomes of open tibial fractures.

DISCUSSION

Improving compliance with BOA/BAPRAS standards for open lower limb fracture management in a level 1 trauma centre.

P Dacombe, M Fell, R Clancy, U Khan
North Bristol NHS Trust, Bristol

Introduction: This audit assessed compliance with BOA/BAPRAS guidelines before and after Frenchay became a Major Trauma Centre. Methods: Retrospective review of Gustillo 3 open tibial fractures against BOA/BAPRAS guidelines for a 6 month period before and after Frenchay became a Major Trauma Centre. Results/Discussion: Initially 95% had first debridement within 24 hours, 85% had soft tissue reconstruction within 7 days, 40% at time of skeletal fixation. At re-audit this had improved to 100%, 86% and 50%. Conclusion: This study demonstrates a modest improvement in open fracture care between periods before and after Frenchay Hospital became a Major Trauma Centre.

The effect of the timing of antibiotics and surgical treatment on infection rates in open long-bone fractures: a 6-year prospective study after a change in policy.

A Leonidou, Z Kiraly, H Galil, S Apperley, S Vanstone, D Woods
Great Western Hospitals NHS Foundation Trust, Swindon

We reviewed our results following our new policy to treat open fractures on a scheduled trauma list. Surgical debridement was performed within 6 hours of injury in 45% of cases and after 6 hours in 55%. Overall infection rates were 11% and 15.7% respectively (p=0.49). Intravenous antibiotics were administered within 3 hours of injury in 80% of cases and after 3 hours in 20% of cases. Overall infection rates were 14% and 12.5%, respectively (p=1). The change in our policy may have contributed to an improvement of the overall deep infection rate to 4.3% from the previous figure of 8.5%.

The incidence of thromboembolic events in patients with lower limb injuries

A Prinja, J Singh, A Alswadi, V Mula, M Loeffler
Colchester Hospital University NHS Foundation Trust, Colchester

Lower limb fractures and cast immobilization are well-recognised risk factors for the development of venous thromboembolism (VTE). We conducted this study to establish the incidence of thromboembolic events in patients with lower limb injuries. Patients who presented to our centre with lower limb injuries (excluding hip and femoral shaft) were identified using coding data. Of the 2251 patients included, 53 were investigated for DVT/PE of which 13 were positive. Overall, the incidence of VTE...
Thromboprophylaxis in trauma patients, particularly those with pelvic and acetabular fractures, remains controversial. Despite anticoagulation, venous thromboembolism (VTE) remains a common cause of surgical morbidity and mortality in this high-risk group. In the absence of large, well-designed clinical trials and with conflicting retrospective literature, this review explores options for preventative treatment and the role of screening. The evidence behind prophylactic IVC filters is also considered, along with reported complication profiles. We conclude with a proposed protocol for use in major trauma centres for the prevention of VTE in trauma patients with pelvic and acetabular fractures.

**Management of complex acetabular fractures in the elderly with fracture fixation and primary total hip replacement; early total weight bearing should be the aim.**

A Trompeter, J Young, R Pearce, M Hamilton, M Rickman
St George’s Hospital NHS Trust, London

Osteoporotic acetabular fractures in the elderly are becoming more common. In the neck of femur fracture model, surgery allows immediate weight bearing. We present 24 cases of complex acetabular fractures in elderly osteoporotic patients, managed with fracture fixation and simultaneous THR. Immediate full weight bearing was allowed in all. No component migration was seen; return to mobility was excellent; 30 day mortality was 5%.

The surgery however is complex and requires a mixed skill set of acetabular fracture fixation and complex hip arthroplasty. Peri-operative management is critical in this elderly group, but if done well few complications are seen.
Safe Cervical Spine Clearance in adult obtunded blunt trauma patients on the basis of a normal Multidetector CT scan - A Retrospective Cohort study and Meta-analysis of 1850 patients

M Raza
Frimley Park Hospital, Camberley

The objective of this study is to determine whether in obtunded adult patients with blunt trauma, a clinically significant injury to the cervical spine be ruled out on the basis of a normal multidetector cervical spine computed tomography (MDCT). A total of 10 studies involving obtunded blunt trauma patients with initial normal cervical spine CT scan were analysed. The cumulative negative predictive value and specificity of cervical spine CT was 99.7%. In the retrospective review of 53 obtunded blunt trauma patients selected, none was later diagnosed to have significant cervical spine injury.

The prognostic value of venous lactate in trauma resuscitation

K Rollins, A Das, CG Moran, B Ollivere
Queen's Medical Centre, Nottingham

Lactate has become a standard measurement in resuscitation; however its diagnostic value is unclear. This prognostic study evaluated the use of venous lactate as a marker for injury severity and outcome in patients presenting to a major trauma centre. Venous lactate had a statistically significant correlation with ISS (p<0.0001). ROC analysis identified lactate as an excellent predictor of injury: lactate > 1.0 was 93% sensitive and 74% specific for any injury (AUC=0.70). Venous lactate can be used to identify patients with significant injuries, correlating well with ISS, demonstrating good sensitivity and specificity in patients with significant injuries.

Managing acute kidney injury in hip fractures. Are we maintaining a standard level of care?

A Razik, Z Al Shameeri, R Bajekal
Barnet Hospital, London

We assessed the trend in renal function in patients with hip fractures during hospital stay and correlated it with mortality and discharge delays. A prospective study of 110 patients over a 6 month period on patients admitted with neck of femur fractures was performed. 16% of patients admitted had impaired renal function. Using the KDIGO classification criteria, 64% had improved their SCR level immediately post-surgery, however only 51% maintained equal or better SCR during the rest of their admission. There was a total of 9% 30-day mortality. Our data suggests that renal function improves in many patients immediately post-surgery.

Vitamin D and calcium supplementation in elderly patients suffering fragility fractures; the road not taken

E Dawe, A Saini, S Thompson, J Rosson
Royal Surrey County Hospital, Guildford

This study assesses the rate of Vitamin D insufficiency in hip fracture. We measured the proportion of those with a previous fragility fracture who attended taking Vitamin D. Methods: A prospective 12 month study. Vitamin D levels (25-OH D3) were measured. Results: 161 patients, median age of 85 years (IQR 79 - 89). 66 (41%) had Vitamin D deficiency. 25 patients (35%) had insufficient Vitamin D. 47 patients(29%) suffered a previous fragility fracture. Nine such patients (19%) were taking Vitamin D. Conclusions: This study demonstrates how few patients with previous fragility fractures are taking Vitamin D when suffering a hip fracture several years later.
**Comprehensive orthogeriatric medical review as a single intervention improves outcome for elderly patients with fractures of the proximal femur: A study of 845 patients**

MTR Gaden, AM Taylor, BJ Ollivere, CG Moran
Nottingham university hospitals, Nottingham

Our unit has recently introduced an orthogeriatric service for elderly hip fracture patients available on weekdays. We analysed prospectively collected data to compare outcomes for those patients who had comprehensive preoperative orthogeriatric review and those who did not. 865 consecutive patients were included in the study. Those receiving comprehensive review had a significantly lower 30 day mortality (10.85% vs 6.99%, P=0.0021) and lower complication rates (30.2% vs 24.7%, P=0.067). Observed 30 day mortality was independently higher for patients admitted on both weekend days (Sat=13.64%, Sun=10.78%). We believe comprehensive orthogeriatric review has a positive effect on outcomes for this group of patients.

**The introduction of an orthogeriatric service to a large teaching hospital improves outcomes for elderly patients with a proximal femoral fracture**

MTR Gaden, AM Taylor, CG Moran
Nottingham university hospitals, Nottingham

We analysed prospectively collected data from our unit’s hip fracture database comparing outcomes for patients admitted over the year before and after the introduction of an orthogeriatric service. 1642 consecutive patients were included. The 30-day mortality decreased (RR=0.95) 70 deaths (8.44%) compared with 75 (9.23%). In patients developing a complication the risk of death was reduced (RR=0.83 p=0.081). Our delay to theatre fell. Following our intervention package over 70% of patients were operated on within 40 hours compared to 55% before (p=0.0001). In our centre the introduction of an orthogeriatric service improved outcomes for this group of patients.

**Performance on a trauma simulator correlates with surgical exposure**

K Akhtar, K Sugand, A Chen, J Cobb, C Gupte
Imperial College, London

20 participants (5 each in 4 cohorts of differing experience) performed fixation of a femoral neck fracture on a VR DHS simulator. There was a significant difference in performance between all cohorts, especially with regards to total fluoroscopy time, TAD and the probability of cut-out. SpRs demonstrated the lowest TAD and extrapolated failure rate. This may be because SpRs had performed the most DHS procedures in the preceding 24 months and may be more demanding in their final lag screw position. Repeated exposure to simulation may provide a means of optimising DHS performance prior to entering the operating theatre.

**Simulation training improves the safety of trauma patients**

V Asopa, A Montanez, R Gupta, D Spicer
Imperial College Hospitals NHS Trust, London

Simulation training is an innovative style of teaching being developed by units around the world. It is based on the principle of repetitive simulation in a safe environment with a focus on effective communication and team working. 10 junior doctors who had previously worked in T & O for 4 months were randomly split into 2 groups. Group A underwent a simulation scenario based on an Accident and Emergency department, and Group B, underwent de-briefing followed by a similar scenario. We demonstrate that the management of trauma patients by junior doctors can be improved through de-briefing and simulation training.
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Foot & Ankle

Mobility vs. Salto total ankle replacement – is post-operative medial pain an issue?

D Dowen, T Brock, S Chambers, P Baker, G Ferrier
Cumberland Infirmary, Carlisle

Medial ankle pain is a recognised complication of total ankle replacement. We aimed to determine if this was dependent on implant type. 41 total ankle replacements (Mobility & Salto) performed by the senior author were included. Medical notes were analysed specifically for outcome and medial pain up to 1 year. At 1 year, 12 patients (63%) with the Mobility prosthesis had medial pain, compared to no patients with the Salto prosthesis (p<0.001). In our series, the Mobility prosthesis is associated with a significantly higher proportion of medial pain compared to the Salto prosthesis.

Hemiarthroplasty for Osteoarthritis of Metatarsophalangeal Joint with Townley Implant.

K David-West, A Khan
Crosshouse Hospital, Kilmarnock

Osteoarthritis of the metatarsophalangeal joints (MTPJ) commonly affect the first MTPJ, initial treatment is conservative. In the severe cases and where a conservative major has failed, the surgery options are fusion, hemiarthroplasty or total joint replacement. Townley-hemiarthroplasty for grades 3 and 4 osteoarthritis (52 joints). 40-females and 8-men. Mean follow-up of 4.4 years. No significant change in range of movement, mean pre-operative AOFAS (52) and post-operative AOFAS (82). The visual analogue scale for pain improved from 6 to 2.1. One infection and implant removed and had fusion. The outcome was very satisfactory and most patients were pleased, with very few complications in the short-term review.

Results of a Surgical Strategy for Salvage of Failed Silastic Joint Replacements

S Javed, R Rachha, O Alasawaf, G Lattouf, A Shaib
Stockport NHS Foundation Trust, Stockport

Background: Despite high complication rates documented in the literature, silastic toe joint replacements are still commonly implanted. Methods: Patients symptomatic following silastic joint replacement failure were treated surgically. Iliac crest graft was used to produce a congruent bone block which was implanted. Results: 10 patients underwent surgery. All had painful joints and 8 had transfer metatarsalgia. Significant bony lysis was seen in 7 of these patients. After 6 weeks, 9 were almost pain free. Conclusion: Our technique was reliable in achieving bony union in all patients in this series, and the mean improvement in AOFAS score was statistically significant.

Changes in foot dimensions after forefoot surgery – what can patients expect?

S Javed, R Rachha, Z Hakim, P Heire, G Lattouf, A Shaib
Stockport NHS Foundation Trust, Stockport

Introduction: Patients with hallux valgus often complain of difficulty in finding suitably sized footwear both preoperatively and postoperatively. Methods: Preoperative and postoperative weight bearing AP radiographs were analysed in 91 feet to measure the soft tissue and bony forefoot width and the soft tissue height. Results: Bony reductions of forefoot width were noted post-operatively. However, the soft tissue height of the foot increased and this was statistically significant. Conclusion: This study has identified that the reason that patients continue to have footwear difficulties after forefoot surgery is the change in vertical height of the foot.

Results: Average age was 56 years, with 10 men and 22 women. Mean follow-up was 59.6 months. Range of movement, AOFAS, and VAS scores all improved (p<0.01). Three patients had manipulations under anaesthesia for stiffness and 3 patients underwent revision to fusion for various reasons. Conclusion: First metatarsal head resurfacing has good medium term results in patients with severe degeneration.
Inter- and Intra-observer error when assessing the position of the lateral sesamoid in Hallux Valgus

S Panchani, J Reading, Y Agarwal, A Desai, J Mehta
Pennine Acute trust, Oldham

Background: We assessed the inter-and intra-observer error of a new classification system for the assessment of Hallux Valgus. Methods: Five orthopaedic consultants and registrars assessed 152 weight-bearing radiographs of feet. Grading included normal (0%), mild (≤50%), moderate (51% – ≤99%) or severe (≥100%) depending on percentage lateral sesamoid body displacement from the lateral cortex of the first metatarsal. Results: Consultant and Registrar intra-observer variability showed good agreement (Consultants mean Kappa = 0.75, Registrar mean Kappa 0.73) and intra-class correlations were high. Conclusion: The new classification system for assessing Hallux Valgus shows high inter- and intra-observer reliability.

3rd generation minimally invasive distal metatarsal osteotomy for correction of hallux valgus

K Brogan, T Voller, SL Whitehouse, S Morgan, SH Palmer
Western Sussex NHS Trust, Worthing; Queensland University of Technology, Brisbane, Australia

Background: Aim – evaluate outcomes of new, 3rd generation MIS technique for hallux valgus correction. Methods: 45 consecutive feet, with painful mild-to-moderate hallux valgus, underwent a 3rd generation percutaneous distal corrective chevron osteotomy. Mean follow-up 9 months. All patients, prospectively, radiographically and clinically (MOXFQ) evaluated. Results: Statistically significant (p<0.001) improvement in all three domains of the MOXFQ. Mean HVA decreased from 30.54o to 10.41o (p<0.001), and mean IMA from 14.55o to 7.11o (p<0.001). No significant complications. Conclusions: 3rd generation MIS correction of hallux valgus is reliable and safe – short term.

Long term follow up of outcome of ankle arthrodesis surgery

K Sigamoney, SV Karuppillai, S Yallappa, S Yellu, S Miller
Royal Derby Hospital, Derby

Introduction: Ankle arthrodesis has good surgical outcome in terms of pain relief and mobility in the early post operative period. However, there is limited evidence assessing the long term benefit of ankle arthrodesis. Aim: We aim to assess the outcome of long term functional and symptomatic benefit after ankle arthrodesis. Methods: Patients notes and x-rays were assessed for data and all patients were interviewed via telephone. Results: The MOXFQ and AOFAS scores showed good results. There were low rates of complications with high patient satisfaction. Conclusion: Ankle arthrodesis surgery is good treatment for severe osteoarthritis with long term patient satisfaction.

Safe zone for minimally invasive calcaneal osteotomy

V Ramsingh, A Ahmad, S Kadambande
Royal Gwent hospital, Newport

Three individual observers assessed 100 consecutive MRI scans of ankle to identify a safe zone to do minimally invasive calcaneal osteotomy. The distance of the neurovascular bundle on the medial side from a fixed bony prominence at the level of Achilles tendon insertion was measured. Over all mean distance measured by each observer was 23.0 mm. Mean inter-observer variations was 2.3 mm. Mean intra-observer variations was 1.1 mm. Over all 95% confidence interval ranges from 22.8 – 23.2 mm. Intraclass correlation coefficient is 0.7, which indicates strong agreement between the observers. The safe zone is at least 18 mm from the level of Achilles tendon insertion.

Arthroscopic triple fusion performed via a lateral two portal technique. A cadaveric study to evaluate safety and efficacy.

A Hughes, O Gosling, R Amirfeyz, J McKenzie, J Winson
Aven Orthopaedic Centre, Bristol

Arthroscopic triple fusion offers potential advantages over open techniques. Preliminary techniques use five portals with risks to neurovascular structures. Four cadavers were arthroscopically prepared for a triple fusion using two lateral portals. Once dissected the distance from portal to subcutaneous nerve was measured as well as the percentage joint surface. The mean distance from the midlateral portal to the sural nerve was 22mm and from the dorsolateral portal to the superficial peroneal nerve was 8mm. Joint preparation was 62%/63% for talonavicular joint, 75%/74% for calcaneocuboid joint. This is comparable to multiple portal techniques but without the significant neurovascular risk.

Middle facet talocalcaneal coalitions with concomitant severe flat feet: “To Resect, Reconstruct or Both?”

A Oluwasegun, A Sharma, H Prem
Birmingham Children's Hospital, Birmingham

The management of symptomatic middle facet tarsal coalitions (mftcs) with concomitant severe flat feet is challenging due to debatable
This study investigated the epidemiology of open ankle fractures. 178 patients with open ankle fractures presenting to our unit from 1988 to 2010, were included. The mean age was 55 years, with the highest incidence in women over 90. The most common mechanism was a simple fall and 82% were isolated injuries. The mean age increased from 44 to 64 over the twenty-three year study period and the prevalent mechanism of injury from predominantly road traffic accidents to simple falls. Open ankle fractures have become low energy injuries affecting particularly elderly women. This has implications for service planning and training.

Proximal Tibial Bone Grafting in Foot and Ankle Surgery

R Rachha, H Kassam, S Javed, G Vivian, N Petrova, V Kavarthapu, M Edmonds

We present our results with proximal tibial bone grafting for foot and ankle procedures. Graft was harvested from proximal tibia in 45 procedures. Mean follow up was 14 months (3-36 months). Post operatively, pain, donor site morbidity and overall satisfaction were noted. 36 patients (80%) were pain free at 6 weeks and 44 (95.5%) were pain free at 3 months. 1 patient had a fracture through the graft area following significant trauma at 6 weeks post-surgery. Union rate was 95.5% for fusion procedures. Overall patient satisfaction was 95.5%. We strongly recommend it for most foot and ankle fusion procedures.

Comparison of complication rate following traditional screw fixation to tightrope surgical fixation in ankle syndesmotic injuries.

WAK Al-Azzani, T Sabah, A Ved, V Paringe, D O’Doherty

Ankle injuries are amongst the most commonest of bone and joint injuries. Traditionally, injuries involving the distal tibiofibular syndesmotic have been treated using syndesmotic metal screws to prevent diastasis. However, the use of screws meant that physiological movement between the tibia and fibula is lost and often results in loosening or breaking of the screws. The present study retrospectively compares tightrope fixation to metallic screw fixation in a total of 85 patients. We found lower rate of return to theatre and lower rate of infections with fixation using tightrope compared to screw.

Hypovitaminosis D in foot and ankle practice – Just a coincidence?

S Akhtar, U Choudhuri

In orthopaedic practice, rarely do we investigate the metabolic picture of our patients. A series of foot and ankle presentations implicating underlying treatable metabolic abnormalities is presented. 63 patients over a 15 month period, consisted of M:23 and F:40 with mean age: 53. Presentations consisted of pain (n=27), stress fracture (n=15), non-union (n=4), tendinopathy (n=4) and bony collapse (n=3) Underlying hypocalcaemia (n=30), hypophosphataemia (n=9) and hypovitaminosis D (n=41) were noted. We believe such metabolic abnormalities are more widespread in orthopaedic practice and recommend vigilance,
appropriate treatment in atypical cases, and more focussed study to demonstrate a causal role.

Trainer supervision reduces intraoperative radiation usage amongst orthopaedic trainees during ankle fracture fixation

A Kheiran, D Makki, P Banerjee, D Ricketts Brighton and Sussex University Hospitals, Brighton

Unstable ankle fractures are commonly treated with operative fixation. Isolated lateral malleolus fractures (Weber B) are often operated by orthopaedic trainees. Operative fixation of these fractures is included in the index procedures of procedure based assessment (PBA). It is a common perception that trainees take more time to fix these fractures compared to trained consultants. A retrospective review of fifty patients undergoing operative fixation of Weber B were undertaken. Tourniquet time and intra-operative radiation dose were recorded. This is the first study to indicate that patients are at risk of higher radiation exposure when operated by orthopaedic trainees.

DISCUSSION

09:24

Best of the Best

Ultrasonographic findings during Ponseti treatment for clubfeet. Is ultrasound a reliable tool?

P Nasr, A Rehm, L Berman Addenbrooke’s University Hospital Foundation Trust, Cambridge

Is Congenital Talipes Equinovarus (CTEV) actually a risk factor for pathological Developmental Dysplasia of the Hip (DDH)?

S Hughes, O Choudry, RW Paton East Lancs Healthcare Trust

The Oswestry Risk Index (OSRI) – An Aid in the Treatment of Metastatic Spine Disease

A Jaiswal, B Balain, JM Trivedi, SM Eisenstein, JH Kuiper, DC Jaffray Robert Jones & Agnes Hunt Orthopaedic Hospital NHS Foundation Trust

The use of ultrasound to assess screw penetration following distal radius fixation: A Cadaveric study

J Singh, D Williams, N Heidari, M Ahmad, A Noorani, L Di Mascio Royal London Hospital

Central Cord Syndrome: Early surgical intervention improves neurological outcome

C Stevenson, J Warron, S Maquiere, N Eames Royal Victoria Hospital, Belfast

Effect of Triclosan-Coated Sutures on the Incidence of Surgical Site Infection Following Lower Limb Arthroplasty: A double-blind, randomised controlled trial of 2547 procedures

C Jenson, A Sprowson, P Partington, I Carluke, K Emmerson, S Asaad, R Pratt, S Muller, MR Reed Northumbria Healthcare NHS Foundation Trust

Quality of plaster moulding for distal radius fractures is improved through focussed tuition of junior doctors

DN Ramoutar, R Silk, JN Rodrigues, M Matton East Midlands North

Intra-articular and portal infiltration versus wrist block following wrist arthroscopy – A prospective RCT

Y Agrawal, K Russon, I Chakrabarti, A Kocheta Rotherham District General Hospital, Rotherham

Hip fracture a ‘polytrauma’ for the geriatric patient, serum lactate a prognostic marker

R Smith, M Venkatesan, C Uzoigwe, A Khan, S Balasubramanian, S Godisf University Hospitals of Leicester

Sub acromial Impingement syndrome – What can we learn from evolution

J Craik, R Mallina, V Ramasamy, NJ Little Epsom and St Helier Hospital

Locking plate fixation of periprosthetic fractures of the proximal femur around a stable stem: biomechanical analysis of fixation methods

SM Graham, Prof RK Wilcox, Prof E Tsiridis Countess of Chester Hospital, Chester

The Triathlon TKR – evaluation of short term results

P Robinson North Bristol NHS Trust
Injuries and outcomes: UK military casualties from Iraq and Afghanistan 2003-2012
JP Barwell, JR Bishop, S Roberts, M Midwinter
Academic Department of Military Surgery and Trauma, Royal Centre for Defence Medicine (RCDM), Birmingham

Ability of orthopaedic trainees to correctly assess adequacy of reduction following operative ankle fracture fixation
J Wright, C Bagley, D Park, P Ray
Barnet General Hospital

[Additional late entries to this session will be advised at the time.]

Research

523 08:00
A characterisation of biofilm mediated bacterial growth on a novel antibiotic-bone cement combination
H Gbejuade, A Lovering, A Hidalgo-Arroyo, J Leeming, J Webb
Golden Jubilee National Hospital, Glasgow

Biofilms are central to prosthetic joint infections. We compared biofilm adherence to antibiotic-loaded acrylic cement (ALAC). Batches of cement prepared with gentamicin, daptomycin and vancomycin were eluted for nil (T0), 48 hr (T2) and 2 weeks (T14), thereafter exposed to biofilm forming Staphylococcus. T0 batch all inhibited biofilm growth except gentamicin only ALAC. T2 batch all showed some biofilm colonization, the greatest on the gentamicin only ALAC and the lowest on daptomycin ALAC. T14 batch all show similar growth but lowest on the daptomycin ALAC. The daptomycin-gentamicin combination ALAC provided the best and the gentamicin only, the worst biofilm protection.

875 08:08
Improved detection of biofilm associated infection by sonication of polymethylmethacrylate (PMMA) cement
H Gbejuade, J Webb, A Hidalgo-Arroyo, J Leeming, A Lovering
Avon Orthopaedic centre, Bristol; Southmead Hospital, Bristol

Sonication may improve infection diagnosis by dislodging biofilms from surfaces, which can then be cultured. We investigated the effect of sonication of biofilm-colonized PMMA. Staphylococcus biofilm was grown on aseptically prepared PMMA beads, then washed in PBS to remove loosely adherent bacteria and thereafter immersed in fresh sterile PBS. Viable bacteria counts were then undertaken before and after sonication and expressed as colony forming units per ml (CFU/ml). Pre-sonication and post CFU/ml were 1.67 x 106 and 2.3 x 107 respectively. The 10-fold increase in bacteria culture yield suggests sonication of PMMA may improve the diagnosis of biofilm infection.

DISCUSSION 08:12

515 08:16
Rate-dependent material properties of the porcine stifle joint LCL
TJ Bonner, N Newell, AD Pullen, AMJ Bull, SD Moxon
Imperial College, London, The Royal British Legion Centre for Blast Injury Studies, London

A porcine stifle joint lateral collateral ligament experiment was conducted that simulated the strain rates that occur across a full range of different human knee ligament injuries. Tensile testing was performed at five strain rates, each an order of magnitude apart, in the range 100-104%/s. Tensile modulus increased from 288 to 905 mpa (p<0.05), and tensile failure stress increased from 39.9 to 77.3 mpa (p<0.05). A logarithmic relationship between strain rate and both, tensile modulus and tensile failure stress was identified. A strain rate sensitivity limit was observed at very high strain rates.
A new application of demineralised bone as tendon substitute; ovine animal study

S Elnikety, C Pendegrass, G Blunn
UCL, John Scales Centre for Biomedical Engineering, Institute of Orthopaedics and Musculoskeletal Science, London

In severe tendon injuries with loss of substance, tendon graft or a substitute is used, this is usually associated with donor site morbidity and lack of remodelling. We hypothesise that demineralised cortical bone (DCB) present in tendon environment will result in remodelling of DCB into ligament. 6 sheep undergone resection of the patellar tendon and repaired with DCB. None of the specimens showed evidence of ossification. Forceplate analysis showed satisfactory progression, histology proved formation of neo-enthesis with evidence of ligamentisation. Results prove that DCB can be used as tendon substitute, combined with correct technique early mobilisation can be achieved.

Analysis of cement viscosity and its effect on mechanical properties in a bovine vertebroplasty model

F Callachand, N Dunne
Musgrave Park Hospital, Belfast; Queen’s University Belfast, School of Mechanical and Aerospace Engineering, Belfast

Vertebroplasty involves the percutaneous injection of cement into a fractured vertebral body. The aim of this study was to determine the effect of cement viscosity on the mechanical properties in a bovine vertebroplasty model.

An anterior compression fracture was created in bovine vertebrae. Calcium phosphate cement was injected based on 20% volume fill. Three different liquid/powder ratios were used. Mechanical properties were determined pre and post-augmentation. Injectability ranged from 58-64%. A positive correlation existed between cohesion and higher viscosity (R²=0.885). The high viscosity cement restored strength and partial stiffness, which is important in providing relative stability for fracture healing.

Cobalt and chromium ion induced neurotoxicity in human neural cell culture

S Hawkins, R Richards, P Case, A Blom, M Caldwell
University of Bristol, Bristol

Elevated levels of cobalt and chromium in the CSF of patients with poor functioning has been reported to cause neurotoxic conditions. To assess this we exposed the same levels of ions to a co-culture of mature neural cells differentiated from human neural stem cells. We found increased levels of DNA breaks and cell death in our culture at concentrations above 3µg/L of Co²⁺ and Cr³⁺ ions, with astrocytes more affected than neurons. This was: mediated by caspase 3 activation, not prevented by antioxidants and affected both gabaergic and cholinergic neurons. In human neural culture Co and Cr ions are neurotoxic.

Blood metal ion testing is an effective screening tool to identify poorly performing metal on metal bearing surfaces

RP Sidagunanmale, T Joyce, S Natu, A Nargol, D Langton
Newcastle University, Newcastle upon Tyne; University Hospital Of North Tees, Stockton on Tees

Aims; to record physiological concentrations of blood Cr&Co; compare with retrieved hip resurfacings; examine the distribution/partitioning of these ions in serum and whole blood. 3042 blood samples donated to the local transfusion centre analysed. 91 hip resurfacings with pre-revision blood metal ion results underwent volumetric wear assessment. The relationship between serum and whole blood concentrations of Cr&Co in 1048 patients was analysed using Bland Altman charts. Only one patient in the transfusion group had blood Co >2µg/l. Blood Co 4.5µg/l showed 94% sensitivity and 95% specificity for abnormal wear detection. Metal ions tended to fill the serum compartment preferentially.

Depression and anxiety in arthroplasty patients: is there any correlation with severity of osteoarthritis?

HK Ribee, J Kozdryk, S Quraishi, M Waites
Robert Jones and Agnes Hunt Hospital, Oswestry

We asked all patients attending Joint School to complete a Hospital Anxiety and Depression Scale (HADS) and correlated these to pre operative Oxford Knee and Oxford Hip Scores. Overall 107 (56%) were either anxious, depressed or both. We then grouped the Oxford Scores according to the patient’s score on the HADS, and performed analysis of variance (ANOVA). There was a link between Oxford Score and depression
The effect of muscle inflammation on pain and function in patients with hip osteoarthritis

T Okoro, A Lemmey, P Maddison, C Stewart, N Al-Shanti, JG Andrew
Bangor University, Bangor

Aim: To assess if symptom severity relates to mRNA expression of markers for muscle inflammation (TNFα, IL-6) in the proximal vastus lateralis (VL) of patients with severe hip osteoarthritis undergoing hip arthroplasty. Methods: Muscle biopsies were obtained from 17 patients intraoperatively. The Oxford Hip Score (OHS) was used for stratification, with moderate symptoms (MS) > median OHS, and severe symptoms (SS) < median OHS. Results: Compared to the MS group, the SS group had increased TNFα expression (+28%, p=0.35) and reduced IL-6 expression (-44%, p=0.35), though not significantly. Conclusions: Functional deficit appears independent of muscle inflammation in patients with hip osteoarthritis.

Genome-wide scan shows genetic risk loci for knee osteoarthritis varies with anatomic compartment site: implications for understanding the genetic basis of knee OA and the importance of phenotype definition in genetic association studies

S Thiagarajah, K Panoutsopoulou, D-W Aaron, L Southam, C Arcogea, M Doherty, E Zeggini, JM Wilkinson
University of Sheffield, Academic Unit of Bone Metabolism, Sheffield

Few risk loci for knee osteoarthritis (KOA) have been discovered through genome-wide association (GWA) studies due to broad phenotypic definitions. We aimed to phenotype KOA patients by compartmental involvement and perform a GWA study. 2,010 patients with KOA were phenotyped by predominant pattern of radiographic compartmental involvement. A GWA analysis was performed comparing each phenotype against non-OA controls. Analysis by compartmental involvement yielded 25 independent loci for KOA at P< 1x10^-6. When the total KOA group was compared against the non-OA controls, only 1 signal at P< 1x10^-6 was identified. Employing narrow phenotypic definition identified several novel signals for KOA.

The functional range of movement of the human wrist

G Brigstocke, A Hearnden, C Holt, G Whatling
Royal Surrey County Hospital NHS Foundation Trust, Guildford; University of Cardiff, Cardiff

The functional range of movement (ROM) of the human wrist is poorly reported in today’s literature. Therefore, we analysed the global wrist motion of ten right hand dominant male volunteers with a 3D optoelectronic motion capture system. The mean maximal wrist range of motion was 48 degrees of extension, 84 degrees of flexion, 16 degrees of radial deviation and 49 degrees of ulnar deviation. Healthy volunteers utilise a near maximal degree of wrist extension, radial deviation and ulnar deviation to complete ADL tasks however only a moderate degree of wrist flexion was required.

Functional wrist motion required for gripping a car steering wheel. A simulated static analysis

L Booth, T Okoro, R Kanvinde
Ysbyty Gwynedd, Bangor

Aim: To investigate the functional wrist range of motion required for gripping a car steering wheel. Methods: An age and sex matched population was recruited. Participants’ in-car wrist range of motion for gripping a steering wheel was replicated on a static steering wheel model (based on clock face positions). Results: 20 participants were recruited. The optimal steering wheel positions for assessing wrist motion (extension 12°-78°, ulnar deviation 2°-36°, supination 6°-85° and pronation 3°-100°) were 2, 5, 7 and 10 o’clock (all values >0.68, p<0.01). Conclusion: The data provides a basis for further assessment of functional wrist motion in wrist injured patients.
Do neck of humerus fragility fractures predispose to subsequent upper limb fragility fracture?

B Berko, P Smitham
Norfolk and Norwich University Hospital, Norwich; University College London, London

Introduction: The burden of osteoporosis is huge with upper extremity fractures constituting a third of all fragility fractures. This study researches subsequent upper limb fractures occurring in cohorts of patients with an index shoulder and hip fracture.

Methods: Retrospective cohort design. Data on fractures of the shoulder (702) and hip (1465) was analysed.

Results and conclusion: The study revealed statistically significant evidence that a shoulder fracture predisposes to further upper limb fractures compared to a hip fracture. Also, findings in keeping with much of the literature were noted reinforcing the evidence that the first year following fracture is critical.

DISCUSSION

The use of a biodegradable antibiotic loaded calcium sulphate carrier containing tobramycin for the treatment of osteomyelitis: a series of 198 cases

J Ferguson, N Riley, D Stubbs, B Atkins, M McNally
Nuffield Orthopaedic Centre, Oxford

We report on the use of Osteoset T® in 195 cases of chronic osteomyelitis surgery. There were 12 C-M Type I, 1 Type II, 144 Type III and 48 Type IV cases. At follow-up (mean 3.7yrs) infection recurred in 18/195 (9.2%) at a mean of 46 weeks (4-109). After further treatment 191/195 were infection-free at final follow-up. Radiographic bone defect filling was assessed; 35% had no defect filling, 55% partial filling and 4% had complete filling. Nine suffered fractures at a mean of 2.1yrs (0.4-4.9). Osteoset T® is an effective adjunct in chronic osteomyelitis, however bone defect resolution is variable.

The emerging role or RIA for the treatment of chronic osteomyelitis: A useful adjunct to treatment

M Kaminaris, S Daivajna, D Giotikas, A Norrish
Cambridge University Addenbrooke's Hospital NHS Foundation Trust, Cambridge

Eradicating intramedullary microsequestra in chronic osteomyelitis (COM) is a challenging problem where failure leads to persistent infection. The Reamer-Irrigator-Aspirator (RIA) device, using simultaneous irrigation, bone reaming and aspiration of the intramedullary debris, may provide a solution. We report the outcome of this technique in 11 patients with COM treated by a multidisciplinary approach as part of the surgical protocol. At average follow-up of 6.3 months (range 3-18 months) no patients had a recurrence of COM or required repeat operation. Based on our short term results, RIA may have a role to play in eradicating intramedullary microsequestra in patients with COM.
reducing the risk of infection in complex oncological and end stage revision surgery.

**DISCUSSION**

940 08:21

The use of a novel rapid prototyping method in the planning of corrective osteotomies of the lower limb

G Roberts, D Eggbeer, I Pallister
Swansea

Rapid prototyping is increasingly becoming affordable and accessible to orthopaedic surgeons. Its benefits have already been shown, especially in maxillofacial surgery. Currently it is used almost exclusively in the modelling and planning of bony procedures. However any corrective osteotomy also has a significant effect on the soft tissues, particularly the muscles. We present a method which has been used successfully to correct complex deformities. This method involves creating rapid prototype models with varying materials which can simulate both muscle and bone. Thus allowing both muscle and bone to be taken into account when planning corrective osteotomies.

684 08:25

Lateral Opening versus Medial Closing Wedge Distal Femoral Varus Osteotomy – Is there a difference in achieving desired realignment?

A Alva, BD Coupe, PJ Rae
Wrightington Hospital, Wigan

A distal femoral varus osteotomy has been advocated when the valgus knee deformity exceeds 12 degrees and the deviation of the joint line from the horizontal is 10 degrees. As the results of such surgery relies on precision of angular correction we set out to compare the lateral opening wedge and medial closing wedge techniques in achieving planned correction. Angular correction achieved by lateral opening wedge technique was significantly closer to the desired correction as compared to the medial closing wedge technique.

591 08:33

The use of bone morphogenic protein (BMP) in trauma and elective orthopaedic surgery. The Portsmouth experience.

J Griffiths, C Lewis, L Cannon, I Lasrado, S Hodkinson, C Hand
Queen Alexandra Hospital, Portsmouth

A retrospective analysis to quantify the effects of BMP 7 and BMP 2 at stimulating bone union in both trauma and elective patients. Seventeen patients were included. Nine patients received BMP 7 and 8 received BMP 2. The overall union rate following the use of BMP was 94.1%. The union rate with BMP 7 and BMP 2 was 88.9% and 100% respectively. Following the use of BMP the average time to union was 117 days. Our results suggest both BMP 7 and BMP 2 to be effective at stimulating bone formation and bone union in patients with established non-union.

742 08:37

Custom primary hinged total knee arthroplasty in poliomyelitis

J Rahman, B Kayani, S Hanna, J Miles, R Carrington, J Skinner, T Briggs
Royal National Orthopaedic Hospital NHS Trust, Middlesex

Patients with poliomyelitis may have complex joint pathology that can make arthroplasty procedures technically demanding with poor clinical outcomes. We retrospectively reviewed outcomes of 14 tkrts performed using the Stanmore Modular Individualised Lower Extremity System (SMILES, Stanmore Implants, UK) in 13 patients with polio. The mean OKS improved from 11.6 to 31.5 (p<0.001). 92% patients were very satisfied or satisfied after the procedure. Radiological evaluation showed satisfactory alignment with no signs of loosening or migration. Our results demonstrate that the SMILES prosthesis is effective at relieving pain and improving function in patients with polio.

**DISCUSSION**

11 08:47

Distal radius volar plates: How anatomical are they?

S Evans, A Ramasamy, S Deshmukh
Birmingham City Hospital, Birmingham

Volar plates incorporate a volar cortical angle (VCA) of 25 degrees. Aim; determine whether the VCA in uninjured distal radii corresponds with plate designs. Retrospective analysis utilizing CT scans. Each distal radius was
subjected to 3 measurements of the VCA in the sagittal plane. 100 patients (67 male; mean age 37.4 years). Mean VCA 32.9 degrees. VCA in males was significantly greater than in females (33.6 vs 31.5 degrees; p=0.04). Statistically significant difference between the lateral VCA and medial VCA (32.2 vs 34.3 degrees, p=0.02). Conclusion: VCA is significantly greater than the volar angulation incorporated within plate design.

353 08:51

The ‘carpal shoot through view’: identification of dorsal screw penetration during volar locking plate fixation of distal radius fractures

D Marsland, C Hobbs, P Sauvé
Portsmouth Hospital NHS Trust, Portsmouth

We report a ‘carpal shoot through view’ (CSTV) of the distal radius to identify dorsal compartment screw penetration when performing volar locking plate fixation in 42 patients. All patients had acute distal radius fractures fixed using an Aptus locking plate. Intraoperative posteroanterior (PA) and lateral radiographs were taken, followed by the CSTV. The CSTV revealed dorsal screw protrusion in 6 cases and DRUJ penetration in one case, which was not detectable on standard views (overall screw exchange rate 17%). The CSTV is an easily obtained adjunct to help identify excessively long screws, potentially reducing the risk of extensor tendon injury.

650 08:55

Corrective osteotomy and volar locking plate for multiplanar malunited distal radius fractures: Do we improve function or anatomy?

A Elkhouly, N Roy
HEY NHS trust, Hull

Malunion remains one of the most common complications after distal radius fracture. We assessed functional and radiological outcome of multiplanar corrective osteotomy, locking fixed angle volar plate for painful multiplanar distal radius malunions on 15 consecutive patients who underwent open wedge distraction osteotomy, locking volar plate and cancellous bone grafting. 11 patients corrected 19° dorsal tilt to 9° volar tilt. 4 patients corrected 26° of excessive volar tilt to 11°. Ulna variance corrected to 0.96mm, dorsiflexion palmarflexion supination improved significantly. SF12, VAS and DASH improved significantly. This technique is an effective means to treat such deformities improving wrist function and anatomy

DISCUSSION 08:59

265 09:04

Platelet-rich therapy in the treatment of patients with fractures of the proximal femur: a single centre, parallel group, participant blinded, randomised controlled trial.

XL Griffin, JAchten, N Parsons, ML Costa
University of Warwick, Warwick Medical School, Coventry

The aim of the study was to quantify the clinical effectiveness of platelet-rich therapy (PRT) in the management of patients with a typical osteoporotic hip fracture. Patients aged over 65 years with an intracapsular fracture of the proximal femur were eligible. The primary outcome was failure of fixation within 12 months, defined as any revision surgery. There was an ARR of 5.6% (95% CI -10.6 to 21.8%) favouring treatment with PRT. There were no significant differences in any of the secondary outcomes. Although there was no significant treatment effect, we cannot definitively exclude a clinically meaningful difference.

839 09:08

External fixation of trochanteric fractures under local anaesthesia. Outcomes of the treatment of 200 patients with a long follow up of 24 months.

MA Mussa, AR Ahmed
Hull Royal Infirmary, Hull; Alexandria University Hospitals, Alexandria, Egypt

200 patients with intertrochanteric fractures treated with a new external fixator under regional block. Average follow up was 24 months, operative time 26.22 minutes and fluoroscopy time 16.67 seconds. Blood loss was negligible and none received blood transfusion. Mean time for union was 10.5 weeks. Superficial pin tract infection occurred in 8% and deep pin tract infection in 3.5%. This is a reliable and safe treatment option and could be considered as an alternative for conventional methods of fixation. It offers minimal operative and anaesthetic risks, no blood loss, early mobilisation and short hospital stay, with low mortality and morbidity.
Management of Periprosthetic fractures around knee in elderly using Distal Femoral Replacement versus Internal Fixation – Comparison of outcomes and cost analysis.

This study was to compare the clinical outcomes and cost effectiveness of distal femoral replacement (DFR) as an alternative to fixation in management of distal femoral periprosthetic fractures. At 2 year follow-up, mean length of hospital stay was 11 days in DFR group (21 patients; mean age 78 years) and 32 days in fixation group (40 patients-Retrograde nailing/Locking plates, mean age 74 years). Patients of DFR were full weight bearing by day 3 compared to 14 weeks in fixation group and had the better clinical and functional outcomes. There were no major cost differences and associated complications were less in DFR.

Gravity Stress Radiographs; Does A Positive Radiograph Mean An Unstable Ankle?

Assessment of stability in ankle fractures is key in treatment planning. Stress radiographs are a method of assessment. We aimed to identify whether patients with an apparently isolated lateral malleolar fracture on presentation but with a positive gravity stress radiograph could be successfully managed non-operatively. 155 patients were included in our prospective study. Following fracture union all had both good reduction and good or excellent function. The MCS of 79% of patients was greater than 4mm, in 19% it was greater than 6mm. Currently used criteria for measurements on stress radiographs may result in unnecessary surgery.

What are the outcomes of operatively treated Weber B Fractures?

We conducted a retrospective study of ankle fractures in Nottingham. Patients were assessed post-operatively using the AOFAS, Molander and VAS-FA functional outcome scores. Qualitative data was also collected. Over 4 years, 1085 patients were operatively treated with ankle fractures. We selected isolated unimalleolar Weber B fractures. Mean outcome scores (maximum score=100) were AOFAS 79.2 (SD ±19), Molander 75.7 (SD ±25.6), VAS-FA 80.5 (SD ±19.3). Most patients (74%) reported a full recovery 24-36 months postoperative. Perceived outcome differed between patients who exercised and those who didn’t. Patients with higher expectations for their recovery had better outcome and lower pain scores.

Technical outcome of atlantoaxial transarticular screw fixation without supplementary posterior construct in rheumatoid arthritis

Objective: To determine the technical outcome of RA patients who underwent atlantoaxial transarticular fixation without supplementary posterior construct. Methods: 15 RA patients, C1-C2 TAS fixation without supplementary
posterior construct. Minimum follow-up =24 months. Results: There was no significant difference between the pre-and post-operative means of all angles measured. Following TAS fixation, mean ADI shortened and mean PADI lengthened. There was no significant difference in mean of C2-C3 ADH. All patients had evidence of C1-C2 bony fusion. Conclusions: RA patients who have C1-C2 TAS fixation in the absence of a supplementary posterior construct, the overall technical outcome appears acceptable.

Anterior cervical vertebrectomy and instrumented cage fusion for the management of cervical myelopathy: experience from a UK district general hospital
S Ramakrishna, H Dabasia, D Marsland, J Harvey
Queen Alexandra Hospital, Portsmouth

Objectives/Methods: A retrospective review of consecutive procedures performed by a single surgeon over a 5-year period.
Results: We assessed 26 patients, with a mean age of 65.4 years. The mean follow-up period was 3.20 years. The mean pre-operative and post-operative Nurick functional scores were 1.9 (range 1 to 4) and 0.65 (range 0 to 5), respectively. For postoperative Odom’s outcome, 5 patients (19.2%) reported excellent, 9 patients (34.6%) good and 8 patients (30.8%) fair. Dynamic radiography confirmed stability in 25 of 26 patients (96.1%). Conclusions: This is an effective surgical technique for the management of patients with cervical myelopathy.

Is there any role for cervical disc replacement as an effective and safe treatment for cervical spondylotic myelopathy – a systematic review
S Lakkol, K Boddu, G Reddy, C Bhathia, T Friesem
Kings College Hospital, London

To authors knowledge, there has not been any review of literature evaluating the clinical effectiveness of cervical disc replacement (CDR) in cervical spondylotic myelopathy (CSM). The purpose of this study is to review the safety and efficacy of CDR in patients with CSM. A detailed electronic and hand search was performed. Five quantitative studies were included reporting outcome of 233 CSM patients. Pooled data revealed statistically significant improvement in Neck Disability Index scores. Despite early statistically significant clinical results of CDR in myelopathy there is no strong evidence to favour CDR to fusion in CSM.

Clinical Outcomes Following Cervical Total Disc Replacement. Our Experience with Three Devices.
K Tsitskaris, TM Bull
University College London, London

We report on a single surgeon series of cervical total disc replacements (TDR), using three implants; the prodisc-C, the Prestige ST and the Mobi-C prostheses. The aim of the study was to assess the safety and efficacy of cervical TDR when performed in low volumes and irrespective of the implant used. 27 patients met the inclusion criteria and their clinical outcomes (NDI, VAS) were analysed preoperatively and at the different post-operative time points. Complications and re-operations were also assessed. Cervical TDR yielded satisfactory clinical outcomes, irrespective of the cervical arthroplasty device used or the volume of the procedures undertaken.

Central Cord syndrome: Does surgical intervention improve neurological outcome?
C Stevenson, J Warnock, N Eames
Royal Victoria Hospital, Belfast

The treatment of Central cord syndrome remains controversial. Aim: To review the management of central cord syndrome in Northern Ireland in 1 year. Information analysed included demographics, mechanism of injury and functional status. ASIA scores were calculated at injury, pre-operatively, post-operatively and at follow-up. 27 cords identified, 5 conservative and 22 surgical. Motor scores in surgical patients improved from injury to follow-up from 51, 81, 83 and 90 respectively. Conservative patients improved from injury to day 10 from 57 to 86, however at follow-up fell to 84. This review suggests that patients treated with surgery have improved motor scores at follow-up.

The Fate of Admissions with possible Cauda Equina Syndrome to a Regional Spinal Centre
K Naik, L Charles, S Apperley, M Foy
Great Western Hospital, Swindon

Abstract not provided
Is subcutaneous fat a predictor of cauda equina syndrome?
M Venkatesan, C Uzoigwe, D Mahadevan, J Braybrooke, M Newey
University Hospitals of Leicester, Leicester

No previous studies have sought to determine if measures of patient paraspinal muscle and lumbar fat content could predict CES. Two observers reviewed MRI scans of 88 consecutive patients why underwent lumbar discectomy to determine the thickness of subcutaneous fat, thickness of the paraspinal muscles and disc size/canal ratio. There were 30 patients with CES and 58 patients with acute discs requiring surgery but not causing CES. The mean subcutaneous fat was higher for those with CES compared to those with acute disc prolapse but not CES (30mm v 22mm p=0.01). The only predictor of CES was subcutaneous fat. The odds ratio was 1.06.

The cost of metastatic spinal cord compression
U Ahmed, O Uhiara, A Stirling, M Grainger
Royal Orthopaedic Hospital, Birmingham

Metastatic spinal cord compression (MSCC) is a serious sequelae of malignancy. NICE recommends that suitable patients undergo surgery for analgesia, spinal stabilisation and preservation of neurological function. Our institution is a tertiary referral centre for the provision of surgery for MSCC. A review of 38 consecutive cases revealed a total cost of managing MSCC as £522475 however income was £421799; a loss of £100676 (£2649/patient). The current tariff is inadequate, and fails to consider other parameters such as disease extent. As a vital part of cancer care, resources should be made available to allow this service to remain financially viable.

Audit of first 100 microdiscectomy & decompression procedures as a spinal consultant
O O Eseonu, H Sharma
University of Glasgow, Glasgow, Derriford Hospital, Plymouth

We reported first 100 cases of microdiscectomy & decompression procedures as a first year spinal consultant in the UK hospital. There was a 2% incidental durotomy, 5% prone position-related problems, 0% revision, 0% nerve injury and 0% cauda equina syndrome. Mean duration of operation was 2.07 hrs in 1 level decompression (41 cases) & 1.6 hrs in microdiscectomy (59 cases). There was statistically significant difference in the outcome for ODI, VAS-LP & VAS-BP in both subgroups. Complication rate was comparable to the published literature with slightly longer duration of operation. We support dual peri-CCT spinal fellowships for new consultants.

Does obesity increase the rate of recurrent herniated nucleus pulposus after lumbar microdiscectomy?
G Syme, C Quah, G Swamy, S Nanjayan, A Fowler, D Calthorpe
Royal Derby Hospital, Derby

The primary aim of this study is to investigate the relationship between obesity and recurrent intervertebral disc prolapse (IDP) following lumbar microdiscectomy. A retrospective review of case notes from 2008-2012 was conducted for all patients that underwent one level lumbar microdiscectomy performed by a single surgeon. A total of 283 patients were available for analysis: 190 (67%) were in the non-obese group and 93 (32.9%) in the obese group. Obesity was found not to be a predictor of recurrent IDP following lumbar microdiscectomy and did not result in higher complication rates than the non-obese cohort.

Relationship between fatty degeneration of spinal muscle and outcome of caudal epidural injection
S Haque, U Mohammed, A Khan, O N Luton and Dunstable University Hospital NHS Trust, Luton

This is a prospective study aiming to assess the outcome of caudal epidural injection in low back pain, and it’s relation to fatty infiltration of paraspinal muscles. The outcome of the intervention was assessed by improvement of Oswestry disability index (ODI) and visual analog pain score. The fatty infiltration was assessed on MRI (sagittal section T1 at lumbar 4/5 disc level). Muscles were divided into two groups on either side and changes were graded from 0 to 3 in each group, increasing in severity. Patients with significant fatty changes did not respond well to the caudal epidural injection.

Does obesity increase the rate of recurrent herniated nucleus pulposus after lumbar microdiscectomy?
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The primary aim of this study is to investigate the relationship between obesity and recurrent intervertebral disc prolapse (IDP) following lumbar microdiscectomy. A retrospective review of case notes from 2008-2012 was conducted for all patients that underwent one level lumbar microdiscectomy performed by a single surgeon. A total of 283 patients were available for analysis: 190 (67%) were in the non-obese group and 93 (32.9%) in the obese group. Obesity was found not to be a predictor of recurrent IDP following lumbar microdiscectomy and did not result in higher complication rates than the non-obese cohort.

A retrospective comparison of dorsal rami block and epidural versus subfascial block with bupivacaine in 100 lumbar discectomy cases for enhanced recovery
O Uhiara, P Sian, H Virdee, R Nandra, R Shellard, A Jackowski, A Stirling
Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham

Introduction: At our institution two different practices are used to instill local anaesthetic intra-operatively during elective spinal surgery: the first uses bupivacaine as dorsal primary rami block, epidural, and subcutaneously (group A); the second involves subfascial bupivacaine (group B). Method: Retrospective review of case notes of 50 consecutive patients in each group.

Notes
Results: Intravenous morphine use in the first six hours of recovery was 2% in Group A and 12% in Group B. ODI score and operative revision rates were similar. Conclusion: This study shows there was a reduced use of post-operative intravenous morphine in Group A versus Group B.

**DISCUSSION**

11:04

**Funding, level of evidence and outcome of spinal research**

AR Amiri, K Kanesalingam, S Cro, A Casey Whittington Hospital, London; University Hospital of South Manchester, Manchester

There has been increasing controversy surrounding the effects of funding source on the outcome of spinal research. This systematic review of 1356 spinal research publications in the 20 leading journals during 2010 aimed to investigate the association between funding source, study outcome and level of evidence. A large proportion of industry funded research was shown to provide level IV evidence and report favourable outcome. The associated odds ratio for reporting favourable outcomes in industry funded studies compared to studies with public and foundation funding was 2.7 (95% CI: 1.4 to 5.3), and 2.6 (95% CI: 1.3 to 5.2) respectively.

11:09

**The Northern Ireland experience with growth rods – improving significant scoliosis deformity**

DJ Spence, D Fee, EJ Verzin, GC McCorinan, A Hamilton, NWA Eames Musgrave Park Hospital, Belfast

The Northern Ireland experience with growth rods in the treatment of scoliosis. 25 patient series over 8 years. 17 male, 8 female. 9 patients single growing rod inserted with 6 converted to dual rods. 15 patients dual rods inserted primarily. 1 patient VEPTR procedure. Average Cobb angle pre-op 70°. Initial follow-up Cobb angle reduced to 44°. Last review average Cobb angle 40°. Complications: two broken rods, one rod cut out requiring revision. Case series showed growth rods can dramatically improve significant scoliosis deformity. The majority of improvement occurs at initial lengthening procedure. Insertion of dual rods is the preferred technique.

**DISCUSSION**

11:13

**Physiotherapy-led back pain triage: Derriford experience of nearly 2000 patients**

J Rudd, H Sharma, P Sinha, P Dowrick, S Pritchard Derriford Hospital, Plymouth

Low back pain is common with many patients not requiring investigation or intervention that have the potential to overwhelm secondary and tertiary services. The aim of this study was to assess the efficacy and cost-effectiveness of a physiotherapy-led hospital based triage service. 1924 consultations occurred in the clinic, 40% of which were seen and discharged without need for further referral. 21% patients were seen in neurosurgical clinics 42% of which had surgery, only 9% overall, with 10% referred on to another clinician. This study confirmed that the triage service is efficacious and cost-effective with an £85,782 saving identified.

11:17

**Return to driving following Lumbar Spine surgery**

H Fawi, N Vannet, A Jones, P Davies, J Howes, S Ahuja University Hospital of Wales, Cardiff

Objectives: To identify the return to driving period post lumbar spinal surgery. Methods: Retrospective audit 3 months post surgery. Questionnaire were filled for type of surgery; return to drive; if not driving: reason; whether an advice was given or not. Results: 37 patients included. 18 males and 19 females. By 3 months, 28 (76%) were back to driving, 9 (24%) were not driving yet. The mean time to return to driving after surgery was 5.9 weeks (1 week-12 weeks). Conclusions: Majority of patients returned to driving by six weeks. Patients need formal advice about return to drive.
A Cost-minimization Analysis of Knee Arthroplasty Using Data From Two National Joint Registries

B Andrews, C Willis-Owen, A Aqil, J Cobb
Charing Cross Hospital; Imperial University, London

A cost-minimization analysis of UKA vs TKA was performed, using the UKNJR and the AOANJRR and, uniquely, comprehensive revision data. The five most-common UKA and TKA implants were identified. Implant costs were mean-weighted. Revision implant costs were calculated from AOANJRR data and six peer-reviewed papers. Admission cost was added. Revision and mortality probabilities were calculated from registry data. A decision tree was constructed and analysed. Procedural cost of UKA was £2080, TKA £2930, revision UKA £3943, and revision TKA £3926. The total cost of choosing UKA, aimed to determine the proportion of cases when accounting for revision, was £2160 in comparison to TKA cost of £2950.

The Berger protocol for assessing component malrotation in total knee arthroplasty: Analysis of 69 cases

V-I. Soon, K Chirputkar, R Gaheer, N Corrigan, F Picard
Golden Jubilee National Hospital, Glasgow

Assessment of component rotation using computed tomography (CT) may be useful in the painful knee when other differentials have been excluded. We aimed to determine the proportion of painful knees with component malrotation and how this relates to subsequent management. Sixty-nine knees were identified between January 2007 and April 2012. Overall, there were 38 cases (55%) of malrotation, ten of isolated femoral malrotation, 26 tibial malrotation and two cases where both components were malrotated. Twenty two of these had further surgery. Our study shows that the Berger protocol is useful in identifying symptomatic patients with component malrotation.

3D Gait Graphs: A Novel, Visual Outcome Measure to Discriminate Between Highly Functioning Patients and Types of Knee Arthroplasty

Imperial College London, London

This study presents novel 3D graphical representations of velocity-associated gait changes using automating software. 13 TKA and 14 muka patients were tested pre-operatively and 6 months post-operatively on an instrumented treadmill, and compared to 30 normal patients. Ground force reactions (GFR) were plotted using custom-built C++ software for comparative purposes (X-axis =% contact-time, Y-axis =body-weight-normalised force, Z-axis =Froude normalised walking speed) with multi-angle viewing. A “plane-of-difference” was plotted: flat indicating zero difference; uneven indicating GFR variation. Using these graphs we illustrate the effect of GFR on increasing velocity and demonstrate the ability to discriminate between types of knee arthroplasty.

Outcome of Complex Primary Total Knee Arthroplasty over 12 Years at a District General Hospital

S Thambapillay, S Kornicka, G Chakrabarty
Huddersfield Royal Infirmary, Huddersfield

We present the outcome following complex primary total knee replacements by a single surgeon.

Notes
A Shah, B Ilango, VL Moran, MP Dey
Fairfield General Hospital, Bury

The length of hospital stay associated with lower limb arthroplasty has reduced over the last three decades. However, little is known about the impact of this approach on patients, their experience of being rehabilitated at home. Focusing on an Early Discharge Scheme, the aim was to investigate patient and practitioner experiences. A mixed methods approach was used. The challenges faced at a both physical and emotional level is still underestimated. Patients with high anxiety and depression scores struggle both in hospital and when sent home early. There is a double whammy effect when such patients also live alone at home.

Enhanced Recovery Programme in Primary Hip and Knee Arthroplasty – Does it work in a District General Hospital?
A Avasthi, BM Rao, T Tandon, C Moore, C Eitel, R Hill
St. Richard’s Hospital, Chichester

Introduction: Patients received a standardised ERP protocol from admission to discharge as compared to differing peri-operative regimes previously. Objectives: Assess the outcomes of 217 pre-ERP and 305 post-ERP patients. Results: A statistically significant reduction in average length of stay from 5.86 to 4.34 days. Transfusion rates dropped from 12.03% to 2.95%, catheterisation reduced from 44.4% to 13.44%. Post-operative hypotension, nausea and vomiting rates reduced significantly and more patients mobilised earlier. Conclusion: Multidisciplinary approach of a cost neutral ERP allowed earlier mobilisation, shortened hospital stay and as per SHA data a predicted saving of nearly £900,000 in bed day costs.

An enhanced recovery programme for unicompartmental knee replacement-patient satisfaction
M Faimali, A Nakhla
Basildon & Thurrock University Hospitals NHS Foundation Trust, Basildon

The enhanced recovery programme was designed to optimise patient care. In this retrospective study we identified 18 patients whom between July and November 2012 underwent Oxford unicompartmental knee arthroplasty under the enhanced recovery programme. The outcomes assessed in the medium term were patient satisfaction and functional activities of daily living (ADL’s) scores. At follow-up the functional ADL’s knee score was 82% (range 54-98%) with 11 out of 18 patients rating their overall satisfaction as either excellent or very good. In our experience unicompartmental knee replacement on the enhanced recovery programme results in very good functional outcomes with high patient satisfaction.

A Dedicated Trauma Day Surgery Unit: a necessary resource for uncompromised patient care and cost efficiency in the NHS
J Bhamra, M Oliver, C Davies
William Harvey Hospital, Ashford

We conducted a retrospective review of 105 patients. A sub-cohort of 33 patients (group A) and 38 patients (group B) admitted as an in-patient, but suitable for DSU, were further analysed to enable a cost comparison. 88% of patients were discharged on the day of surgery. The surplus revenue generated in Group A was £21516 compared to £50214 for Group B. However, Group A saved 75 bed days (equating to £18750). Even though a higher tariff is associated with emergency procedures as an in-patient, the cost per patient is less using the 23 hour trauma pathway and increases elective capacity.

The impact of dedicated upper limb trauma lists in a district general hospital
D Mokki, HM Alnajjar, N Saw
Princess Alexandra Hospital, Harlow

Purpose: To assess the efficacy of dedicated upper limb trauma lists in a district general hospital. Methods: We firstly audited 52 patients with upper limb injuries treated on routine trauma lists. Accordingly, we introduced a new pathway, whereby, patients were booked for surgery on a dedicated list. The audit loop was closed by reviewing 78 patients treated using this pathway. Hospital stay and patients’ satisfaction were assessed. Results: The new pathway has significantly reduced hospital stay and led to a better patients’ satisfaction (p<0.05). Conclusion: The new pathway reduced hospital stay without affecting patients’ care and improved patients’ satisfaction.

The impact of NICE guidance (2011) on the management of hip fractures in a busy District General Hospital
W Norton, C Gray, H Dovecha, S Mannion
Blackpool Victoria Hospital, Blackpool

In 2011, NICE updated their guidance on the management of hip fractures. We reviewed the compliance with new NICE guidance in relation to the surgical management of intracapsular fractures. Of 192 hemiarthroplasties performed,
the majority did not receive a proven femoral stem and of 38 displaced intracapsular fractures meeting the NICE criteria for THR, only 4 received this operation. The NICE (2011) criteria are not being met. There is a preference for the use of the Thompson hemiarthroplasty, and a reluctance to perform thrs on suitable patients. Reasons for this include insufficient trauma theatre time and availability of trained surgeons.

**Total hip replacement vs. Hemiarthroplasty for intra-capsular fracture neck of femur; a cost analysis study to review financial impact of implementation of recent NICE guideline (CG124) in NHS organisations**

S Horriot, PD Hamilton, AH Sott
Epsom and St Helier University Hospitals NHS Trust, London

We reviewed the financial aspects of implementation of recent NICE guidelines for neck of femur fracture (CG124) which suggests offering total hip replacement instead of hemiarthroplasty for intra-capsular fractures. Review of our database suggested that according to the guideline, 17% of all neck of femur fractures would potentially be eligible for THR rather than hemiarthroplasty. Although performing cemented THR was the more expensive procedure, our calculation shows that despite increased cost of performing the operation, Trusts can increase their net income by £300-600 (depending on their market force factor) per patient using correct HRG coding and relevant National Tariffs.

**What do Scottish patients expect from their total hip and knee arthroplasties?**

V-L Soon, S Sapare, A Boyd, J mcallister, AH Deakin, M Sarungi
Golden Jubilee National Hospital, Clydebank

100% THR and 96% TKR patients had 10 or more expectations of their operation. All expected pain relief. Other improvements expected were: walking for 100% THA and 99% TKA patients; daily activities for 100% thas and 96% tkas; recreational activities for 96% thas and 93% tkas; sexual activity for 66% thas and 59% tkas; psychological well-being for 98% thas and 91% tkas. Patients expect far more than pain relief and improved mobility from their operation. It is important to discuss and manage expectations with patients prior to surgery.

**An audit of adherence to British Orthopaedic Association Standards for Trauma (BOAST) guidelines for pelvic and acetabular fracture management undertaken in a trauma centre**

N Dziadulewicz, G Roberts, A Evans
Cardiff University, Cardiff

An audit of adherence to BOA standards for trauma guidelines regarding pelvic and acetabular fracture management was undertaken in Morriston Hospital, a large hospital in Swansea, South Wales. The audit looked at a period of two and a half years and covered forty nine patients with pelvic and/or acetabular fractures. The guidelines stipulate eleven criteria that were suitable for audit in this group of patients. In general the guidelines were well followed. The only concerns highlighted were documentation of post-operative neurovascular status and to possibly review the type of traction preferred by the hospital.

**Pembrokeshire emergency admissions: effect of season, sun and rain**

B Marson, D Arvinte, N Deshmukh, M Yaqoob
Withybush Hospital, Haverfordwest

It is an assumed fact that there are more orthopaedic admissions when holidaymakers are out enjoying good weather. This study aims to establish if there are seasonal and meteorological influences on admission rates. Admission data and weather measurements were collected from 1/3/2011 to 31/8/2012. There was an increase in admissions during summer months (p=0.02) and a correlation with maximum temperature (p=0.01). Daily rainfall did not correlate with admission rates (p>0.05). Though causation cannot be proved, our population are more likely to be admitted when it is warm and summer. Rainfall does not seem to deter them from injuring themselves.

**At risk’ screening of breech presentation and strong family history in DDH: A 15 year prospective longitudinal observational study**

C Talbot, R Paton
East Lancashire NHS Hospital Trust, Blackburn

A 15 year prospective, observational cohort study was undertaken to assess
selective screening of DDH in males and females referred with risk factors only. Individuals born breech or with evidence of a strong family history for DDH were the ‘risk factors’ studied. All were clinically examined and sonographically screened by one Consultant Paediatric Orthopaedic surgeon. There was a significant difference in the number of female individuals sonographically diagnosed as having ‘pathological’ DDH compared to males (p<0.001). Our findings question the current UK screening policy for ultrasound examination of males with risk factors in the absence of clinical instability.

Does Back Carrying Infants Decrease the Incidence of Development Hip Dysplasia?

SM Graham, J Manara, L Chokotho, WJ Harrison
Countess of Chester Hospital, Chester; BEIT CURE International Hospital, Blantyre, Malawi

Aim: Determine the incidence of symptomatic DDH in Malawi and discuss the role of back-carrying as a potential influence on the incidence. Methods: We retrospectively reviewed the management of all infants seen at the BEIT CURE International Hospital, Malawi, over ten-years (2002-2012). Results: 40,683 children were managed at our institute, of which 9,842 underwent surgery. No infant presented with, or underwent surgical intervention for symptomatic DDH. Discussion: Almost all mothers in Malawi back-carry their infants, in a position similar to that of the Pavlik harness. We believe this to be the prime reason for the low incidence of DDH.

A mutli-center analysis of the accuracy of clinical examination in the community in diagnosing Developmental Dysplasia of the Hip

L McLoughlin, P Groarke, B Curtin, P Kelly
Our Lady’s Children’s Hospital, Crumlin, Dublin; Galway University Hospital, Galway

Aim: To evaluate the accuracy of clinical examination in the community in diagnosing DDH, using the acetabular index angle (AIA) as the reference test. An AIA of >30° is significant for DDH. Results: 420 hips in 210 patients were reviewed. 14% had an AIA >30°. Asymmetric skin folds was the most frequent indication for referral (53%). Conclusion: The clinical signs most frequently associated with a diagnosis of DDH in the community are asymmetric skin folds and hip click. Both of these signs have a relatively low sensitivity and PPV for detecting DDH.

An analysis of the failure rates of Pavlik harness treatment for developmental dysplasia of the hip.

A Elfaki, W Harrison, A De Gheldere, P Henman
Newcastle upon Tyne Hospitals, Newcastle

This retrospective study aims to determine the local failure rates of Pavlik’s Harness and the prognostic value of the age of presentation and severity. In the Newcastle Hospitals, 73 babies were treated between 2003 and 2008. Failure was defined as the inability to achieve stable reduction by clinical/ultrasound examination and required open/closed reduction. 5 out of 97 (5.15%) hips failed. All failures were females presenting with Graf 3 or 4. 1 patient presented within 1 month and 4 presented beyond 3 months. Our low failure rates may be due to early recognition, fortnightly follow-up and a dedicated DDH clinic.

The Impact of Major Trauma Centres on Paediatric Orthopaedic Trauma Service Delivery

A Farooq, R Visagan, Y Jabbar, R Bhattacharya, S Tennant, D Hunt
Heatherwood and Wexham Park Hospitals NHS Foundation Trust, Slough

Abstract not provided

Birth Fractures: a 21st Century Perspective

P Promod, A Rehm
Cambridge University Hospitals NHS Trust, Cambridge

Methods: 67,392 deliveries performed from 2000 to 2012 were reviewed for fractures from birth to the age of 1 year, looking at incidence, bones fractured, birth weight, multiple births, gestational age, type of delivery and instrumentation. Results: 242 fractures were identified of which 39 were birth fractures (26 clavicle, 9 humeral, 2 femoral and 2 parietal bone fractures). Conclusion: The incidence of birth fractures was 0.58 per 1000 deliveries. There was a significant association between birth fractures and high birth weight but no association with any of the other factors evaluated.
Improving outcomes for paediatric supracondylar fractures: Completing the cycle

A Makhs, I Kanya, E Murphy, D Campbell
Ninewells Hospital, Dundee

There is controversy regarding the timing of treatment of supracondylar fractures. A local audit (A) (2004-2010) demonstrated open reduction (OR) rates of 31% (36/115 cases). After an educational programme and delaying uncompromised injuries until a routine trauma list, a re-audit was performed (RA) (2011-2012). The OR rate was significantly reduced to 8% (4/48) in RA (p=0.001). In those with no neurovascular deficit, fewer operations were undertaken out-of-hours (from 17% to 7%). There were no increases in adverse outcomes. If no neurovascular deficit is found, delaying operative intervention until routine hours has a lower OR rate with no increase in complications.

Complications and refractures after removal of forearm fixation in paediatric patients

D Makki, A Kheiran, R Gadiyar, D Ricketts
Royal Sussex County Hospital, Brighton

Introduction: Metalwork removal from paediatric forearms remains debatable. Methods: We reviewed the complications following removal of 112 plates and 38 intramedullary nails. Results: Following plate removal, 10 refractures occurred (8.9%). Children ≥11 years were at risk if removal < 6 months, p=0.03 and those ≥13 years if removal between 6-12 months, p=0.02. Following nail removal, 5 refractures occurred (13%). Children ≥ 7 years were at risk if removal < 3 months, p=0.01 and in those ≥12 years if removal between 3-6 months, p=0.05. Conclusion: Metalwork removal should not be undertaken before 12 months for plates and 6 months for nails.

Guided growth with the eight-Plate for gradual correction of deformity in patients with Skeletal Dysplasias

MTR Gaden, S Dhar
Nottingham University Hospitals, Nottingham

Eight plating is a versatile technique for correcting angular deformity around the knee of the growing child. We analysed the outcomes of 28 patients (45 limbs) of whom 14 (25 limbs) had deformity secondary to skeletal dysplasia. Over the period of the study full correction of deformity was achieved in 15 patients, 6 in the dysplasia group. Overall the rate of correction was 0.74 degrees/month in the dysplasia group as compared with 0.52 degrees/month in the non-dysplasia group. Average time to full correction of 12.5 months was observed in the dysplasia group compared with 16.6 months. Few complications were recorded.

A modified imhauser osteotomy – An assessment of the addition of an open femoral neck osteoplasty

N Bali, J Harrison, E Bache
Birmingham Children’s Hospital, Birmingham

An intertrochanteric osteotomy (Imhauser) can be used to realign the femoral head and neck following a SUFE but does not eliminate the problem of the metaphyseal ‘bump’ or ‘cam’. 19 patients had an imhauser osteotomy over a 10 year period, 13 with an open osteoplasty. The average follow up was 53 months. The average Non Arthritic Hips score in those without an osteoplasty was 50.2, and with an osteoplasty 67.5. Native hip survival was 83% without osteoplasty, and 100% with osteoplasty. Femoral neck osteoplasty does not increase the complication rate, and may improve functional outcome and prolong native hip survival.

Distal femoral deformity in Blount disease.

R Dimitriou, R Hill, C Bradish, D Eastwood
Great Ormond Street Hospital, London

We retrospectively reviewed twenty-eight patients (43 tibiae) with untreated-infantile, relapsed-infantile or adolescent Blount, aiming to evaluate the distal femoral alignment depending on time of onset and occurrence of relapse of the disease. We calculated the distal lateral femoral angle (DLFA) and assessed the medial proximal tibial growth plate. Overall, a substantial angular distal femoral deformity has not been observed. However, the majority of patients with late-onset Blount seem to have some degree of distal femoral varus; whereas those with relapsed infantile Blount seem to have a compensatory valgus. In 54% of cases the medial proximal tibial growth plate showed radiological evidence of premature closure.

Delayed consolidation of regenerate requiring bone grafting in children with lower limb deformity being treated with an external fixator

J Fagg, B Kurien, M Ahmad, J Fernandes, S Jones
Sheffield Teaching Hospitals NHS Trust, Sheffield

Out of 150 paediatric patients treated with external fixators to correct lower
limb deformities in our institution (excluding feet, acute fractures and pseudarthrosis of the tibia), we identified 11 patients who had poor regenerate formation treated with bone grafting. Mean average age was 9 years 9 months (range 2 years 5 months – 17 years 5 months). Three patients were male and eight female. The deficient regenerate was in the tibia in nine patients and the femur in two patients. The mean time to regenerate bone grafting was 7 months, and time to healing following bone grafting was 2.5 months.

**DISCUSSION**

Obtaining consent for children in care. Are they being treated like second class citizens?

S Johal, R Nadler, A Rehm
Addenbrooke’s Hospital, Cambridge

In England there are over 67,000 children in care. Their parental responsibility lies with over 150 local authorities. We investigated the issues surrounding the consenting process for surgical procedures, with regards to these children. We were contacted by telephone / questionnaire. Heads of department / service managers were responsible for signing the consent form, but in no case did this person come to clinic to discuss the procedure with the surgeon or have direct contact with the child. We propose that current practice does not represent the needs of children in care, and must be addressed.

**DISCUSSION**

Functional improvement in complex congenital foot deformities using UMEX® mini-external fixators

S Aranganathan, CE Carpenter, DP Thomas, S Hemmadi, D O’Doherty
University Hospital of Wales, Cardiff; Ysbyty Gwynedd, Bangor

We report our experience of UMEX® frames for children with complex congenital foot deformities between 2004 and 2011. Conditions included resistant/recurrent Congenital Talipes Equino Varus (CTEV), cavo-varus deformity secondary to Charcot-Marie-Tooth disease, arthrogryposis, fibular hemimelia etc. Thirty-two children were treated. Good functional outcomes were noted in 19 of the 23 patients (24 feet) in the fifth postoperative year. Further operations were needed in 10 patients. Complications occurred in 10 patients, predominantly pin-site infections, bony overgrowth at pin-site and proximal tibio-fibular diastasis. This is a simple fixator system, well tolerated by children and achieved good functional outcome with low-complication rates.

**DISCUSSION**

Ponseti treatment: Achilles tenotomy under general or local anaesthetic in clinic.

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Alder Hey Children’s Hospital, Alder Hey; Sheffield Children’s Hospital, Sheffield

Perspective review of children with idiopathic CTEV treated by the ponseti regime. We compared the treatment practicalities, parent’s perspective and financial implications of undertaking Achilles tenotomy under general or using local anaesthetic in clinic. We confirmed our clinical experience of a satisfactory outcome when tenotomy is performed under GA or LA. There is a wide range of income generated with up to a x15 fold increase in extra funding when performing a tenotomy in theatre under GA. Income generated is affected by factors such as secondary diagnosis and can attract a complex/co-morbidity and a specialised children’s top up payment.

**DISCUSSION**

Patient perceptions of Computer Assisted Surgery

MJ Gandhi, AR Patel, R Fawdington, E Davis
Russell Hall Hospital, Dudley

Introduction: This study assesses patients’ perceptions of CAS. Method: Patients completed a questionnaire in orthopaedic clinics. Results: 122 completed questionnaires. Utilisation: 59.3% thought over 50% of operations was CAS. 94.9% would support more CAS. Complications: 66.1% felt short-term complications would decrease, 3.4% felt it would increase. Outcomes: 81.4% felt CAS operations would fare better. No respondents felt long-term outcomes would be worse. 100% support the surgeon’s decision in event of a conflict with CAS recommendations. Conclusion: The vast majority of patients welcome the use of CAS and felt it had both short-term and long-term advantages on patient outcome.

**DISCUSSION**

**Notes**
Comparison of the lateral parapatellar and the medial parapatellar approaches for total knee arthroplasty in severe valgus knees

B Sankar, R Venkataraman, M Changulani, S Sapare, A Deakin, K Deep, F Picard
Golden Jubilee National Hospital, Glasgow

This study compared outcomes following TKA performed through a medial parapatellar approach with those performed through a lateral parapatellar approach in severe valgus knees. No statically significant difference between groups at one year follow up for maximum flexion (p=0.42), fixed flexion deformity (p=0.31) or Oxford score (p=0.49). Statistically significant difference in mean radiographic post-operative alignment (Medial 1.8° valgus vs. Lateral 0.3° valgus, p=0.02). No wound breakdown or patellar avascular necrosis noted in either of the groups. The lateral parapatellar approach is a safe and reliable alternative to the medial parapatellar approach for correction of severe valgus deformity in TKA.

Assessment of precision and accuracy of computer navigation in total hip arthroplasty

MS KHAN, S Goudie, K Deep
Golden Jubilee National Hospital, Clydebank

This largest single surgeon study analyses 259 total hip replacements performed with imageless computer navigation system. Mean cup abduction and anteversion was 40.35° (SD5.81) and 18.46° (SD6.79) in postop radiographs compared to 41° (SD5.03) and 17° (SD6.11) for navigation measurements. Intraoperative navigation measurements had high precision (>95%) and specificity (>90%) for cup abduction and anteversion. Radiographs and navigation had a mean difference of 1.01mm (SD2.83) for offset and a difference of 1.05mm (SD4.37) for postop limb length measurements, the difference statistically not significant for both (p value>0.2). Computer navigation can serve as an excellent tool for appropriate placement of implants and restoring limb length and offset.

Low incidence of complications in Computer Assisted Total Knee Arthroplasty – a retrospective review of 1596 cases.

RS Khakha, M Norris, A Kheiran, S Chauhan
Royal Sussex County Hospital, Brighton

Introduction: Computer Assisted Total Knee Arthroplasty (CATKA) has proven benefits of achieving reproducible and accurate component alignment. Method: We collected data of all patients undergoing CATKA for the last 8 years. Results: 1596 cases were performed by the senior author. Intraoperatively, there were 8 episodes of software failure of which 6 were successfully retrieved and 2 required a change to conventional jig based TKR. 2 episodes of intraoperative malignment. Post-operatively there were 17 episodes of superficial pin site infections. Conclusion: Our experience of Computer Assisted Total Knee Arthroplasty demonstrates a complication rate of 1.5% related to the tibial tracker device.

A single surgeon experience in using PSI technique for knee replacements.

S Aranganathan, S Thati, M Ganapathi
Ysbyty Gwynedd, Bangor

Patient Specific Instruments (PSI*) have been suggested to improve patient outcome and theatre efficiency. Our study evaluates the adequacy of MRI-based moulds and theatre efficiency using Zimmer PSI®. There was no mould mismatch in a series of 100 consecutive tkr. 99% of the component sizes were predicted accurately. Streamlining the operating technique with PSI® reduced skin-to-skin operating time to 40.65 minutes compared with hospital average of 92.5 minutes, allowing up to 6 tkr to be done in all day list. Reduced inventory, reduced bone resection time and ability to predict component sizes are important factors in improving theatre efficiency.
Minimum 5-year follow up of 253 consecutive Computer Assisted Unicondylar Knee Replacement

RS Khakha, M Norris, A Kheiran, S Chauhan
Royal Sussex County Hospital, Brighton

Introduction: There is little published on the outcomes of navigated UKR surgery. Methods: 253 UKR’s were performed by a single surgeon using computer-navigation were followed-up. Results: Pre-op mean KSS scores was 54 (24-62) and post-op scores were 89 (75-100). 92% percent of femoral components were aligned at 90+/- 4 degrees from neutral in the coronal plane whilst eighty nine percent of tibial components were aligned at 90+/- 4 degrees from neutral in the coronal plane. Mean tourniquet-time was 53 minutes. Conclusion: Our single surgeon series of Computer Assisted UKR demonstrates favourable outcomes in the medium term with 98% survival at 5-years.

A randomized controlled trial comparing patient specific instrument with conventional instrument and computer navigation in total knee arthroplasty

Yan CH, KY Chiu, Ng FY, Chan PK, Fang CX
The University of Hong Kong, Queen Mary Hospital, Hong Kong

Ninety knees in 78 patients were recruited. The average age was 68.1±8.0 years. They were randomized in 1:1:1 ratio into CON, NAV and PSI groups to receive TKA. Post-operative standing long films of the entire lower limbs were taken. The tourniquet and operative times of CON and PSI were significantly shorter than NAV; the difference between CON and PSI was insignificant. The number of outliers in postoperative lower limb alignment in 3 groups showed no difference. The NAV groups had significantly less outliers in the femoral and tibial components positioning in the sagittal plane.

The choice of implants in orthopaedics: who really decides?

J Bhama, E Gillott, S Ngnmansun, P Gikas, T Briggs
Royal National Orthopaedic Hospital, Stanmore

We conducted a National survey of Orthopaedic Clinical Directors to determine the principal factors that drive implant selection. 156 Hospital Trusts covering 260 hospitals were contacted in 2012. Questionnaire responses were obtained by telephone, post and e-mail. We received 91 completed responses (58%). The Majority of trusts had at least 2 brands of hip (32%) and knee prostheses (41%) available. Our results are reassuring and demonstrate that 72% of Orthopaedic Directors stated that their choice of stock implant was decided by departmental consensus with perceived improved clinical record being the major influencing factor (74%).

Routine telephone review of orthopaedic patients – an acceptable and efficient system

F Dean, D Wallace, A Muirhead
University Hospital, Ayr

We use telephone reviews to reduce clinic visits. This study utilised a structured telephone questionnaire to assess the efficacy and acceptability of this approach. 50 of 55 patients who had received a telephone review over a four month period were contacted, and all were satisfied with the telephone consultation. 8 would have preferred a clinic appointment; 32 did not require a further clinic appointment for the same problem; all were very satisfied or satisfied with the overall follow-up process. Using telephone review follow-up for selected patients is effective at reducing the number of clinic visits, and is acceptable to patients.

Do patients really want copies of their clinic consultation letters? A cost-analysis and readability study

S Robati, W El-Alami, A Gulihar, P Housden
William Harvey Hospital, Ashford

Many centres currently send patients copies of their clinic letters with significant financial and resourcing implications. Posters were strategically placed in orthopaedic outpatients within the Trust over six weeks informing patients of their entitlement to a copy of their letter. Of the 2453 patients whom attended clinic, only 10 (0.4 %) requested copies of their letter. Readability scores of the letters corresponded to the reading age of 15-16 year olds (UK average = 9). Significant cost benefits (~ £15 million per annum) can be made from not sending them out routinely, but only to patients whom specifically request them.

Streaming Total Hip & Knee Replacement instrument sets: Functional & cost-effective?

A Aframian, J Preston, G Green, KS Khor, F Ashouri, P Vinayakam, PJS Jeer
QEQM, Margate

Sterilisation of surgical equipment, although necessary, is a costly process. Instruments may be sterilised in batches on trays; or as individual instruments at higher cost. Prior to July2011, 2 instrument trays and 4 individually-packaged instruments were opened for each TKR. After this time the sets were streamlined so only 2 trays were
required to be opened per procedure (saving £18.08 per procedure). Due to the success of this, the same principle is now being applied to THR sets (saving £28.84 per procedure). Streamlined sets are functional and provide an excellent money saving opportunity, without compromising the quality of patient care.

How Primary Care Trust (PCT) New Referral and Treatment Criteria Going to Affect Symptomatic Hallux Valgus Patients Referred to Specialist Clinic

C Yeoh, A Patel, J Ritchie
Maidstone and Tunbridge Wells Hospital NHS Trust, Tunbridge Wells

Introduction: With the new local PCT criteria based on intermetatarsal angle (IMA), only selected patients suffering from forefoot problem would be eligible for specialist clinic referral. Methods: We identified and measured IMA for 118 patients referred with painful hallux valgus over 12 months and categorised them into operative and non-operative groups. Results: 58% patients will miss out the specialist referral with the new criteria, increased to 92% if restriction extended to diabetes, rheumatoid or “foot-at-risk” patients. Conclusion: IMA is acceptable measurement for hallux valgus deformity. Symptomatic patients without major hallux deformity will miss out on surgical opportunity and suffer unnecessarily.

A prospective audit on the assessment and management of pain in patients with neck of femur fractures on the integrated care pathway: from the Emergency Department to the Trauma Unit.

J Polan, H Courtney, Y Indrakumar, M Wiese, A Abraham
University Hospitals Leicester, Leicester

This was a prospective audit of 100 patients undertaken to evaluate how pain is assessed and managed in patients with a neck of femur fracture. In the Emergency Department, 70% of patients had a pain score recorded upon arrival with only 4% of patients having a reassessment of their pain score after analgesia. On the Trauma Unit, only 8% of patients had a pain score recorded with only 4% having a pain score recorded following analgesia. The type of analgesia provided is quite varied. In conclusion, pain assessment and management in patients with neck of femur fractures remains poor.

Local anaesthetic use: Are we practising safely?

L Osagie, M Mughal, J Read, PS Mathew
Royal National Orthopaedic Hospital, London

Increasing use of regional anaesthesia raises the risk of local anaesthetic systemic toxicity (LAST); intravenous lipid emulsion (ILE) is a known LAST resuscitation adjunct. We audited 100 general and plastics surgeons, orthopaedists, emergency doctors and anaesthetists-investigating dosing, LAST and ILE use across two teaching hospitals. 48% questioned were unable to identify maximum doses-sprs performed best across surgical specialties. 38% of orthopaedists answered correctly compared to 68% of general surgeons. No surgeon was aware of ILE and 40% of orthopaedist could not name one LAST sign. The audit demonstrated a need for re-education to improve patient safety and awareness across grades.

Does preop bacteriuria increase the risk of deep joint sepsis after joint arthroplasty?

M Changulani, W Manning, K Mcroy, R Dharmarajan
Cumberland Infirmary, Carlisle

Within our unit no consensus exists as to the management of preoperative MSU bacteriuria, this reflects the literature with no strong evidence to support departmental guidelines. MSU screening and its subsequent effect on patient management, surgical timing and arthroplasty infection rates were evaluated in a single-centre retrospective review of 290 patients. 20% of patients had a positive growth on MSU. (M:F Ratio 1:5). Of this group half received antibiotics and 33% had surgery delayed. At 1-year review, 3% of patients with positive MSU preoperatively developed superficial infection. Further prospective studies with sufficient statistical power are required to determine any causality.

False-negative rate of Gram-stain microscopy for diagnosis of septic arthritis: suggestions for improvement

P Stirling, R Faroug, M Armstrong, P Sharma, A Qamruddin
University of Manchester, Manchester

Objectives: To quantify the false-negative rate of Gram-stain microscopy for diagnosis of septic arthritis. Methods: Retrospective study of synovial fluid analyses between December 2003 and March 2012. Synovial fluid cultures
positive for coagulase-negative Staphylococci, Diphtheroids, alpha-haemolytic Streptococci or fungi were excluded. Results: 111 false-negative results from a cohort size of 143 positive cultures, giving a false-negative rate of 78%. Conclusions: False-negative rate of 78% is higher than previously reported1-3. Clinicians should avoid this investigation until a significant data set confirms its efficacy. The investigation’s value could be improved by using Lithium Heparin containers to collect homogenous synovial fluid samples.

DISCUSSION 15:39

16:15 – 17:45
Hall 9

General

Reduced medium term mortality following primary total hip and knee arthroplasty with an enhanced recovery program: A study of 4500 consecutive procedures.

T Savaridas, I Serrano-Pedrazo, S Khan, K Martin, A Malviya, M Reed
Northern Deanery, Newcastle

An enhanced recovery (ER) protocol led to earlier discharge, reduction in complications and mortality at 90-days post hip and knee arthroplasty. Here we evaluate survival benefits at 2 years. 4500 consecutive hip and knee replacements were evaluated; 3000 traditional protocol (TRAD), 1500 enhanced recovery (ER) protocol. At 2 years death rate was reduced [TRAD vs ER, 3.8% vs 2.7%, (p=0.05)]. Survival probability at 3.7 years post surgery was better in the ER group. This prospective series shows reduced mortality with the implementation of an ER protocol. This supports the routine use of multimodal techniques for hip and knee arthroplasty.

Does the timing of pre-operative joint school affect post-operative length of stay in arthroplasty patients?

HK Ribee, T Moody, JD Edwards, J Koodyr, T Clare
Russell Hall Hospital, Dudley

We recorded the time between joint school and admission, and post operative length of stay, for 255 patients admitted for arthroplasty surgery. The range of time between joint school and admission was 0 to 118 days, mean 23.96 days. Length of post operative admission was analysed in relation to time between joint school and admission using ANOVA. No significant difference was found in length of stay in the different groups (p=0.0604). It is difficult to predict if this work applies equally to all types of pre-operative education used for arthroplasty patients.

What do patients know about their joint replacement implants?

Z Abual-rub, M Husaini, C Gerrand
Freeman Hospital, Newcastle Upon Tyne

Early failure of some types of joint replacement and the associated intense media interest has caused concern amongst patients with any kind of implant. A survey was distributed to a sample of patients attending an arthroplasty follow up clinic. A minority of patients recognized the name of their implant model or the material the implant and bearing surfaces were made of, while most respondents expressed an interest in knowing more about their implant. In addition to preoperative education programmes which focus on the procedure itself, arthroplasty patients might benefit from more postoperative education about living with their joint replacement.

The increased costs associated with performing hip and knee arthroplasty in obese patients in the National Health Service

B Bradley, S Griffiths, K Stewart, G Higgins, M Hockings, D Isaac
South Devon Hospitals NHS Trust, Torquay

The financial cost associated with performing hip and knee replacements is controversial and has not been quantified in the NHS. 589 consecutive patients undergoing lower limb arthroplasty were reviewed. The effect of BMI on operative duration and length of stay (LOS) was analysed. We demonstrate that for a 1 point increase in BMI we expect LOS to increase by a factor of 2.9% (p<0.0001) and mean theatre time to increase by 1.46 minutes (p< 0.0001). Financial costs associated
have been calculated. If obese patients have the correct OPCS code they can attract additional reimbursement which may partly offset treatment costs.

**Discussion**  
16:35

**799**  
16:39

VTE Prophylaxis in Primary Hip and Knee Arthroplasty – Comparison of Rivaroxaban Versus LMWH at Limited and Standard Length Thromboprophylaxis

B Rao, A Avasthi, M Moss  
St. Richard’s Hospital, Chichester

Study comparing the efficacy of Rivaroxaban and LMWH thromboprophylaxis in patients undergoing hip and knee arthroplasty administered at different length of periods. In Group ‘A’, Tinzaparin 4500 IU/day (average for 7.6 days), Group ‘B’ Rivaroxaban in (tks, 2 weeks, thrs 4 weeks) and Group ‘C’ Deltaparin (tks, 2 weeks, THR, weeks) was used. There was no difference in rates of VTE between group ‘B’ and ‘C’ but was significant when compared to Group ‘A’. There was a slight increase in wound problem in Rivaroxaban group albeit with no statistical significance but with comparable VTE rate.

**Discussion**  
16:55

**531**  
16:47

Warfarin – an expensive cause of delay in discharge of elective arthroplasty patients

R Venkataraman, F Picard  
Golden Jubilee National Hospital, Clydebank

Post operative warfarinisation of elective arthroplasty patients delays their discharge. This study aimed to quantify the cost of this event. Over a six month period a total of 76 patients were warfarinised post operation (37 THR and 33 TKR). The mean extra days stayed was 3.1 (0-9). Random loading dose instead of the recommended 5 mg of warfarin resulted in prolonged stay, 4.5 days compared to 3 days. The mean cost was £1500 per patient, extrapolating to £228,000 a year. Substantial financial and resource savings can be made if warfarinisation is undertaken at the community level.

**Discussion**  
16:58

**827**

A prospective audit of 954 consecutive orthopaedic patients with plaster-in-situ in order to evaluate plaster related issues

D Wallace, I Johnston, H Sharma  
University of Glasgow, Glasgow; Derriford Hospital, Plymouth

This audit examines 954 consecutive patients treated with plaster cast following trauma. All patients receiving plaster casts were recorded for three month. All presentations with plaster problems over this time were analysed. 56 patients (6% of casts) presented to the plaster room. Attendance peaked in the first week. Almost half of attendances (24) were due to swelling, and its resolution – loose or tight casts. A third (18) had compliance issues, with wet or removed casts. Only a small number had problems caused by the cast. We believe most cast problems can be prevented by re-iteration of patients instructions.
Applications of Bone Graft Substitutes in Trauma and Orthopaedics: Indications and Evidence for their Clinical Use. Should we Use Them?

T Kurien, R Pearson, B Scammell
University of Nottingham, Nottingham

A Systematic review of bone graft substitutes currently available in the UK was conducted to assess the current clinical literature for their use. 59 bone graft substitutes were identified on sale but only 22 products (37%) from 12 manufacturers had published peer-reviewed clinical literature. Only four products, Alpha-BSM® (Depuy), Cortoss™ (Orthovita), Norian SRS® (Synthes) and Vitoss™ (Orthovita) have Level I published data that are equal to or superior to autograft. Further rcts and clinical trials are essential to assess the clinical efficacy of bone graft substitutes and improved medical regulation of these products based on clinical evidence must be sought.

Audit of Fragility Fracture Management at a District General Hospital

N Patel, D Wilson, P Patel, E Dhillon, C Li, M Solan
Royal Surrey County Hospital, Guildford

We performed a retrospective analysis of patients presenting to fracture clinic for a one-month period before and after the commencement of a dedicated fracture liaison service (FLS) since poor recognition and organisation of osteoporosis services increases fracture risk. Results: Pre-FLS: Of 78/258 patients identified with fragility fractures only 2 were considered for fracture risk assessment and bone protection. Post-FLS: Of 92/311 patients identified, all patients were appropriately identified by the FLS for consideration of bone protection and further investigations. Discussion: Implementation of a FLS improved identification and management of fragility fractures. This has both patient and economic benefits.

Projected demands for primary and revision lower limb arthroplasty in Scotland from 2010 to 2035

V-L Soon, AH Deakin, M Sarungi, DA McDonald
Golden Jubilee National Hospital, Clydebank

This study aimed to predict the demands for lower limb arthroplasty in Scotland from 2010 to 2035. Modelling primary TKA showed demand increasing between 31% and 110% (8,650 and 17,270 procedures) by 2035, with revision TKA models predicting between 670 and 2,000 procedures. These projections show large increases in arthroplasty demands over the next two decades. They highlight that current resources may be insufficient or the selection criteria for surgery may need to be revisited.

Nine Years of Increasing Orthopaedic Litigation in the NHS: A Cause for Concern

JT Machin, H Krishnan, S Sarker, J Bhamra, E Gillett, TWR Briggs
Royal National Orthopaedic Hospital, London; University College London, London

From April 2003 to April 2012 9049 claims were brought against ‘Orthopaedic Surgery’ with 74.23% increase in yearly claim volume. The common causes in 2011-12 were ‘unsatisfactory outcome of surgery’ 798 (54.14%), ‘judgement/timing’ 659 (44.71%), ‘tissue damage’ 599 (40.64%), ‘mobility’ 481 (32.63%) and ‘Interpretation of results/clinical picture’ 463 (31.41%). The 2011-12 claims are estimated at £187million, equivalent to over 35,000 joint replacements. The current trend is unsustainable. Claim volume could be reduced by education, increasing the number of cases in training, improving continuity of care and implementing regional networks to ensure the right patient is seen at the right time by the right specialist.
A prospective study looking at the use of thyroid shield and dose of radiation per trauma case, in trauma theatres in a local district general hospital

M Shahid, H Watkin, R Tansey, S Malik, U Ahmed, S Roy
City and Sandwell NHS Trust, Birmingham

Introduction: The thyroid is highly radiosensitive with malignancy occurring at doses as low as 10 cgy (centigray)=100msv. We looked at the compliance of wearing the thyroid shield during fluoroscopy. Methods: A prospective study over a fortnight. We recorded the radiation dosage, procedure length and the number of staff wearing thyroid shields. Results: Of the 281 staff in the theatres only 10 wore thyroid shields Conclusion: Compliance with the thyroid shield is poor. We highlight the need to address the risk of radiation in theatres and making surgical staff aware of current protocols.

Can the mini C-arm reduce radiation exposure in upper limb surgery?

O Berber, R Bawale, T Yousofi, B Singh
Medway Maritime Hospital, Gillingham

The objective of this study was to determine a difference in radiation exposure levels between a standard fluoroscope and a mini C-arm in routine upper limb surgery to assess for potential cost saving and improvements in theatre efficiency. We compared 75 cases each in the mini C arm & standard fluoroscopy. The average dose area product for the cases performed with the standard fluoroscope was 13.48 vs 5.22 for the mini C-arm. There was no significant difference in duration of surgery. A calculated annual saving estimation of £6200 can be achieved with use of the mini C-arm.

Value of the skin knife in orthopaedic surgery

O Schindler, R Spencer, M Smith
St Mary’s Hospital, Bristol Arthritis & Sports Injury Clinic, Bristol

Skin, inside and control blades were obtained following 203 elective procedures. Bacterial-growth was observed on 31-skin (15.3%), 22-inside (10.8%), and 13-control blades (6.4%). Three (9.7%) of 31 contaminated skin blades grew identical organisms found on the corresponding inside blade. Contamination of deeper layers in the remaining 90% may have been prevented by changing the knife following the skin incision. Coagulase-negative staphylococci and propionibacterium species were most commonly observed; both are linked with peri-prosthetic infections. The use of separate skin and inside knives should be maintained since cost implications associated with deep infections are considerable in both human and financial terms.

Correlation of overactive bladder symptoms and falls with injuries in the elderly

O Berber, R Bawale, B Singh
Medway Maritime Hospital, Gillingham

Overactive bladder (OAB) symptoms and falls in the elderly is a growing concern and is a modifiable risk factor. The objective of this study was to assess the proportion of patients presenting with a fall related injury and suffering from overactive bladder symptoms. A falls risk assessment & OAB questionnaire was used to collect prospective data in 100 patients > 65 yrs. The male to female ratio was 1:3.8 and the average age was 82 years. All patients sustained a fracture, 66% of which was a hip fracture required surgical treatment. Overactive bladder symptoms were present in 16 patients.

Increased interfacial bone contact using titanium coated nano-patterned implants on rabbit tibiae

AS Brydone, L Prodanov, E Lamers, N Gadegaard, JA Jansen, XF Walboomers
Biomedical Engineering Research Division, University of Glasgow, Glasgow; Radboud University Nijmegen Medical Centre, Netherlands

Osseointegration of titanium implants can be improved by surface modification. This project compares osseointegration of conventional grit-blasted acid etched (GAE) titanium with two types of nano-patterned titanium coated implants featuring a square (SQ) and random (RAND) array of nano-pits. GAE, SQ and RAND discs were plated bilaterally onto a flattened area of the tibiae of 12 rabbits and the bone-implant contact was assessed histologically at 4 and 8 weeks. At 8 weeks the BIC ratio was significantly increased in the two nano-patterned implants (80% for SQ and 72% for RAND) compared to the GAE titanium (55%) (P < 0.05).

Discussion

BOA Congress 2013
FINAL PROGRAMME
113

Notes
Non-invasive in vivo collection of biochemical information from osteogenesis imperfecta human bone; developing methodology for a clinical investigation

JG Kerns, K Buckley, P Gikas, HL Birch, AW Parker, PMotousek, R Keen, AE Goodship
Institute of Orthopaedics and Musculoskeletal Science, University College London; Central Laser Facility, Oxfordshire; Royal National Orthopaedic Hospital, Stanmore

Osteogenesis imperfect (OI) is a genetic condition caused by a collagen type I defect and characterised by multiple fractures. The oim mouse is a model for human type III OI, exhibiting reduced bone mineral crystallinity. The study tests the hypothesis: Raman spectral signatures of human OI bone (n=10; controls n=10) will have reduced mineral crystallinity. No difference in mineral crystallinity was found between cohorts: the oim mice are poor models for our patients, with less severe genetic mutations. We demonstrate Raman spectroscopy has the capability of extracting biochemical signatures from bone, transcutaneously in vivo, providing an important tool to explore bone disorders.

DISCUSSION

Collagenase injection for the treatment of moderate Dupuytren’s disease – a prospective study

J mcfarlane, AM Syed, T Chester, D Powers, TF Sibly, A Talbot-Smith
Hereford County Hospital, Hereford

Our study included 43 patients with a single cord affecting the MCPJ only with a contracture angle of 30 to 60 degrees. Each patient was given one injection of CHC into the cord in clinic with manipulation the next day. The mean contracture angle was -2.42 at 1 month follow up (n=43), 0.00 at 6 months (n=15) and 0.75 at 12 months (n=4) compared to 43.0 degrees pre-injection. Mean Unité Rhumatologique des Affections de la Main (URAM) scores were 2.7 at 1 month, 0.3 at 6 months and 0.5 at 12 months compared with a pre-injection score of 19.1. This study demonstrates the clinical efficacy, safety and cost-effectiveness of CHC injections in moderate Dupuytren’s disease involving the MCPJ.

DISCUSSION

Research

Towards a core outcome set for hip fracture trials: A consensus statement

XL Griffin, KL Haywood, J Achten, ML Costa
University of Warwick, Warwick Medical School, Coventry

We aimed to reach consensus for a core outcome set to be used in clinical trials involving patients with hip fracture. Stakeholder groups in the UK were identified and approached to be represented on the panel. Source data and questionnaires were summarised at the subsequent consensus meeting followed by discussion of candidate domains and potential outcome measures. Participants were able to reach consensus on those domains that were important in this population and an appropriate corresponding core outcome set. The chosen set must now be widely advertised and distributed to the community in order to achieve true consensus through consultation.

DISCUSSION

Finite element analysis of cement shear stresses in augmented total knee replacement

G Brigstocke, YAgarwal, BF reehill, N Bradley, A Crocombe
Royal Surrey County Hospital NHS Trust, Guildford; Department of Engineering, University of Surrey, Guildford

A three-dimensional FE model of the proximal tibia was constructed using SIMPLeWARE v3.2 image processing software. The tibial component of a TKR was implanted with either a block or a wedge-shaped metal augment in-situ. The FE model demonstrated reduced cement shear stresses with a wedge-shaped rather than block-shaped...
augment. However, both values of maximal recorded shear stresses were below the fatigue limit of the cement. Therefore, either a wedge or block-shaped augment can be used and the choice of augment may be determined by the shape of the defect and the quality of the underlying bone.

Patterns of femoral head wear in end stage osteoarthritis

O Diamond, JC Hill, A McCann, C McGrath, JF Orr, DE Beverland
Musgrave Park Hospital, Belfast; Queens University Belfast, Belfast

The aim of this study was to assess patterns of cartilage wear in end stage osteoarthritis. Two studies were performed examining the location and area of full thickness wear on femoral heads removed at the time of total hip arthroplasty. Findings suggested that anterosuperior is the most common location of full thickness wear. The posterior surface has a statistically lower percentage full thickness cartilage loss compared to the anterior or superior surfaces. This finding may be of relevance for forms intraoperative templating and navigation in total hip arthroplasty, when considering the original position of femoral head centre.

Audit & Management

Do the European Working Time Directive and the ‘Four Hour Target’ impact upon surgical training opportunities?

J Widnall, N Peterson, S Platt
Arrowe Park Hospital, Wirral

Introduction: Since the introduction of MMC and EWTD there have been concerns regarding surgical training. Methods: This study uses data collected via an online questionnaire to assess the current training opportunities for core surgical trainees. Results: 48.9 hours/week were worked on average. 41.7% of these were spent away from the trainees’ team. Trainees missed 45.5% of clinics and 46.4% of theatre lists. Only 24.6% of trainees felt ready to take a registrar post if awarded one following basic training. Conclusion: This survey provides a snapshot of the experience of a cohort of current core surgical trainees in the UK.

An audit of the accuracy of data reported to the national hip fracture database

S Sawalha, M Grant, A Acharya
Warrington Hospital, Warrington

We assess the accuracy of data collected on types of hip fractures and operations performed by non-clinical staff and reported to NHFD. There were 299 patients. Data on type of fracture was incorrect in 71 patients (23.8%). The most common error was ‘displaced intracapsular fracture’ reported as ‘undiplaced’ (n=46). Data on type of operation performed was incorrect in 78 patients (27%). The most common error was ‘unipolar hemiarthroplasty’
reported as ‘bipolar hemiarthroplasty’ (n=32). Overall, 55.1% of patients (158/287) had correct data on both indicators. Orthopaedic surgeons should be involved in data collection to ensure accurate data is reported to NHFD.

**A Quality Audit of the National Hip Fracture Database**

AP Swayamprakasam, S Taqvi, S Hossain
Royal Oldham Hospital, Oldham

The NHFD has the potential to be a powerful research tool. However the quality of data in it is unknown. It is this that was audited here. Proximal femur fractures treated at our centre over a 4 month period were included. The hip fracture type data was used as a marker for overall data quality. 100 patients were included in this audit. Only in 50% cases was hip fracture type data recorded in the NHFD accurate. This audit has raised concerns over the quality of the data in the NHFD. Strategies to improve the quality of the data are presented.

**Fifth metatarsal fractures – how a change in protocol has influenced our service**

K Ferguson, J McGlynn, CS Kumar, J Madeley, L Rymaszewski
Glasgow Royal Infirmary, Glasgow

Fifth metatarsal fractures are common and the majority unite regardless of treatment. In 2011 a standardised protocol was introduced to promote weight-bearing as pain allowed. We retrospectively reviewed all patients with a 5th metatarsal fracture before and after this change. Our study of 618 patients did not demonstrate any added value for routine outpatient follow-up of 5th metatarsal fractures. At presentation patients can be safely allowed to weight bear and discharged, if they are provided with appropriate information and access to a “help line” run by experienced fracture clinic staff. The result is a more efficient, patient-centred service.

**DISCUSSION**

17:20
A comparison of surgical approaches for primary hip replacement – A study of patient reported outcome measures and early revision using linked national databases

S Jameson, P Baker, J Mason, P Gregg, D Deehan, I McMurtry, M Reed
Durham University, Durham

NJR-PROMs linked data were analysed to ascertain whether the posterior approach offers benefit over the direct lateral. Specific component combinations of the commonest brands were analysed. There were 18,600 patients in total, of which 3420 had linked data. Adjusted OHS change was significantly higher with the posterior approach (OHS: 20.6 versus 19.2, p<0.001, EQ5D index: 0.416 versus 0.383, p=0.003). There were no significant differences in patient reported complication rates and early revision between the two approaches. Significantly greater improvements in outcome scores were found with a posterior approach, with no increased risk of complications or early revision.

MARS MRI Scanning for metal on metal hip arthroplasty

SS Mahmoud, R Gwyn, K Lyons, M Maheson, A John, S Jones
University Hospital of Wales, Cardiff

Cross-sectional imaging is a key investigation in the assessment of patients with a MoM hip arthroplasty. We present our extensive experience with MARS MRI. The key aim is to provide longitudinal data that can contribute to an understanding of the natural history and progression of soft tissue damage as a result of Adverse Reactions to Metallic Debris. Our study group comprised a total cohort of 450 serial scans relating to 216 that were classified by a MSK radiologist. Time intervals for progression between different types were considered. A quarter of the hips scanned remained normal with interval scanning.

Effect of increased frictional torque on the fretting corrosion behaviour of the large diameter femoral heads: An in vitro study.

BJRF Bolland, A Panagiotidou, JM Latham, G Blunn
Southampton Orthopaedics: Centre for Arthroplasty & Revision Surgery, (SOCARS), Southampton; Institute of Orthopaedics and Musculo-Skeletal Science, University College London; Royal National Orthopaedic Hospital, London

This study investigated the relationship between increasing frictional torque and fretting corrosion for large diameter metal femoral heads. 36mm CoCr heads were coupled with CoCr or Titanium stems with 12/14 tapers. Increasing perpendicular horizontal offset created incremental increases in torque. Electrochemical tests (potentiostatic, potentiodynamic) were performed. There was a linear significant increase in mean (R=0.992, p=0.008) and fretting current (R=0.929, p=0.071) with time for both CoCr/CoCr and CoCr/Ti material combinations. Increasing torque lead to increased susceptibility to fretting corrosion at the modular head-neck taper interface of total hip replacements for both head stem material combinations.

Infection rates in revision hip surgery: does the use of allograft make a difference? an analysis of 2776 procedures.

D Cohen, A Shah, H Nagai, B Purbach, M Wroblewski, P Kay
Wrightington Hospital, Lancashire

Introduction: Does the use of allograft increase the rate of infection following revision hip surgery? Method: Our prospective database was examined to calculate the incidence of infection following single stage revision for aseptic...
loosening. Results: 2,776 revision procedures took place between 1966 and 2012. 1,344 with allograft: 22 hips infected, 1.64%. 1,432 without allograft: 31 hips, 2.16%. Discussion: We present the largest series of revision hip work from a single hospital looking at infection rates with and without allograft. Our results suggest that there is no increased risk of infection when using allograft in aseptic hip revision surgery.

**Discussion** 08:20

**Use of prophylactic inferior vena cava filters in major trauma patients – are we using them and should we be?**

O Nzueko, M Khalfioufi, O Berber, T Hardwick, A Tavakkolizadeh
King’s College Hospital, London

Introduction: Prophylactic use of IVC filters remains controversial. Objectives: Assess local practice in a level 1 major-trauma center and create local guidelines. Methods: Data was collected retrospectively. EAST guidelines from the US were used as the standard. Results: 72 patients were included with an average age of 42 years. 21% underwent insertion of an IVC filter. 11% suffered a non-fatal VTE. 2 patients with filters had their removal delayed due to the presence of thrombus within the filter. No other significant complications were observed. Discussion: This is a valuable resource; however, we must identify patients where benefits outweigh the risks.

**Discussion** 08:25

**Biomechanical evaluation of a novel technique of patella fracture fixation with comparison to conventional techniques**

A Hughes, M Jackson, S Evans
University Hospitals Bristol Foundation Trust, Bristol

Fractures of the patella represent a significant biomechanical surgical challenge and fixation methods are of interest. Bovine patellae were fractured, fixed and tensile tested. Biomechanical parameters were used to compare the stability of three different fixation methods: two conventional methods and a novel technique using headless compression screws with a longitudinal anterior tension band (HCS method). This study showed significant biomechanical advantages of both the HCS method and cannulated screw method when compared to a traditional tension band wire. This study does not support the use of headless compression screws due to lack of biomechanical advantages and increased cost.

**Discussion** 08:33

**Fascia iliaca blocks; an alternative pain management tool in neck of femur pathway?**

H Williams, V Paringe, P Michael, S Shrisha, B Ramesh
Glan Clwyd Hospital, Rhyl

Since their first description, FICB have been indicated but not widely used in the NOF pathway. We investigated their impact on pain management. Forty blocks were performed. Efficacy was assessed using a 10 point visual analogue score (VAS) taken pre-block, 15 minutes, 2 and 8 hours post block in static and dynamic positions. VAS scores were reduced in patients at rest and movement up to 8 hours. There was a reduction in the amount of additional opioid analgesia given and the incidence of opioid overdose. FICB provides a good alternative form of analgesia in the pathway for NOF fractures.

**Discussion** 08:37

**ACL and MPFL concurrent rupture rate: An MRI study**

A Aframian, O Jindasa, KS Khor, P Vinayakam, S Spencer, PJS Jeer
EKHT, Kent

The Medial Patello-Femoral Ligament (MPFL) is the largest component of the medial parapatellar ligamentous complex. Literature search revealed no published concurrent ACL-MPFL injury rates. Magnetic Resonance Imaging (MRI) scans of fifty consecutive ACL reconstruction patients retrospectively reviewed by two independent radiologists, looking for evidence of MPFL injury. 29% showed evidence of injury, scored as low-grade sprain (10%), high-grade sprain (12%), or rupture (6%). With almost a third of ACL ruptures having evidence of MPFL injury, we suggest that it always be considered and propose scoring as described. Scans with fat-suppressed sequences had better diagnostic value and should be included as standard.

**Discussion** 08:40

**Transmedial “All-Inside” Posterior Cruciate Ligament Reconstruction using a fibertape® Reinforced graftlink® in a Tibial Inlay Position**

T Nancoo, B Lord, S Yasen, A Wilson, Hampshire Knee Study Group Basingstoke and North Hampshire Hospital NHS Foundation Trust, Basingstoke

Posterior cruciate ligament reconstruction (PCLR) is technically challenging. We present a novel “all-
Use of fibertape® to reinforce tendon grafts in knee ligament reconstruction

T Nancoo, S Yasen, B Lord, M Risebury, A Wilson, Hampshire Knee Study Group Basingstoke and North Hampshire NHS Foundation Trust, Basingstoke

Fibertape® is an ultra-high strength polyethylene tape not previously described in knee-ligament reconstruction. We designed a new technique for reinforcing grafts by sandwiching the Fibertape® between looped tendon grafts so the tape is completely surrounded by graft tissue. This technique confers strength and initial stability to otherwise inadequate grafts and improves biocompatibility. Since March 2011, 36 patients (mean age= 36.1yrs) received reinforced autogenous hamstring-tendon grafts and/or tendon Achilles allograft. At last follow-up, Lysholm and KOOS scores improved from 59.2 to 84.1 and 57.5 to 82 respectively. There was one early failure (2.7%) due to deep infection but no other complications.

Posterior cruciate ligament and posterior lateral corner reconstruction using the lars ligament


Aims: To evaluate clinical and functional outcomes of PCL & PLC reconstruction using the LARS ligament. Methods: Prospective, single surgeon series assessing 25 adult patients. Mean age 32. Mean follow-up 26 months. Patients with multi-ligament injuries involving the PLC or PCL ruptures were reconstructed using the LARS, and autologous hamstring tendons for the ACL. Outcomes were assessed using the IKDC, Tegner Activity and Lysholm score. Results: Statistically significant improvement in subjective stability, function and patient satisfaction. No patients lost to follow. 2 minor complications. Conclusions: LARS ligament appears to be a suitable alternative to autografts for PLC & PCL reconstruction.

Reconstruction of the neglected Achilles tendon rupture: a new technique

V Asopa, J Clayton, Sportsmed.SA, Adelaide, Australia

A free-flap modification of the Lindholm technique is described for neglected achilles tendon ruptures. Through a postero-medial approach, the ruptured ends are debrided and the fascia overlying the flexor hallucis longus muscle belly is released. A 10cm by 2cm area is marked out on the gastrocnemius fascia and resected as a free graft. This is interposed between the ruptured ends of the Achilles tendon and sutured with vicryl using the Adelaide technique whilst keeping the foot plantigrade. Weight bearing is allowed in a CAM boot. This technique eliminates the bulky repair and demonstrates good preliminary results.
brevis group was 72.9 and for the hamstring group was 71.0. There was no statistically significant difference between the two groups. Conclusion: The management of chronic Achilles tendon ruptures with peroneus brevis transfer or hamstring augmentation gives good short-term results.

**Mid to long-term outcomes of lateral ligamentous complex ankle injuries treated by modified brostrom’s reconstruction technique after trauma**

S Hassan, T Sian, A Goyal, P Kothari
East Midlands Deanery (North), Nottingham

Purpose: We report outcomes for patients treated for lateral ligament complex injuries by Modified Brostrom’s Technique (MBT).

Method: Patients had minimum of 6 months follow-up. Over a 5 year period (2007-2012), 27 patients (mean age=33.9 years; F/u=36.9 months) were treated. Retrospective data was collected. 88.5 percent completed an American Orthopaedic Foot & Ankle Score (AOFAS) questionnaire. Results: The mean post-op AOFAS was 85. 88 percent of patients were satisfied. Mean time-lag between injury and surgery was 47.9 months. 1 patient underwent revision surgery. There were no deep infections or nerve damage. Conclusion: Despite delayed presentation, the MBT is very effective in treating ankle joint instability secondary to trauma.

**The prognosis of acute ankle and foot injuries using ultrasonography.**

MD Franklin, MJ Callaghan, S Corley
Derriford Hospital, Plymouth; Manchester Royal Infirmary, Manchester

Introduction: 22% of Ottawa Foot and Ankle Rules positive injuries have radiological fractures. Materials & Methods: This diagnostic cohort study examined if ultrasound could detect acute non-bony injuries in Ottawa rules positive patients and predict prognosis. The Foot and Ankle Outcome Score (FAOS), was also used. Results: 110 subjects participated. At 6 weeks a significant difference persisted between FAOS scores for ‘Pain’, ‘Sport’ and ‘Quality of Life (QOL)’ compared with baseline. Initial Anterior Talofibular Ligament (ATFL) scan findings were significantly predictive of FAOS ‘Symptoms’, ‘Sport’ and ‘QOL’ results. Conclusion: Initial ATFL findings predict patient perceived sporting competence at 6 weeks.

**Pectoralis major tendon repair: a biomechanical study of suture button versus transosseous suture techniques**

W Thomas, S Gheduzzi, I Packham
Avon Orthopaedic Centre, Bristol; University of Bath, Bath

In a biomechanical study of pectoralis major tendon avulsions, we tested transosseous sutures (TOS) against suture button (SB) repairs (PectorButton, FibreWire, Arthrex). In the static load experiment, designed to replicate catastrophic failure there was a significant difference in median failure load, favouring TOS (p=0.009) and median extension at failure, favouring SB.
Activities, and all patients would have returned to their pre-injury surgery again. (55 to 100.) 7 out of 12 patients (58.3%) (> 6 weeks). The mean MPHS was 84.125 extension is more clinically relevant than parity with TOS. The difference in mean cycles completed was non-significant. The mean extensions were: 586.66mm, TOS11.73mm. SB has shown at least parity with TOS.

A 20-year-old male presented with an anteromedial dislocation of the right knee. Three years previously he had undergone an ACL reconstruction of the ipsilateral knee. Whilst in his garden, he twisted and dislocated his right knee. Following emergent treatment, he had a posterolateral corner reconstruction and the common peroneal nerve which was heavily contused with only a single fascicle in continuity was grafted at a tertiary centre. He has since shown significant improvement. We believe that this is the first documented case of an auto ACL graft following anteromedial knee dislocation. Even with minimal force knee dislocation can occur.

288 09:17
The case for a national code for mountain bike injuries
JA Gillespie, RD Ferdinand
Dumfries & Galloway Royal Infirmary, Dumfries

Aim: To quantify the impact of mountain biking injuries. Methods: Using our hospital coding system we identified potential “cycling” injuries over a 1 year period. Results: We confirmed mountain bike related injuries in 29 inpatients resulting in occupation of 91 bed days, 19 operations and 1130 minutes theatre time. Conclusion: Mountain-biking is extremely popular in our area. We anticipate that our result is an underestimate and suggest a new code is created to specifically identify mountain bike injuries for inpatient care and A&E. This would allow more accurate assessment of the impact on all healthcare providers in the country.

981 09:05
Comparison of posterior tibial slope in ACL-injured and control subjects using CT
C Mcgarvey, J Bird
Lewisham University Hospital, London

Introduction: ACL rupture has been related to lateral posterior tibial slope (PTS). Previous MRI based in-vivo studies show wide variation and none have used CT. Method: 64 non-contact ACL-injured patients and 41 non-injured controls were compared. Medial and lateral PTS were calculated using Hashemi’s method. Results: Mean medial PTS was 5.3o(SD+/-2.6) in the ACL-injured group and 5.0 o (SD+/-2.8) in the control group (p=0.6). Mean lateral PTS was 6.3 o (SD+/-3.1) in the ACL-injured group and 5.1 o (SD+/-2.9) in the control group (p=0.19). Conclusion: ACL-injured subjects had greater absolute lateral PTS and greater difference between lateral and medial PTS though the differences were not statistically significant.

29 09:09
Low velocity anteromedial knee dislocation with an intact ACL reconstruction.
H Edwards, S Lidder, P Mestha, A Armitage
Eastbourne District General Hospital, Eastbourne

A 20-year-old male presented with an anteromedial dislocation of the right knee. Three years previously he had undergone an ACL reconstruction of the ipsilateral knee. Whilst in his garden, he twisted and dislocated his right knee. Following emergent treatment, he had a posterolateral corner reconstruction and the common peroneal nerve which was heavily contused with only a single fascicle in continuity was grafted at a tertiary centre. He has since shown significant improvement. We believe that this is the first documented case of an intact ACL graft following anteromedial knee dislocation. Even with minimal force knee dislocation can occur.
relatively safe event, but event organisers and local hospitals should be aware of the potential for relatively unusual upper limb injuries.

**DISCUSSION** 09:25

### 10:00 – 11:30

**Hall 11A**

**ARUK Young Investigator’s Award & Poster Prize**

#### 181

**Pain mechanisms in rotator cuff tendinopathy**

**B Dean, S Franklin, K Wheway, W Bridget, C Cooper, R Murphy, A Carr**

*Oxford University, NDORMS, Oxford*

**Introduction:** Shoulder pain is the third most frequent cause of chronic musculoskeletal pain in the community and is usually caused by rotator cuff tendinopathy (RCT). **Methods:** Rotator cuff tendon specimens were obtained from 64 patients undergoing the surgical repair, and were analysed using histological techniques and immunohistochemistry. **Results:** The Glutaminergic system was significantly up-regulated with an increase in Glutamate and changes in several related receptors in disease versus control (p<0.01). **Conclusions:** These findings are novel and further our understanding of the disease process in RCT, and these targets could be used in the development of novel therapeutics.

#### 796

**Twelve to twenty year outcomes of 1515 consecutive tibial shaft fractures**

**CJ Connelly, V Bucknoll, C Court-Brown, MM McQueen, LC Biant**

*University of Edinburgh, Edinburgh; The Royal Infirmary of Edinburgh, Edinburgh*

**Prospective study assessing pain and function of 1515 consecutive tibial shaft fractures at 12-22 years following injury. 1515 tibial shaft fractures in 1459 consecutive adult patients. 1034 were male and mean age was 40 years. Function was assessed at 12 to 22 years post-injury using standardised questionnaires. 87% of fractures united. 11.5% patients underwent fasciotomy which did not correlate with poorer function. One-year mortality in the elderly was 30%. 44.7% of patients have anterior knee pain and 29.6% ankle discomfort after IM nailing. This is the largest and longest study assessing functional and economic outcomes of tibial shaft fracture.**

#### 628

**High dose, double antibiotic-impregnated cement reduces surgical site infection (ssi) in hip hemiarthroplasty – a randomised controlled trial of 848 patients with intracapsular neck of femur Fractures**

**C Jensen, A Sprowson, S Chambers, D Inman, S Jones, NM Aradhyla, M Reed**

*Northumbria Healthcare NHS Trust, Ashington*

**We aimed to investigate the effect on SSI rates of doubling the gentamicin dose and adding a second antibiotic (clindamycin) to the bone cement in hip hemiarthroplasty after NOF fracture. 848 patients were randomized to receive standard single antibiotic-impregnated cement (Palacos®) or high dose, double antibiotic-impregnated cement (Copal®.) We calculated the SSI rate for each group at 30 days post-surgery. The two groups were demographically and medically comparable. Using high dose double antibiotic-impregnated cement rather than standard low dose antibiotic-impregnated cement significantly reduced the SSI rate after hip hemiarthroplasty for fractured neck of femur; 1.7%(6/344) vs 5%(20/394) (p=0.01).**
**Poster Abstracts**

**Hip Surgery**

121

Limb preservation system for salvage of failed revision total hip arthroplasty

*A Nisar, A Marsh, S Patil, RMD Meek [Glasgow]*

We present our experience of Limb Preservation System for salvage of failed revision hip arthroplasties. Seventeen patients (13 female and 4 male) had a mean age of 64.5 years. Primary diagnoses were DDH (7), Primary OA (5), RA (2), proximal femur fracture (2) and phocomelia (1). There were 13 proximal and 4 total femur replacements. Five (n=5) patients had 9 complications (2 infections and 7 dislocations). Mean follow up was 7 years (range 5-9 years). WOMAC, Oxford and Harris hip scores showed significant improvement postoperatively. No stems have been revised due to aseptic loosening at 5-9 years.

196

Patient positioning for total hip arthroplasty: can this affect leg length discrepancy?

*G Phillips, P Lee, T Owen [Llantrisant]*

**Hypothesis:** Supine positioning of patients will square the pelvis more akin to that of the anatomical position allowing for more accurate equalisation of leg-length.

**Method:** Leg-length was measured radiographically by drawing a near-horizontal through the acetabulae. From this line a perpendicular line is drawn to the lesser trochanter. A comparison was then made between the lateral decubitus and supine groups.

**Results:** For the lateral position pre-op difference in leg-length was 7.2mm (SD 5.78) and post-op 10.1mm (SD 7.24). p-value 0.03. For the supine group pre-op difference was 9.6mm (SD 6.85) and post-op 6.0mm (SD4.55). p-value 0.05.

**Conclusions:** Statistically significant difference to support the hypothesis.

236

Metal ion levels and revision rates in metal on metal hip resurfacing arthroplasty: a comparative study

*PG Robinson, AJ Wilkinson, RMD Meek [Glasgow]*

Metal on metal bearings in hip surgery may result in increased blood levels of metal ions and earlier hip failure. We compared three equal cohorts of resurfacing patients, Birmingham Hip Resurfacing ≥50mm and Durom resurfacing ≥50mm and < 50mm. Median cobalt levels for the BHR was 8nmol/L higher than the small Durom (P< 0.005). The small Durom cobalt levels were 8.5nmol/L higher than the large Durom (P=0.0004). Large BHR and large Durom revision rates were both 3.3%. The small Durom’s revision rate was 8.3%. Our results suggest ion levels do not absolutely predict the rate of HRA failure.

241

Does a ‘safe-zone’ for acetabular component position exist in metal-on-metal total hip arthroplasty?

*AR Pearce, TW Briant-Evans, KS Conn, RJ Harker, GJ Stranks, JM Britton [Basingstoke]*

A ‘safe-zone’ for acetabular component position in hip resurfacing to minimise ARMD risk has been proposed (35-55o inclination; 10-30o anteverision). We analysed 1097 radiographs from our single centre series of 1197 38mm M2a Metal-on-Metal THA, looking at acetabular component position and revisions secondary to ARMD. 611 had components within the ‘safe zone’, 486 outside. Revisions for ARMD (including pending) were 50(8%) in the ‘Safe’ group and 65(13%) in the ‘non-safe’ group (p = 0.0053, relative risk 1.6, 95% CI 1.2-2.3). High Inclination increases relative risk to 2.2 (p=0.0005 CI 1.4-3.4). Although a ‘Safe-Zone’ exists, component position alone does not explain our findings.
The ice-cream cone prosthesis: a novel method for acetabular reconstruction using an extended posterior approach
R Mehdian, G Matharu, D Sethi, L Jeys [Birmingham]
This study describes the surgical technique for a novel implant used for acetabular reconstruction. Between 2009-2012, 17 patients (10 tumour / 7 arthroplasty) received the ‘ice-cream’ cone prosthesis for complex acetabular reconstructions. An extended posterior hip approach was used to expose the acetabulum. The stem of the prosthesis was inserted in the ileum and guided towards the posterior superior iliac spine and secured with cement. Mean operative time was 153 minutes. During follow-up one patient required revision for cone migration. The ice-cream cone prosthesis is useful for acetabular reconstruction and can be inserted through an approach familiar to arthroplasty surgeons.

Baseline bone mineral density and bone resorption markers amongst preoperative hip and knee arthroplasty patients: a prospective study
S James, S Mirza, D Culliford, P Taylor, N Arden, COAST Study Group [Southampton]
Bone quality may prove to be a significant factor influencing the outcome of arthroplasty surgery. This prospective cohort study of 234 patients awaiting hip or knee arthroplasty, measured baseline bone mineral density using DEXA scans, and bone resorption activity using urinary deoxypyridinoline (DPD). Prevalence of hip osteoporosis amongst arthroplasty patients was found to be low (2.9%), but may be up to 8.3% when allowing for those already on bisphosphonate therapy. Mean total hip T-score (-0.22, sd 1.31) was within normal limits. Median urinary deoxypyridinoline/creatinine was raised in males 7.0 (IQ Range 5.7-9.1), but normal in females 6.8 (IQ Range 5.2-9.2).

Influence of bone cement contamination on the surface roughness of highly cross-linked polyethylene bearing surface
P Lee, E Brousseau, P Alderman, P Roberts [Cardiff; Newport]
The tribological behaviour of the bearing surface in hip arthroplasty is greatly influenced by its surface roughness. The effect of bone cement polymerization and its thermal effects on a highly cross-linked polyethylene bearing surface can significantly increase its surface roughness (p=0.01)and alter its surface topography. The mean surface roughness (Ra) of pre-contamination was 190 nm while post-contamination was 230 nm. This effect is likely to affect the tribology of the bearing surface and even its long-term performance outcome. Surgeons should be aware of this potential serious effect and be cautious intra-operatively to minimise bone cement contamination.

Limb length discrepancy the under reported complication
C Dannana, M El Sayad, M Yaqoob [Haverfordwest]
Limb length discrepancy(LLD) is a known complication of total hip replacements (THR).The reported incidence of LLD from previous studies is between 6 & 32 %. Our aim was to assess (LLD) in patients who had undergone a THR in our department and compare our results with previous studies. 96 patients had their LLD assessed radiologically by the Woolson method postoperatively. The results showed that 68(70.83 %) patients limbs were lengthened, 14 were shortened (14.58%),14 were equal (14.58%). and in total 27(28.1%) patients required a shoe raise. Our results show that limb length discrepancy is a more common complication than reported.

Economic implications of periprosthetic femoral fractures
V Paringe, T Williams, S White [Cardiff]
Periprosthetic Femoral Fractures [PFF] account for 8-9% of the THR revision burden with significant financial element to it. In our 6 year retrospective analysis in 66 patients with mean age on 75 years, Vancouver’s B was the most common injury with a total surgical tariff of £30,020-£40010. The Type B2 PFF’s resulted in the lower overall cost due to improved weight bearing status following revision THR as compared to ORIF for the other groups. From our financial analysis of the cohort, it was noted that the total cost was in excess of the tariff price reimbursed from HRG Payments.

Eleven years results of elastic, uncemented acetabular cup: 1194 consecutive implants from a non-designer centre
I Malek, L Green, A Westwood, M Mullins, D Woodnutt [Swansea]
An elastic, hemispheric, uncemented, HA coated hemi-spherical titanium acetabular implant was introduced in 1987 with perceived advantages of better primary and secondary implant
stability, low fracture rate at the time of impaction, better polyethylene insert stability and wear characteristics with low incidence of osteolysis. A prospective review of 1194 consecutive procedures performed in 1075 patients. Twenty five implants have been revised for various reasons. The Kaplan Meier Survivorship analysis showed survival rate of 93% at 11 years (97% CI: 87-99%). The risk of implant revision was 2.4% at 11 years. We conclude that, this acetabular component has excellent mid-term results.

718

Early direct-exchange revision for acutely infected cementless total hip replacement
S Alazzawi, M Sukeik, F Haddad [London]

We report our experience of using single-stage revision arthroplasty in treating patients who had an acute postoperative infection (within 6 weeks) after cementless primary or revision total hip replacement. There were 19 patients (13 primary and 6 revision THRs), average age was 64 years (39 - 85), male: female ratio was 11:8. Average time from the index operation to the development of infection was 18 days (4 - 41). Fifteen patients (78.9%) treated successfully with no evidence of re-infection at 64.3 (32 - 89) months follow up. Four patients (21.1%) developed re-infection which required a two stage-revision procedure.

808

Management of recalcitrant osteomyelitis of the native hip and pelvis with a two-stage debridement and a rectus femoris pedicled interposition graft: a case report of four operations
D Giotikas, S Dalavajna, M Kaminaris, A Norrish [Cambridge]

We report our experience with a two stage debridement and rectus femoris graft technique in three patients, four hips, with chronic severe native hip infection.

The first stage comprised wound debridement, washout, gentamycin-bead application and vacuum assisted wound coverage. At the second stage, the rectus femoris muscle was elevated on its pedicle, rolled and transposed into the acetabulum. All patients received a 6 week course of intravenous antibiotics. No loss of flap occurred. At the final examination all the wounds were healed. The described technique may be useful for the treatment of complex persistent osteomyelitis of the hip and groin.

830

Estimating the true femoral offset from anteroposterior radiographic measurements using ‘lesser trochanter index’
K Boddu, M Siebachmeyer, S Lakkal, V Kavarthapu, PLS Li [London]

We developed a method to predict the underestimation of femoral offset in the AP radiographs using the ‘lesser trochanter index’ (LTI). Computed tomographs of forty normal hips were included. Simulated radiographs were reconstructed at hip rotations of 10° increments from 30° external rotation to 40° external rotation. A radiograph with an LTI value above 35 is 94% (95% CI, 89% to 97%) likely to underestimate the femoral offset by more than 5%. All radiographs with an LTI between 0 and 30 demonstrated femoral offset within 5% of the true offset (predictive value 100%, CI 89% to 100%).

901

Characterisation of in vivo release of gentamicin from ALAC using a novel method
H Gbejuade, J Webb, A Lovering, R Spencer [Bristol]

Antibiotic loaded acrylic cement (ALAC) is commonly used for managing prosthetic joint infection. Published studies on antibiotic elution are largely in vitro. We investigated urinary in vivo elution kinetics of gentamicin from ALAC. Postoperative urine samples were collected from 35 patients who underwent cemented primary total hip arthroplasty patients (using 0.5g gentamicin ALAC) and analysed for gentamicin concentrations. Mean duration of urinary gentamicin release in all cases was 43 (13-49) days. 20% still had detectable gentamicin even at final collection. Our study demonstrates the biphasic gentamicin elution, as well as robust release for up to six months using a non-invasive technique.

967

Evaluation of magnetic resonance arthrography (MRA) versus hip arthroscopy in identification of labral tears and associated articular pathology
C Mcgarvey, T Hardwick, D Elias, S Vijayanathan, V Kavarthapu [London]

In FAI, MRA performance in identifying intra-articular pathology other than labral tears is not commonly
documented. Of 102 consecutive hip arthroscopies, 67/75 MRA reports were compared to intra-operative documentation of: CAM lesion; labral tears; and articular cartilage changes. At arthroscopy labral tears were found in 57/67 patients (MRA sensitivity 78%, specificity 80%, NPV 42%). At arthroscopy, articular cartilage lesions were found in 50/67 patients (MRA sensitivity 55%, specificity 93%, NPV 40%). Among 22 false-negatives for articular cartilage lesions, six had Grade III-IV wear. MRA detected labral tears in line with published series, but did not exclude advanced (Grade III-IV) wear.

**Knee Surgery**

**102**

**Long term survivorship following Scorpio total knee replacement**

C Quah, G Syme, A Martin, N Segaren, S Pickering (Nottingham)

The primary aim of our study is to assess the survivorship of the Scorpio total knee replacement (TKR) after 10 years. This study consisted of 456 consecutive patients who underwent a primary TKR between 1998-2003 in a single institution. At an average of 12.5 years, 196 patients were available for review; 124 (27.2%) were lost to follow up and 136 (29.8%) patients died of unrelated causes. The cumulative survival for the prosthesis was 99.5% for any cause at 5 years and 97.4% at 14 years. In our series, the Scorpio TKR showed good long term survivorship and functional outcomes.

**253**

**Pre-tibial reaction to bio-interference screw in anterior cruciate ligament reconstruction**

V Ramsingh, N Prasad, M Lewis (Newport)

We report a case series that presented as pre-tibial reaction following ACL reconstruction using bioabsorbable fixation devices for tibia. 273 ACL reconstructions using quadrupled hamstring autograft were performed over 3 years. Thirteen patients (5%) presented at a mean post-operative period of 26 months with pre-tibial pain and swelling. All patients had normal inflammatory markers. All underwent surgical debridement. There was no evidence of infection in cultures. Histopathology revealed reactive appearance. All patients had complete recovery at mean follow up of 12 months. We report an incidence of 5% of pre-tibial reaction. This may be related to foreign body reaction.

**1009**

**High survivorship of impaction grafting of contained acetabular defects with a biphasic porous ceramic bone graft substitute in 43 consecutive patients at a mean follow up of 51 months**

W Michael, P Dacombe, J Webb, A Blom (Bristol)

Background: Bonesave is used in conjunction with allograft for impaction grafting of the acetabulum, in this series we look at its use alone. Methods: retrospective review of 43 patients undergoing impaction grafting of contained acetabular defects. Patients were assessed radiologically, with PROMS and Kaplan-Meier survival analysis. Results: survivorship of acetabular component was 97.7% at 85 months. Median OHS was 36, SF12 PCS was 36 and SF12 MCS was 50. Graft material incorporated in all three zones of the acetabulum in 33 of 37. Interpretation: medium-term results show that Bonesave alone is a reliable material for impaction grafting of the acetabulum.

**177**

**Autologous osteochondral mosaicplasty or Trufit™ plugs for cartilage repair; a retrospective non-randomized comparison**

P Hindle, J Hendry, J Keating, L Biant (Edinburgh)

The outcome of autologous osteochondral mosaicplasty and TruFit™ Bone Graft Substitute were compared using the EQ-5D, KOOS and Modified Cincinnati scores at follow-up of 1-5 years. There was no significant difference in the requirement for re-operation (p=0.254). Patients undergoing autologous mosaicplasty had a higher rate of returning to sport (p=0.006), lower EQ-SD pain scores (p=0.048), higher KOOS activities of daily living (p=0.029) scores. This study demonstrated significantly better outcomes using two validated outcome scores (KOOS, EQ-5D) and an ability to return to sport in those undergoing autologous mosaicplasty compared to those receiving TruFit plugs.

**467**

**Cementation in TKR - warm versus cold saline**

A Mehro, Z Morrison, R Power, E Schemitsch (Toronto, Canada; Leicester)

Better cement penetration reduces micro-motion in TKR. We compared the effect of warm versus cold saline wash on cement penetration in porcine tibia. Ten paired porcine tibiae were harvested. Cancellous bone surface was washed with 500mls of saline. The left side bones were washed with cold saline (room temperature) and right with warm saline (40 degrees). Polyethylene block was implanted using simplex P cement and Cement penetration measured. Paired t-test was used to assess
statistical significance. The difference in the sagittal plane was statistically significant (p=0.003). Cement penetration is better and more uniform with warm saline.

468
Improving the accuracy of unicondylar knee arthroplasties: robots vs. patient specific instrumentation
Z Jaffry, M Masjedi, S Clarke, S Harris, M Karia, B Andrews, J Cobb [London]
The accuracy with which Unicompartmental Knee Arthroplasties (UKAs) are carried out using a semi active robot, Patient Specific Instrumentation (PSI) and the conventional technique was compared. A total of 36 UKAs were done on identical knee models, 12 with each method, and implant placement was judged against that in a pre-operative plan. Overall, the robot produced the most accurate UKAs but there was no significant difference between this and the PSI group in femoral component placement. The robot also took a significantly longer surgical time than the other two techniques so with further development PSI could be the most efficient.

493
Unpredictable outcomes following FPV patellofemoral unicondylar knee replacement
A Davies [Swansea]
52 consecutive FPV Patellofemoral Unicompartmental Knee Replacements were studied prospectively using Oxford Knee Score and American Knee Society Scores. Oxford Knee Scores improved from 30 points pre-operatively to 19 points (60%) at one-year. American Knee Society Knee scores improved from 51 points pre-operatively to 81 points at one-year. Function scores improved from 42 points pre-operatively to 70 points at one-year. 13 (25%) patients had an excellent outcome however 11 (21%) patients gained very little improvement. Seven cases have been revised to a total knee replacement. The patellar button was very poorly fixed in all cases that were revised.

534
Quantitative measurement of mechanical alignment and coronal laxity during early knee flexion
DF Russell, AH Deakin, QA Fogg, F Picard [Clydebank]
We report repeatability and agreement of a non-invasive image-free navigation based system assessing lower limb mechanical alignment (MA) with a commercially available invasive navigation system. 12 cadaveric lower limbs were tested. MA was measured with no stress, then 15Nm of varus/valgus moment from extension to 90°. Repeatability coefficient of < 3° was acceptable. The non-invasive system was precise from extension to 60°. Agreement between invasive and non-invasive was satisfactory from extension to 40° with no stress, and extension to 30° with varus/valgus stress. The non-invasive system provides reliable MA and laxity in the range relevant to arthroplasty planning.

543
Centre and surgeon volume influence revision rate following unicompartmental knee replacement: an analysis of 23,400 medial cemented unicompartmental knee replacements
P Baker, S Jameson, R Critchley, M Reed, P Gregg, D Deehan [Middlesbrough]
Aim: to determine how surgeon and centre operative volume influence failure rates for unicompartmental knee replacements (UKR). Methods: Registry based cohort study of 23,400 medial cemented Oxford UKR. Results: the lowest volume centres/surgeons had significantly higher rates of revision than the highest volume centres/surgeons (all p< 0.001). Compared to the higher volume centre/surgeons (>13 cases/year) the hazard of revision for the lower volume centre/surgeons (< 13 cases/year) was 1.87 (95%CI:1.58-2.22), p< 0.001). Conclusion: high volume centres and surgeons demonstrated superior results. These results suggest surgeons should undertake a minimum of 13 procedures/year to achieve results comparable to higher volume operators.

589
To hinge or not to hinge? Analysis of 108 cases of rotating hinge TKR’s in revision knee arthroplasty
B Rao, T Tandon, A Avasthi, M Moss, L Taylor [Chichester]
In the study of 108 patients with mean age of 76 years, we evaluated the outcomes of a newer generation Rotating Hinge Knee (RHK) in revisions for major bone loss and ligamentous instability. We used 30 Tibial and 4 Femoral trabecular metal cones in type 2/3 AORI defects to address bone loss along with RHK’s. At average follow-up of 54 months, mean OKS improved from...
21 to 32 and AKS scores improved from 32 to 76. With advent of modern RHK’s, there appears to be a place for them in revision knees especially with major bone loss and ligamentous instability.

The oblique lateral ligament (Ligamentum obliquum laterale) - description of a ‘new’ knee ligament

A Dodds, A Williams, C Gupte, A Amis [London]

We have sought to clarify anatomy and function of the anterolateral knee structures by dissecting 40 fresh frozen cadaveric knees and performing biomechanical tests. A consistent structure was observed clearly in 33 knees, which has been termed the oblique lateral ligament. It passed antero-distally from proximal and posterior to the lateral collateral ligament (LCL) femoral attachment to the lateral tibial plateau margin, midway between Gerdy’s tubercle and the fibular head. It passed superficial to the LCL, and was separate from the capsule. Biomechanical testing revealed it was not isometric, and was lengthened by imposing a tibial internal rotation torque.

A novel patellofemoral inlay resurfacing arthroplasty for isolated patellofemoral arthritis: independent assessment and functional outcomes

A Patel, A Anand, D Spicer [London]

Aim: to prospectively evaluate functional outcomes and complications for patients undergoing novel inlay resurfacing arthroplasty for isolated patellofemoral arthritis. Methods: from 2009-2012, we undertook 12 procedures. Outcome measures included range of movement, functional scores (Oxford knee, KOOS, SF-36), and complications. Results: 6 men and 6 women were evaluated, with average age 63.1 years and average follow-up 24.1 months. There was significant improvement in range of movement and all functional scores (p<0.0001). One patient underwent revision for infection. No other complications. Conclusion: our results demonstrate the Hemicap Wave resurfacing prosthesis has good early results with low complication rates.

Cost of adverse events in knee arthroplasty - a review of the national health service litigation authority database

A Chen, Y Khan, K Akhtar, JP Cobb, CM Gupte [London]

Aims: to determine costs of adverse events occurring from knee arthroplasty. Methods: The NHSLA database was analysed for case-mix and total payout. Results: 515 cases involved knee surgery. 298 cases involved knee replacements. Total payout was £10.45 million. 11 cases involved unicondylar knee replacements. Highest payouts were amputation - £2132,097, poor outcome and further surgery - £1,453,880, wrong prosthesis or prosthesis size - £1,465,595. Top litigation success rates were - drain left in knee, wrong prosthesis/size, poor outcome/ further surgery. Estimated future payout - £3.382 million. Conclusions: litigation success rates were higher involving technical errors. The number of wrong prosthesis claims is concerning.

Alignment profile of normal knees and its variations with posture, sex, side and geography

K Deep [Glasgow]

This multicentre study (6 Centres) on 267 normal knees of persons aged between 18-35 with a computerised infrared navigation system measured femoro tibial mechanical angle (FTMA) with a validated method. Mean supine non weight bearing FTMA was a varus 1.2°(SD4.0) in full extension and 1.2°(SD4.4) in 15° flexion. It changed by a mean varus 2.2°(SD3.6) in bipedal and 3.4°(SD3.8) in monopedal stance. On standing, the knee extension increased by 5.6°(SD6.8) in bipedal stance and by 5.5°(SD 7.7) in monopedal stance. There
were statistically significant variations with sex, side and north vs south. The neutral alignment may not be the best for all.

973

Survival, risk factors for failure and functional outcome of autologous hamstring anatomic anterior cruciate ligament reconstruction
C Robb, H Standell, P Thompson, J Soh, D Lin, T Spalding [Coventry]

A prospective database for patients undergoing a standardised anatomic ACL reconstruction was analysed. A poor outcome was defined as patient instability symptoms, an abnormal pivot shift, MRI or arthroscopy showing ACL graft rupture. Kaplan Meier survival analysis was calculated. The Cox proportional hazard model was used to investigate which covariates influenced graft survival. At 2 year follow up survival analysis showed a good outcome in 81.5% (95%CI 73.6 to 90.3). Risk factors for a poor outcome were medial (p=0.015) and lateral (p = 0.03) meniscal deficiency. Conclusion: Surgeons should endeavour to repair all meniscal tears associated with ACL reconstruction.

999

The FPV patellofemoral replacement: minimum 5 year results from an independent centre
MN Joseph, C Downham, M Costa, P Thompson, U Prakash, P Foguet, N Parsons [Warwick; Coventry; London]

This study reports minimum 5-year follow-up of the FPV patellofemoral joint replacement from an independent centre. We retrospectively assess the functional and radiological outcomes and survivorship of this prosthesis. In total 55 FPV replacements were performed. The mean follow-up was 6 years. The cumulative survival at 5 years was 90% with revision as endpoint. The functional scores were good. The radiological outcomes used showed high inter- and intraobserver reliability. The Caton-Deschamp ratio and patellar tilt improved significantly (P < 0.05). Our findings suggest the FPV provides satisfactory mid-term results however the survivorship may not be comparable with the Avon.

Trauma

13

Are plain radiographs useful in accurately classifying distal radius fractures?
S Evans, A Taithongchai, M David, B Machani [Birmingham]

Aim: does assessment of plain films alone accurately depict the fracture pattern found intra-operatively? Methods: closed, adult distal radius fractures included. Preoperative fracture radiographs classified (Frykman and AO methods). The same systems were used to classify the fracture pattern intra-operatively. Results: 24 wrists; 16 female. Mean age 51.0 years. There were 3 patients whose pre- and intra- operative classifications matched. There was a mean discordance of 3 grades in the fracture classification pre- and intra- operatively when using both the Frykman and AO methods. This study shows that plain wrist radiographs do not accurately classify distal radius fractures.

69

Functional outcome following tibio-talar-calcaneal nailing for unstable osteoporotic ankle fractures
S Jonas, A Young, C Curwen, P Mccann [Gloucester]

Fragility fractures of the ankle are increasing in incidence. Such fractures typically occur from low energy injuries but lead to disproportionately high levels of morbidity. Both conservative and operative modalities have shown high rates of failure. Optimal treatment remains controversial. Our retrospective review of 31 patients managed with Tibio-talar-calcaneal Nail (TTC) showed a
high mortality at follow up 9/31 and 3 had periprosthetic fractures. 2 infections occurred but 29/31 returned to their previous level of mobility post-operatively. Complications rates are high in patients regardless of management. The TCC nail allows immediate full weight-bearing with an acceptable complication rate.

125

Results of non union of humerus treated with retrograde humeral nail
H Bhatt, S Halder [Huddersfield]
We report outcome of 51 cases of non-union of humerus treated Retrograde Halder Humeral Nail. Mean age of patient was 54 years with mean duration of non-union of 8 months. Of 51 patients, 48 had union at mean of 10 months. 1 patient was lost to follow up. 18 patients out of 51 needed bone grafting to aid union. The mean Constant Score at last follow up was 83 and Mayo Score for elbow was 80. There were no reported cases of infection. 3 patients developed radial nerve palsy which fully recovered at 3 months.

217

Impact of time to surgery on POSSUM physiology scores and predicted outcome in patients with neck of femur fractures
R Afinowi, C Mount, I Chambers [Scunthorpe]
Introduction: we determine the effect of time to theatre on POSSUM scores. Method: observational study. Time dependent changes in physiology scores were analysed in 3 subgroups. Results: we found no significant change in scores where time to theatre was within 36 hours or longer for logistic reasons. Those delayed for medical reasons, had on average higher scores with no improvement. Conclusion: our findings suggest that in relatively unwell patients with neck of femur fractures, there is an early window of opportunity for limited resuscitation and optimisation, beyond which there appears to be no benefit in delaying surgery.

266

Targon Femoral Neck Hip Screw versus cannulated screws for internal fixation of intracapsular fractures of the proximal femur: a single centre, parallel group, participant blinded, randomised controlled trial
XL Griffin, N Parsons, J Achten, ML Costa [Coventry]
The aim of this study was to quantify the clinical effectiveness of the Targon Femoral Neck Hip Screw in the management of a typical osteoporotic fracture of the hip. Patients aged 65 years and over with any type of intracapsular fracture of the proximal femur were eligible. The primary outcome was the risk of revision surgery within one year of index fixation. The absolute reduction in risk of revision was 4.7% (95% CI -14.2 to 22.5%) in favour of the Targon Femoral Neck Hip Screw. Although there was no significant effect, we cannot definitively exclude a clinically meaningful difference.

270

The management of open lower limb fractures at a level 1 major trauma centre: how orthoplastics has changed the approach
H Colaco, M Khan, S Anwar, A O’Rourke-Potocki, C Cox, N Cavale, S Phillips, AM Phillips [London]
Aim: audit performance of Level 1 MTC in managing open lower limb fractures against the BOA-BAPRAS/BOAST4 guidelines (2009). Method: audit all lower limb fractures admitted with off-site Plastics (Jan-Dec 2011), and after appointment of Orthoplastics Consultant (Jan-Sep 2012). Results: in 2011, 26/47(55%) Gustillo III. Combined Orthoplastics plan documented: 0/47(0%). 13/47(28%) required soft tissue cover by Plastics 8.16days(avg.) (58%< 7days). In 2012, 20/34(59%) documented Gustillo III. Combined Orthoplastics plan documented: 56/56(100%). 24/56(43%) required soft tissue cover by Plastics 6.18days(avg.)(83%< 7days). Conclusion: performance has improved when measured against the BOA-BAPRAS/BOAST4 guidelines. Further study is required to assess patient outcomes.
Surgical and conservative management of displaced radius and ulna shaft fractures in children- avoid using flexible nail for radius alone!

K Wronka, S Richards [Poole; Carmarthen]

Methods: retrospective review of children who had intervention (MUA/fixation) for fracture shaft of radius AND ulna. Results: 56 children with closed, displaced fractures were identified. 26 had fixation, 30-MUA. 27% from MUA group required further intervention. 13% of fractures healed angulated 25-30 degree. Of 4 patients who had single nail to ulna, despite initial reduction, 3 suffered angulation to radius (25-40 degree). None of fractures treated with 2 nails re-displaced. There were no growth problems. Discussion: internal fixation of forearm bones in children is safe. Authors recommend fixation of both bones rather than ulna alone due to risk of re-displacement.

Outcome of traumatic shoulder dislocation in paediatric population

A Bidwai, J Chan, C Bruce [Warrington]

Purpose: shoulder dislocation is infrequent in the paediatric population. The aim of this study is to determine if our standard management of physiotherapy supervised mobilisation is appropriate. Method: Retrospective analysis of patients identified from hospital records database. Results: 8 from 10 patients were contactable. All patients had symptoms of instability, four male patients required surgery at another institution. Conclusion: a high incidence of recurrent instability in this small cohort has led to a change in practice. Patients with traumatic shoulder dislocation are referred to adult centres, where patients can be investigated and managed by adult shoulder surgeons.

Severe open tibial fractures treated with the ‘flap and frame’ technique

J Fagg, E Mills, S Royston [Sheffield]

We retrospectively reviewed the case notes and radiographs of sixty consecutive cases of severe (Gustillo-Anderson Grade III) open fractures of the tibia treated in our tertiary referral unit with the ‘Flap and Frame’ technique. Mean age was 43.3 years (16 - 89). 25% were IIIA and 75% were IIIB fractures. Half of the fractures had significant bone loss following debridement, with a mean average loss of 28.1 mm (range 5 - 125). Mean follow up was 10.3 months. The deep sepsis rate was 1.7 percent with a 5 percent non-union rate. Mean average frame time was 182 days (range 71 - 525).

Locking plate fixation for complex peri-articular fractures of the tibia. A single centre study of the management of 73 patients

A Leonidou, G Erturan, A Brooks, S Deo [Swindon]

The purpose of this study is to present our experience with the use of the locking plate for the management of complex peri-articular tibial fractures. 73 patients with complex peri-articular tibial fractures were managed in our institution. 34 fractures involved the proximal tibia, 35 the distal tibia and 4 the shaft. The applied systems were the AxSOS Plate and the LCP or LISS systems. Mean time from injury to fixation was 6.5 days. 7 patients had superficial infection and 4 deep. 4 patients had non-union and one delayed union. Locking plate fixation is technically demanding and achieves good results.

The Dudley grid: An evidenced-based audit/research tool to investigate mortality within 1-year following a displaced intracapsular hip fracture

MJ Gandhi, S Bhasin, S Qurashi [Dudley]

Introduction: we present a tool to aid management plans taking into account patients’ mortality risk and mobility. Methods: Factors analysed in patients sustaining displaced intracapsular hip fractures: Nottingham Hip Fracture Score (NHFS), age, gender, admission haemoglobin and pre-admission walking ability. Analysis: Cox proportional hazard model. Results: N=562. All factors significantly influenced mortality risk. Walking ability gives an indication of hip use. Conclusion: multiple factors influence mortality risk. Walking ability can be displayed alongside the NHFS in a grid format. The Dudley Grid can display incidence and mortality data and hence the basis of a more objective management strategy.

Patient reported outcomes measures (PROMs) following internal fixation of distal radius fractures

R Jeavons, H Thirkettle, J Auyeung [Durham]

We retrospectively reviewed all distal radius fractures treated with APTUS Distal Radius Plating System (Medartis AG, Basel, Switzerland) over 6 years. We collected demographics, classified fractures and sent two postal PROMs, Patient Related Wrist Evaluation (PRWE) and Quick DASH to patients. Of 93
patients 10 were excluded. Mean age 54.61 years; length of Follow up 2.35 years; Mean time to theatre 3.82 days. 62.7% responded to questionnaires; mean Quick DASH 32.69 and PRWE score 34.12. No difference in PROMs was found between those with or without ulnar styloid fractures or different plate constructs. The APTUS plating system offers satisfactory PROMs.

491

The outcome of operative management of extra-capsular proximal femoral fractures in the young adult (< 50 years)

DN Ramoutar, P Kodumuri, S Olewicz, JN Rodrigues, DP Forward [Nottingham]

Patient details were obtained from a prospective database (n= 88). Mean age was 38.5 years. The commonest fracture types were basi-vascular (38.6%) and 2-part trochanteric (33%). The majority were treated with DHS fixation (84.1%) with few complications (5.7%). Mean length of stay was 13.5 days. 17 patients had died (19.3%) at a mean time from operation of 40 months. The one year mortality was 4.5%. All deaths were from other injuries or comorbidities. Patients had returned to near normal function (assessed by SF-36 and EuroQol 5D), but still had reduced function in the hip (Oxford Hip Score mean 38.4).

559

Patient factors associated with survival period and mortality within 30-days, 90-days and 1-year following a displaced intracapsular neck of femur fracture

M Gandhi, S Quraishi, S Bhasin [Dudley]

Introduction: this study investigates factors that influence mortality following a displaced intracapsular hip fracture.

Methods: factors examined: Nottingham Hip Fracture Score (NHFS), age, gender, admission haemoglobin, pre-admission walking ability and fracture side. Results: maximum eligible n=555. Across all time frames, significantly lower mortality rates observed in patients with lower NHFS groups, who were younger, had higher admission haemoglobin and better outdoor mobilisers. Conclusions: the NHFS predicts mortality risk across all time frames. Admitting teams should clarify the patient’s outdoor pre-admission mobility as poor pre-admission outdoor walking ability identifies higher risk patients and predicts the patient’s hip use.

575

Proximal femoral nail anti-rotation (PFNA) - quality of reduction & fixation: a district general hospital experience

G Green, J Stanton, A Aframian, KS Khor, P Vinayakam, PJS Jeer [Margate]

Introduction: PFNA is used to achieve anatomical fixation in subtrochanteric/pertrochanteric fractures. Tip-apex distance as a predictor of metalwork cut-out in intramedullary devices is poorly documented. Aims: outcomes following PFNA. Methods: All PFNA since January2011. Tip-apex distance and alignment measured radiologically.
Recommendations: aim tip-apex anatomical reduction.

Conclusions: quality of reduction related to distance similar to DHS. Distance < 25mm. Avoid varus to failure but not cut-out. Tip-apex cut-out failed PFNA: 36mm.


605 Importance of templating of X-Rays and pre-operative planning before Exeter Trauma Stem hemiarthroplasty of hip
K Wronka, P Crudde, B Sangar [Poole; Carmarthen]

Background: Exeter Trauma Stem (Stryker) hemiarthroplasty is prosthesis similar to Exeter Hip Replacement. During femoral preparation sometimes femoral canal is too narrow and surgeon must use different prosthesis. Methods: retrospective review of patients listed for ETS-Hemiarthroplasty.

Results: 380 patients were listed for ETS-hemiarthroplasty. In 34 cases 9% femoral shaft was too narrow and surgeon was forced to change prosthesis. 4 of those patients (12%) suffered early dislocation. Discussion: we noticed significant conversion rate from ETS hemiarthroplasty to other prosthesis due to narrow femoral canal. This resulted in high complication rates, disturbed theatre work, increased cost. We recommend careful pre-operative planning to avoid this.

582 Prophylaxis for venous thromboembolism in neck of femur fracture: a re-audit
A Aframian, KS Khor, G Green, P Vinayakam, PS Jeer [Margate]

Following Department of Health (DoH) efforts to reduce venous thromboembolism (VTE), we conducted trust wide audits in VTE prophylaxis for patients with neck of femur fracture (NOF), who are at high risk. DoH, NICE and Trust guidelines recommend thromboprophylaxis 28-days postoperatively.

The Trust specialist-NOF wards were audited over a four month period. Results revealed lack of awareness and poor compliance (< 10%) to guidelines. Findings were disseminated, teams educated and change implemented. Re-audit revealed >90% compliance, in line with the CQUIN targets with no significant drop-off during junior doctor change-over. Simple and cost-effective education should be the first target for improvement.

671 The severely injured elderly trauma patient: an impending flood?
A Das, M Petrie, C G Moran, B Ollivere [Nottingham]

Aim: we aimed to establish the clinical course for elderly patients with severe traumatic injuries. Methods: We reviewed TARN data from our trauma centre between 2008-2012. Results: our study included all patients aged over 65 with an ISS>9 (n=724, mean age 79.7, mean ISS 16.3). 17% of patients were admitted to ITU. Hospital stay was a mean of 17.7 days. 24-hour mortality was 3.2% and 14.5% at 30 days. 1 year survivorship was 78%. Head injury and C-spine fractures were strong predictors of mortality (p=0.0001, p=0.045).

Conclusion: we observe significant early mortality and prolonged hospital stays in this expanding demographic of the population.

809 Handling extremity injuries in 26yrs counter-terrorist war: a Sri Lankan civil war experience
C Karunathilaka, N Pinto [Colombo, Sri Lanka]

In the Sri Lankan civil war human casualties started with cut injuries, blunt trauma, shot gun injuries and developed into a stage of extensive soft tissue and bone injuries. Objective: identify the extremity injury pattern. Evaluate the principles of management of extremity injuries. Results: non ballistic injuries reduced over the years and ballistic injuries increased. 70% had extremity injuries - remarkably high compared to world figures. In the immediate post war Era, the extremity injury patterns were due to inappropriate treatments. Conclusion: management of war injuries is a real challenge between evidence based orthopaedics and experience based orthopaedics.

873 Validation of a virtual reality trauma simulator
K Akhtar, K Sugand, A Chen, J Cobb, C Gupte [London]

28 participants (7 each in 4 cohorts of differing experience) performed fixation of a femoral neck fracture on a VR DHS simulator and completed Likert-scale questionnaires before and after. The simulator was seen to have good face and content validity and was unanimously accepted as a useful learning tool, particularly by junior surgical trainees. There is a desire amongst junior trainees for simulation based training to give them the confidence and skills to transfer to the operating theatre, but there is a need for
heightened fidelity to make this an appropriate training tool for incorporation into the orthopaedic curriculum.

905

The role of iliaco-fascial blocks for pre-operative pain relief in patients with neck of femur fractures

P Buddhdev, A Ghatahora, A Kalraiya [London]

Iliaco-fascial Blocks are a novel technique using local anaesthetic for pain relief in hip fracture patients. It is an easier, cheaper and safer method, with pain control found to be significantly better compared to opioids. We prospectively studied 80 patients with neck of femur fractures; Group 1 received regular oral analgesia and oramorph, Group 2 received an iliaco-fascial block and the same regular and PRN analgesia. There was a statistically significant improvement in the visual analogue pain scores in the group receiving the blocks and an 80% average reduction of PRN oramorph consumption, improving patient satisfaction and reducing complications.

1012

Use of the Dall-Miles plate for periprosthetic femoral fractures: 27 cases and a review of the literature

D Dargan, M Jenkinson, D Acton [Londonderry]

A cable plate is an established treatment method for Vancouver type B and C periprosthetic femoral fractures. The use of the Dall-Miles (Stryker) broad bone plate in a district general hospital was evaluated over a 2 year, 10 month period. Twenty-seven fractures were fixed using a Dall-Miles plate during this time. Two plates fractured and two further fixations loosened, developing varus malunion. All four events occurred within six months of plate fixation. The increasing population age and prevalence of hip arthroplasty prostheses will likely increase the incidence of periprosthetic femoral fractures. This will lead to a greater understanding of their outcomes.

Foot & Ankle Surgery

238

Rheumatoid forefoot reconstruction: outcome of 1st metatarsophalangeal joint fusion and the Stainsby procedure in the lesser toes

E Bass, S Sirikonda [Liverpool]

12 patients underwent 13 novel combinations of 1st metatarsophalangeal joint fusions and Stainsby procedures between 02/2009 and 11/2012. AOFAS scoring was performed preoperatively and again six and 12 months post-surgery. Hallux valgus (HVA) and intermetatarsal angles (IMA) were measured preoperatively and six weeks and six months postoperatively. The mean AOFAS score increased from 45.67 to 73.58 12 months postoperatively. The mean HVA reduced from 47.76 degrees preoperatively to 14.35 degrees six months postoperatively. The IMA decreased from 14.86 degrees to 9.65 degrees six months postoperatively. This novel approach is an effective procedure that reduces forefoot deformity and pain.

297

Treatment of Freiberg’s disease with modified Weil’s osteotomy ‘a case series’

K David-West [Kilmarnock]

The initial treatment of choice for Freiberg’s diseases is non-operative conservative management, when conservative treatment has failed. There are various surgical procedures. This report is one of the large series of modified-Weil's osteotomies in 12-feet with Freiberg’s diseases of stage-2 and above. Mean-follow of four-and-half years. Mean-age 30.7 years. Nine-feet-75% had Freiberg’s diseases affecting the second metatarsal and three-feet-25% had Freiberg’s disease in the third metatarsal head. AOFAS pre-operative score was 48.1 and post-operative score was 88.9. Mean improvement was 40.8. Modified-Weil's osteotomy is an effective procedure for the treatment of Freiberg’s disease and few complications. No patients had transfer metatarsalgia.

466

The value of rapid surgical debridement in infected diabetic forefoot ulcers

E Izadi, M Edmonds, V Kavarthapu [London]

Background: the role of rapid surgical debridement in management of diabetic foot ulcers is unclear. Methods: 23 patients received conservative management for forefoot ulcer became infected. 70% neuropathy and 40% Charcot’s. Average age 54.2. Male/Female 3/1. 82% type 2 Diabetes. Result: 85% surgery within 24 hours; 56% amputation and 12% plastic referral. 78% positive specimens, 33% Staphylococcus Aureus. Time interval between ulcer development and surgery was 17.5 months. Healing occurred in 19 patients (83%); an average time of 7.6 months; 4 patients (17%) remained unhealed. 61% had improved mobility.
Conclusion: high value of rapid surgical debridement in infected diabetic foot ulcers.

Hindfoot fusion in haemophilic arthropathy
M Brkljac, S Shah [Manchester]
We looked at the outcomes of various techniques of hindfoot fusion using internal fixation for the treatment of haemophilic arthropathy of the hindfoot. 28 patients underwent 42 procedures. 35 ankle fusions; seven were arthroscopically fused, six by a minimal access approach, the rest by open approach. Two isolated subtalar fusions, two combined ankle and subtalar fusions; one included a talonavicular fusion and also an isolated triple ankle fusion. The non-union rate was 9.5%; all cases were following tibiotalar fusion. One deep infection (2.8%) occurred in an arthroscopically fused ankle.

Hindfoot arthrodesis is successful with comparable outcomes to non-haemophiliacs.

Pathogenesis of avulsion fracture of the base of the fifth metatarsal bone: a cadaveric study
MA Mussa, J Salim, PE Allen, G Hussain, B Luo [Hull; Leicester]
The anatomy of the structures attached to the proximal portion of the 5th metatarsal bone was studied to investigate the potential pathogenesis of avulsion fracture in this region. 32 human cadaveric feet were dissected. The pathogenesis of avulsion fractures proximal to the tuberosity seems to be related to the violent pull of the strong and extensive structure formed by the converging fibres of lateral cord of planter aponeurosis and the Peroneus brevis tendon. The current consensus that this fracture is caused by the avulsion force of Peroneus brevis tendon alone seems unlikely to be true.

Gait analysis of the effect of postoperative rehabilitation shoes
S Javed, R Rachha, F Alvi, A Lui, Z Hakim, A Shoaib [Stockport]
Introduction: this study aims to establish the effect of post-operative shoes on other joints using gait analysis. Methods: 11 healthy volunteers were studied with gait analysis equipment and the joint motion assessed with commercial software. Results: there was a reduction in knee flexion and extension compared to the contralateral leg in all phases of the gait cycle. This was the case with both heel wedge shoes and inflatable air boots. Conclusion: patients are at risk of initiation or exacerbation of low back pain or lower limb joint pain from the use of postoperative shoes.

Elbow and Shoulders Surgery

Coronal stabilization and bracing of displaced capitellum fractures: a simple Kirchner wire stapling technique
S Sonenis [Aberystwyth]
A study was done using J shaped Kirschner(K) wires to internally fix displaced capitellum fractures.
Since 1989 total 17 patients, Type I: (Hans Steinthal #)12, Type II: (Kocher Lorez #)1, and Type III: (Broberg and Morrey #)4 were treated. Average followup was 31.7months and capitellum fractures healed in all the patients. Mayo elbow performance score was excellent in 12, good in 4, and fair in 1 patient. Average elbow ROM was 5 to 132 degrees, pronation 84.5 degrees and supination 88 degrees. Complications seen were wire pain, loosening. We found K wires stapling technique to be very easy and stable.

Analgesic provision for patients undergoing day case arthroscopic shoulder surgery in a district general hospital
A Hayward, D Wallace, O Bailey, A Winter, E MacDonald, K Cheng [Glasgow]
Post-operative pain is well recognised after shoulder arthroscopy. The majority are day case procedures, under general anaesthetic using a nerve block or local anaesthetic infiltration.
The aim of our audit was to investigate the adequacy of analgesia. Fifty patients, who underwent arthroscopic shoulder surgery, were contacted to assess pain scores and analgesic requirements.
Patients who received a block were found to have a significantly longer duration of pain relief and also had a trend for less pain performing their usual activities. Our audit has confirmed that nerve blocks provide longer pain relief, supporting the use of them if resources allow.

Complications related to tension band wiring of olecranon fractures
AAH Parkar, S Adesina, M Barry [London]
The records and X rays of 84 patients operated on between November 2006 and February 2012 were reviewed retrospectively. Symptomatic metalwork prominence was noted in 53.6% (45/84) of cases. In 19.0% (16/84) the intramedullary wire was noted to have
backed out and this was more likely to have occurred when the wire was intra-medullary (68.7%, 11/16) compared to an anterior cortex penetration (31.2%, 5/16). 56.2% (9/16) of the wires that backed out were symptomatic. Other post-operative complications included superficial wound infection in 6.0% (5/84), failure of fixation in 3.6% (3/84) and non-union in one patient needing revision with plate.

483
Clinical and radiological outcome following 4th generation total shoulder replacement - early results
D Thyagarajan, V Kumar, J Blacknall, J Geoghegan, P Manning, WA Wallace (Nottingham)
We report our early experience of a 4th generation Vaios shoulder arthroplasty system. Aim: to assess outcome of patients treated with the Vaios total shoulder replacement system. Methods: We performed 216 total shoulder replacements (Vaios, JRI). Results of the initial 87 patients are reviewed with an average follow up 32 months (24 - 41 months). Results: the mean Oxford scores improved from 16.5 to 35.5 following primary anatomic replacement and from 17 to 29.7 following inverse replacement. Conclusion: the early results are promising and good outcome was observed but it is important to monitor the medium and long term outcomes.

487
Night time shoulder pain is not a positive indicator for rotator cuff tears
S Hassan, C Blundell, E Burgess, CP Charalambous (Blackpool)
Introduction: in patients with shoulder pain of sub-acromial origin, night pain has traditionally thought to be predictive of Rotator Cuff Tears (RCTs). Objective: to determine if night pain was indicative to the presence of a RCT. Methods: data was collected prospectively by Consultant, trainees and specialist physiotherapists using a pre-designed proforma. Results: using logistic regression the degree of association between RCTs and Eight Variables (Age> 60, Gender, Trauma, Impingement, Cuff weakness, Painful Arc and Night pain and if Night pain>day) were investigated. The only variable that was significantly associated with RCT was age(p< 0.01). Conclusion: this study showed night shoulder pain in isolation is not a helpful tool for predicting RCTs(p=0.47).

514
Clinical outcome of revision surgery for failed Bristow-Latarjet procedure
V Beckles, O Uri, S Lambert (Stanmore)
Medical records of 15 patients with failed Bristow-Latarjet procedure who were referred to our hospital were reviewed. The reason for failure was painful anterior instability in 9 patients, secondary glenohumeral arthritis in 4 patients and painful stiffness in 2 patients. Seven of the patients who had recurrent instability underwent revision anterior stabilization with iliac crest bone block and were followed-up for a mean of 15 months. At the latest post-revision follow-up all the shoulders remained stable. Oxford shoulder instability score improved from 55±4 to 42±2 (p< 0.01) and pain level decreased from 9.4±0.8 to 5.6±3.5 (p=0.01).

754
Isolated greater tuberosity fracture stability and association with dislocation
R Dolan, T Harding, S Hannah, J Anthony, R Halifax, J Wells, A Brooksbank (Glasgow)
A retrospective analysis of isolated greater tuberosity fractures. The primary outcome measure is further fracture displacement following conservative management. Secondary outcome measures being the number of follow up x-rays, the time between follow up, associated dislocation and measurement of inter-observer variability. 22% (n8) of fractures displaced less than 5mm at presentation further displaced to greater than 5mm at follow up, with 88% (n7) of these associated with concurrent dislocation. This demonstrates that isolated greater tuberosity fractures displaced less than 5mm at presentation, which are not associated with dislocation, are stable. Therefore there is scope to reduce follow-up in this patient group.

864
Ulnar nerve compression neuropathy: what is the role of electromyography before surgery?
E Lindisfarne, O Templeton-Ward, E Smeet, J Granville-Chapman, A Hearnden, P Magnussen (Guildford)
Electromyography (EMG) of the ulnar nerve may be normal when tested in patients despite a history and clinical symptoms of Ulnar Neuropathy at the Elbow. Our aim was to determine if patients with normal electrophysiology had symptomatic improvement after operative treatment. 36 patients with history and symptoms of cubital tunnel syndrome had operative decompression. Pre-operative EMG was abnormal for 22 and normal for 14 patients. Symptomatic improvement at follow up was noted in 17 (77%) and 11 (79%) patients respectively. Patients with normal EMG may still benefit from operative decompression. Success of surgery is not predicted by positive EMG results.
Children’s Orthopaedics

178

Ultrasonographic findings after Achilles tenotomy during Ponseti treatment for club feet. Is ultrasound a reliable tool to assess tendon healing?
P Nasr, L Berman, A Rehm [Cambridge]

We monitored the post tenotomy healing process in 20 tendons using high frequency ultrasound. We studied 9 normal controls and 11 tendons that had undergone an achilles tenotomy upto 7 years previously. Our primary study group were followed up with scans for a minimum of 6 months.

We encountered pitfalls in the use of ultrasound to define stages of healing that were not described in previous studies raising doubts regarding accuracy of this method. We discuss the principles of anisotropy and partial voluming effects that can give spurious images from which it is difficult to draw any firm conclusions.

907

Patient reported outcome measures in the non-operative management of paediatric clavicle fractures
R Morrell, R Leavons, J Kent, A Gower [Newcastle]

Optimal management of paediatric clavicle fractures remains debatable: we analysed Patient Reported Outcome Measures (PROMs) retrospectively in 83 paediatric clavicle fractures treated non-operatively. Fractures were classified using Craig Modified Allman Classification. Patients over 16 years at study commencement received Oxford Shoulder Scores (OSS) and Quick DASH Scores, the remaining patients received Pain Scale Scores. Mean age was 8 years. Response rate was 76%. 58 Type I, 5 Type II fractures. Adult questionnaires: mean OSS 59.3 and 59.7 in Type I/II fractures respectively, mean QDASH was 3.1. 100% reported OSS reflecting excellent outcomes. Paediatric questionnaires: 84.4% no residual pain. PROMs/Pain Scale data suggests non-operatively treated paediatric clavicle fractures have excellent outcomes.

935

Treatment of clubfoot with the Ponseti method- the Leicester experience- results & analysis
A Ghosh, A Furlong, A Abraham [Leicester]

Treatment of clubfoot at our institution is by the method described by Ponseti. We present our results and analysis of treatment of all patients treated from January 2009 (61 feet).

970

Management of both bones forearm fractures: “To nail or not to nail”? O Akilapa, C Petrides, M Roper, E Bache [Birmingham]

The management of complete both bones forearm diaphyseal fractures is challenging as these fractures are inherently unstable with equivocal evidence about the best treatment options.

We compared the functional outcomes of sixty nine consecutive AO Type 22-A3 fractures treated by CRC (28) and ESIN (41) between 2006 and 2010. The results showed comparable complication rates in both groups (7 malunions in CRC versus superficial radial nerve neurapraxia (3), iatrogenic extensor pollicis brevis damage (1), premature removal of a prominent nail (3), cellulitis (1) and malunion (1) in the ESIN group. ESIN is a viable but not “minimally invasive” treatment option.

977

Management of Gartland III supracondylar fractures; time is not of the essence
O Akilapa, C Petrides, M Roper, E Bache [Birmingham]

The timing of treatment of displaced paediatric supracondylar humerus fractures...
Fractures is a very important practical dilemma. The clinical and radiological records of eighty nine consecutive patients were reviewed retrospectively to compare the outcomes of early (< 12 hours) versus delayed surgical treatment (>12 hours). The early and delayed groups were similar in regard to gender, age and length of follow-up. There was no statistically significant difference between with respect to peri-operative complications regardless of the timing of treatment. The suitability of urgent/emergent treatment can be balanced against the availability of a surgeon, access to theatre, and safe anaesthesia.

### Spinal Surgery

#### 304

**We count but should we scrutinize? An unreported complication in spinal surgery**  
*HB Abdul-Jabar, M Smith, M Kotrba [Croydon]*

Complications following spinal surgery can range from simple wound infection to complete paralysis. Intraoperative checks have been introduced to account for all the instruments and materials used and help minimize surgeon related complications. We report a case of a broken osteotome tip within the spinal canal following a routine posterior decompression of the lumbar spine.

#### 562

**Is there seasonal variation in presentation of cauda equina syndrome (CES)?**  
*M Venkatesan, S Balasubramanian, C Uzoigwe, J Braybrooke, M Newey [Leicester]*

Seasonality in ischaemic coronary artery disease and other vascular territories is well documented with a winter/summer variation the commonest pattern. We sought to discover whether there is a seasonal variation in the presentation of cauda equina syndrome. We collected data on 40 consecutive patients undergoing emergency lumbar discectomy for MRI proven CES. Month of presentation was noted. There is no seasonal variation in the presentation of CES (Winter p=0.3, Spring p=0.9, Summer p=0.8, Autumn p=0.1). There was no gender difference in seasonal presentation (p=0.86). However, we observed monthly variation of presentation clusters. Vast majority presented in September and October months (14/40). This was statistically significant (p=0.0077).

#### 563

**Is there a gender difference in lumbar subcutaneous fat distribution?**  
*M Venkatesan, D Mahadevan, C Uzoigwe, J Braybrooke, M Newey [Leicester]*

Fat distribution plays important role in health. Different fat distribution occurs in women and men in well recognized being gynoid and android patterns respectively. We sought to determine if there exists a gender difference in lumbar subcutaneous fat distribution. Two observers reviewed MRI images of 88 consecutive patients who underwent lumbar discectomy to measure thickness of subcutaneous fat (measured at L4 level) respectively. There were 47 women and 41 men with a mean age of 43.5 years. Mean BMI of men and women was 28.3 and 27.9 respectively. Although women tend to have slightly higher subcutaneous fat distribution, this difference was not statistically significant (p=0.2).

#### 868

**The invaluable role of SPECT imaging in identifying pseudoarthrosis following previous lumbar spinal instrumented fusion**  
*G Prasad, SK Tucker [Stanmore]*

We present a case of persistent low back pain in a male patient who had L4/5 and L5/S1 posterior lumbar inter-body fusion. CT scan suggested pseudoarthrosis at L4/5 level but fusion at L5/S1. SPECT scan however demonstrated non-fusion at both levels, further evident intra-operatively. He underwent revision fusion surgery of both levels and improved dramatically. SPECT imaging has the advantage of combining benefits of both bone scan and CT, therefore more specific in assessing fusion. Moreover, its results are not affected by metal artefact. Perhaps SPECT should be the first investigation modality, particularly where multiple levels might be implicated as cause of on-going symptoms.

#### 989

**Neck pain and stroke: should it be ignored?**  
*Beware of neck pain in suspected stroke. Cervical epidural abscess can mimic stroke. Report of two cases*  
*KV Sigamoney, H Gakhar [Newcastle]*

Introduction: we would like to highlight two cases provisionally diagnosed as CVA, in which neck pain was initially ignored. Both turned out to be cervical epidural abscesses. The delay in diagnosis and treatment led to suboptimal outcome in both cases. Discussion: late recognition often leads to permanent weakness/paralysis. It causes severe neurological deficit by
compression of the abscess onto the spinal cord or nerve roots or by causing ischaemia secondary to vascular thrombosis. Conclusions: we suggest performing an MRI spine particularly in the presence of inflammatory markers in patients with suspected CVA and neck pain with negative CT brain scans.

Hand Surgery

159

Effect of sex and ethnicity on range of movement of hand and wrist joints in normal subjects
M Shahid, S Mahroof, K Bourne, F Wu, C Simpson, M Lawson-Smith, R Jose, G Titley (Birmingham)

Many existing hand rehabilitation protocols were based on data from Caucasian patients. There is a perception that patients of Asian origin have increased joint mobility and this may lead to better postoperative outcomes. We compared the range of hand movements in healthy Caucasian and Asian participants. Subjects were divided into: Asian males, Asian females, Caucasian males and Caucasian females. In the small finger joints Asians had greater movements compared to Caucasians

Limb Reconstruction

789

Robot-assisted, custom-made, unicompartmental knee arthroplasty for massive, traumatic, osteoarticular loss
B Andrews, S Shunmugam, S Clarke, D Floyd, A Aqil, J Cobb, MsK Lab, Imperial College London (London)

In a novel solution for massive osteoarticular bone loss of the knee following trauma, robot-assisted surgery and patient-specific implant manufacture were integrated. The procedure has been performed in two soldiers on the medial compartment, and in one soldier the lateral. Patient-specific titanium unicompartmental prostheses were designed to fill osteoarticular defects. The bone was prepared using a haptic robot, to match the curved implants. At 6 months, all patients are pain-free and walking unaided. Radiographs are satisfactory. 2 patients developed deep post-op infections, which have been treated successfully. The combined technologies offer a highly conservative reconstruction option.

Tumours

157

Outcomes after surgical treatments for periacetabular metastatic lesions
M Shahid, T Saunders, A Kotecha, L Jeys, R Grimer (Birmingham)

Background: to develop a treatment algorithm for the surgical management of symptomatic periacetabular metastases. Methods: eighty-one patients were identified. The diagnosis, size of lesion, performance status, survival, pain, mobility and complications were recorded. Results: the most common diagnoses were metastatic breast carcinoma. Five year survival was 5%. Most patients received a Harrington Reconstruction(32) followed by a Total Hip Replacement with cementoplasty (32) then an ice cream cone hemipelvic replacement(11). Pain scores improved postoperatively. Conclusions: we recommend an ice cream cone for pelvic discontinuity and Harrington rod reconstruction for severe bone loss. Smaller defects can be managed with standard revision hip techniques.

386

Deep fibromatosis – a review of current practice, long term recurrence rates and survival
N Eastley, R Aujla, C Richards, C Esler, R Ashford (Leicester)

Introduction: there are no published diagnostic algorithms for suspected cases of deep Desmoid Fibromatosis. We outline such a pathway centred on adequate imaging, appropriate tissue
biopsy and early soft tissue tumour MDT involvement (prior to definitive treatment). Methods: we performed an 8 year retrospective review analysing modes of diagnosis, management strategies, oncologic outcomes, recurrence rates and the effects of our proposed pathway. Results: we analysed 47 cases. Variance was seen in the imaging modalities and biopsy techniques used and MDT involvement. Conclusions: adherence to our proposed strategy may increase successful excision rates (82% vs. 42%) without significantly worsening oncological outcome.

546 Outcomes of surgical management of long bone sarcomas in children aged five or under at diagnosis
K Reddy, L Gaston, R Nandra, K Ozkan, R Grimer [Birmingham]

We report surgical outcomes in 42 children with primary long bone sarcoma, aged five years or under at diagnosis. Thirty patients with Ewing’s Sarcoma and twelve with Osteosarcoma were included. Five patients were treated with a primary amputation, 37 patients underwent excisions, of which, 4 were excisions alone; 18 underwent biological reconstruction and 15 with Endoprosthesis. The cumulative survival at five & ten years was 75% & 71%. The survivorship of the original reconstruction without major surgery was 54% and 37.8% at five & ten years. This study shows young children (age< 5) can have successful limb salvage into adulthood.

569 The use of neo-adjuvant radiotherapy in the management of peri-articular soft tissue sarcoma
C Green, N Nguyen, J Wylie, A Choudhury, J Gregory [Manchester]

17 patients were treated between 2009-2012 for periarticular soft tissue sarcoma with a standardised protocol involving neo-adjuvant radiotherapy. Limb salvage surgery took place six weeks after completion of radiotherapy for 16 patients, one patient had delayed surgery due to erythema. 16 patients had negative margins on resection, one patient required further surgery. After a mean follow-up of 21.4 months no local recurrences have been found, two patients developed metastatic disease. Wound complication rate was 17.6% (3 patients). TESS scores were 86.1 and 78.1 for upper and lower limb tumours. Neo-adjuvant radiotherapy may benefit patients despite lower doses of radiation.

652 Two week referrals for bone and soft tissue tumours
CR Varrall, S Murray [Newcastle-upon-Tyne]

Introduction: NICE guidelines for sarcoma referral. Studies show increasing referrals without increasing diagnoses. Method: Prospective review of Northern Bone and Soft Tissue Tumour Service referrals over three months looking at guideline compliance. Results: 32 referrals under 2 week rule. 6 malignancies - all met criteria. 26 benign diagnoses - five did not meet criteria. 9 delays for investigations. No consistent referral form. 61 MDT pathways reviewed. Discussion: Compared with 2007, increasing referrals with a similar malignancy rate. Enhanced referral pathway required with GP education. We have new referral form, updated website www.newcastlesarcoma.org.uk, and work with Cancer Network on GP awareness.

820 Skeletal chondromyxoid fibroma: proposal of a protocol for management of these rare tumours

Chondromyxoid Fibroma (CMF) is a rare benign bone tumour, accounting for < 1% of all bone tumours. Various treatment strategies have been described, all with varying outcomes. We assessed functional outcomes post intralesional curettage in 22 patients using the Musculoskeletal Tumour Society scoring system. All patients were investigated using our standard protocol. There were 9 males and 16 females with a mean age of 36.5 years. Mean follow-up was 4.3 years. The average MSTS score achieved post-operatively was 96.7%. Local recurrence occurred in 2 patients (9%). We conclude that intralesional curettage is an effective treatment strategy for skeletal CMF.

834 Local recurrence in ewings sarcoma: the enigma or treatment?
L Jeys, J Kozdryk, R Grimer, A Price [Birmingham]

Abstract not provided
Research

235
The equivalence of remote electronic and paper collection of patient reported outcome measures (PROMs): a crossover trial
W Griffiths-Jones, D Williams, M Norton, D Fern [Truro]

The collection of Patient Reported Outcome Measures (PROMs) is increasingly being used in everyday clinical practice. Online remote collection provides a platform to collect scores at regular intervals. The aim of this study was to assess the equivalence of this to traditional collection methods. Patients were allocated to one of two groups as part of a randomised crossover study. Group 1 completed online scores, followed by the paper equivalents one week later. Group 2 visa versa. The Intraclass Correlation Coefficient (ICC) for the scores ranged from 0.95-0.99, demonstrating excellent equivalence between electronic and paper collection using this website.

401
The effect of the MediShoe on knee gait kinetics: a preliminary clinical study
K Ghosh, S Robati, A Shaheen [Cardiff; Guildford]

Background literature suggests rigid soled shoes may increase the knee adduction moment during gait. Gait was analysed with/without a specific postoperative shoe during gait. The angle at which the ground reaction force acted to the ground in the coronal plane as well as the tibiofemoral angle were also calculated with/without the shoe. Two-tailed paired t-tests (95% C.I) showed no significant difference between the two groups in estimated knee adduction moment (p=0.238), tibial femoral angle (p=0.4952) and angle of the ground reaction force to the ground (p=0.059). This shoe appears not to have a significant effect on knee kinematics in healthy individuals.

452
Gait assessment during fast and incline walking distinguishes between well functioning hip arthroplasties
A Aquil, R Drabu, J Bergmann, M Mosjedi, B Andrews, S Muirhead-Allwood, J Cobb [London]

Introduction: we assessed whether an instrumented treadmill revealed between-leg gait differences in bilateral hip replacement subjects. Methods: this ethically approved, blinded study used 9 subjects who were compared to a matched control group. Results: at the fastest speeds, differences in weight acceptance reached significance (1208Nv1177N, p=0.03). There were positive correlations between increasing speed and between leg differences in: weight acceptance (r=0.9, p=0.000), push-off (r=0.79, p=0.002) and Impulse (r=0.75, p=0.005). At steepest inclines there were differences in push off forces (1120Nv1177N, p=0.01). Control group legs were symmetrical. Conclusion: gait assessment at challenging speeds and slopes can identify high-performing arthroplasties.

698
Can the healing potential of juvenile cartilage following trauma be extended to the adult?
V Asopa, J Saklatvala [London]

Cartilage injuries commonly occur during sporting activities and defects may be treated by microfracture, osteochondral graft or chondrocyte implantation, however, the outcome of surgical treatment is variable. Poor quality cartilage is often produced consisting of Type I collagen rather than Type II collagen of healthy articular cartilage. A systematic study of adult and juvenile porcine articular cartilage is presented. Juvenile cartilage produces significant amounts of type II collagen and Sox9 unlike in the adult. Understanding this process will enable better treatments to augment current surgical practice.

726
An MRI based assessment of various axes to determine femoral rotation during total knee replacement
P Mohanlal, R Prasad, A Vijapur, S Jain [Medway]

A prospective study was performed on 205 MRI scans of knee to analyse various axes used to determine femoral rotation during total knee replacement. The transepicondylar, posterior condylar, posterior femoral cortical, anterior
femoral cortical and tibial antero-posterior axes were measured. The mean relation between the posterior condylar and transepicondylar axes was 4.04 (SD-2.27), posterior condylar and posterior femoral cortical axes was 5.05 (SD-2.81), posterior condylar and anterior cortical axis was 6.03 (SD-3.37), and posterior condylar and tibial antero-posterior axes was 8.93 (SD-5.48). This study confirms transepicondylar axis to be the most consistent amongst the landmarks used to determine femoral rotation.

Bone and joint physiology during activity: intraosseous pressure re-explored and joint pathology explained
M Beverly [Southall]
Small areas of local bone circulation and physiology can be studied at the tip of a needle in cancellous bone. By using alternate proximal arterial and venous occlusion we see that subchondral bone is a compressible perfused sponge with a 'pumped' microcirculation. Very high pressures arise in subchondral bone during ordinary walking. There are anatomical adaptations to cope with these pressures. Failure of subchondral circulation causes arthritis which is mainly a 'vasculo-mechanical' disease. This work explains the spectrum of arthritis, osteonecrosis and other joint pathology.

Perceptions of simulation based training in trauma & orthopaedics
K Akhtar, K Sugand, A Chen, J Cobb, C Gupte [London]
18 participants (3 each in 6 cohorts of varying levels of experience) performed Virtual Reality (VR) DHS fixation of a femoral neck fracture. A pre- and post-study Likert scale questionnaire was completed. Significant positive changes were seen in the perception of VR trauma simulation in orthopaedic training after using a simulator. Using the simulator provides an insight into the knowledge, skills and attitudes that can be gained through vicarious training and there is a significant consensus that simulation has a role to play in training the orthopaedic surgeons of the future.

Extensor mechanism efficiency following patellofemoral replacement and total knee replacement: a cadaveric biomechanical study
MN Joseph, M Carmont, H Tailor, A Amis [Warwick]
The study aim was to determine whether geometrical differences between TKR and PFR resulted in dissimilar extensor moment efficiencies (EME). Eight cadaveric knees were tested under four conditions: native knee, PFR, CR-TKR and PS-TKR. PFR produced the greatest EME (p < 0.008) at 30° and 40° knee flexion compared with native, CR- and PS-TKR. This suggests that PFR may be more efficient during the more functional range of motion. All the prostheses had significantly higher peak pressures compared with native. Significant reduction in PFR peak pressure corresponded with increased contact area. The claimed benefits of PS-TKR were not detected.

Lower limb revision surgery: can the district general hospital afford it?
R Chana, P Smitham, A Malik, G Birring, D Johnstone [London]
Financial analysis of revision lower limb arthroplasty was performed in a district general hospital. Data on consecutive revisions were collected between February 2011 and February 2012. Of 81, 70 underwent single stage revision, 11 underwent two-stage revision (infection). Total implant cost: £309,365. LoS costs: £315,980, miscellaneous costs totalled £157,022. The HRG4 tariff returned £982,756. The service was £200,389 in surplus. Coding was 70% accurate for primary procedure, 90% accurate for co-morbidities. Inaccuracies resulted in £47,000 not being paid to the trust. The results support the continued service provision of revision hip and knee arthroplasty within the district general setting.

A prospective database can be successfully set up to monitor complications in total joint arthroplasty: our 8 year experience in a district general hospital
S Jonas, P Bosanquet, I Lowdon, J Ivory [Swindon]
National Joint Registries provide monitoring on survivorship and other long-term variables; however they may be slow to react to local complications. Our unit has instituted a local review process as part of our department’s clinical governance programme to
address this issue. Data has been collected for the past 8 years regarding first year re-operations in lower limb arthroplasties and input using a simple Microsoft Access® database. It has led to change of local practices of oral anticoagulants in arthroplasty DVT prophylaxis (Gill et al 2011). Local audit of arthroplasty complications is important in identifying problems not quickly identified in NJRs.

257

The WHO Checklist: can it be used as an accurate audit tool to identify theatre inefficiency?
A Vaughan, M Tulbure, C Cheesman, J Mutimer [Leicester; Northampton]

Objective: We propose that the WHO checklist, as well as maintaining patient safety, can be used as an audit tool to identify reasons for theatre delay or cancellation. Method: A retrospective review of 1166 orthopaedic patient WHO forms was performed at two District General Hospitals in 2012. Results and discussions: Theatre issues, staffing levels, and patient related problems were identified as problematic. 65.7% of theatre related delays were attributable to equipment or sterilization error. Conclusions: This study demonstrates that WHO checklists can additionally be used an accurate audit tool for identifying causes for patient delay in our orthopaedic departments.

405

Fracture clinic patient satisfaction
T Antonios, C Huber [London]

We aimed to measure patient satisfaction with services offered at a busy district hospital fracture clinic against the NHS patient survey by the Quality Care Commission. Nearly 80% of participants stated that “the reason of their visits dealt with to their satisfaction” which equals the national average. Moreover, 92% were satisfied with the care they received compared to 95% of those surveyed nationally. Current patient satisfaction is similar to the national average. The survey findings have played a great part in shelving the planned financial cuts to the department which would inevitably have affected patients’ satisfaction with the fracture clinic.

425

Improving communication between orthopaedics and primary care: a completed, closed loop audit cycle
F Shivji, C Bailey, D Ramoutar, J Hunter [Nottingham]

Aims: this audit assessed the content of discharge summaries from the orthopaedic department in a teaching hospital. Methods: a randomised, prospective audit of sixty orthopaedic discharge summaries was conducted. One-to-one teaching sessions with Junior Doctors were given after the initial audit. Results concluded the clear need for leadership ideally from surgeons to ensure WHO check-list is always done properly. Although most (69%) staff thought WHO check-list was important for patient safety, 52% felt a major obstacle was due to lack of enthusiasm. There is tendency to view the check-list as a ‘tick box’ exercise rather than an integral tool.

601

The cost of repeating radiographs in osteoarthritis of the knee

Background: radiographs are often repeated in patients with knee osteoarthritis as weight-bearing...
radiographs were not performed on imaging ordered by GPs. Method: patients >40 referred for knee radiographs between 01/01/2011-31/12/2011 were included. Radiographs were identified as WB/non-WB. Subsequent WB repeats were documented. 35 other London hospitals were surveyed. Results: 97.7%(n=1923) had non-WB initial radiographs. 56 had repeat WB radiographs, costing £1232. 54% of hospitals routinely performed WB radiographs. Conclusion: few patients referred by GPs have WB films. Many hospitals in London don’t routinely perform WB radiographs. The cost of repeat imaging may represent a significant financial cost to the NHS.

619
Changing the consultant on call rota reduces time to theatre for fractured neck of femur
M Kommer, K Gokaraju, S Singh [Bedford]
This study retrospectively analysed whether changing the consultant rota from consultants being on call for a day at a time to on call for a week at a time resulted in a reduction in time to theatre for patients presenting with hip fracture and whether it had impact on award of best practice tariff payments. We compared 2 similar 3-month periods before and after the change in rota. We found that the average time to theatre was reduced by 38.5% and that the number of cases done outside the 36 hour cut off for best practice tariff was halved.

631
A solution to the problem of inadequate trauma theatre capacity - predicting the levels of daily trauma to plan trauma service provision
S Sarker, J Machin, H Krishnan, C Senior [London; Dorchester]
Timing of surgery is important in trauma management. National and regional guidelines advocate fixation of fractures needing surgery, within 24 hours. This study aims to see if the level of daily trauma admissions can be predicted, allowing planning of trauma service provision. We analysed total admissions, admissions requiring surgery, admission of patients with hip fractures and theatre time needed and found no statistical difference in all groups analysed in relation to the days of the week.
Our results show that an average number of daily admissions requiring surgery can be predicted, allowing the planning of adequate trauma theatre time.

666
Clinical coding and payment by results in trauma and orthopaedics in a university hospital in the United Kingdom
S Srinivasan, S Balasubramanian, M Bhatia, V Ramasami [Leicester]
Health service providers rely on correct payment for services provided to patients based on clinical coding. Inaccurate coding leads to incorrect invoicing. Our audit demonstrates how easily any organisation could lose revenue by poor data capture and inaccuracies in coding. While it is important to attract new business for added revenue generation, it is vital to plug the holes to ensure there is no under recovery of revenue for the business episodes which have already occurred. It takes simple measures, cooperation and vigilance from all team members to achieve this goal.

672
Accuracy of data submitted to the NHFD from a busy district general hospital
C Gray, W Norton, H Divecha, S Mannion [Blackpool]
The National Hip Fracture Database (NHFD) is a key tool in monitoring and evaluating clinician and hospital performance against national standards. It relies on accurate submissions. Our review of 559 hip fractures from a busy District General Hospital, and subsequent comparison with the NHFD, showed significant discrepancies between submitted and actual data. Amongst these, 94 cases (17%) had an incorrect fracture type listed on the database, and 67 (12%) an incorrect operation. This data may reflect that from other units. Inaccuracies will have
implications on annual NHFD reporting, and on research and conclusions produced from this data source.

721
Completion of audit cycle–medicines prescribed but not given: are we negligent?
P Mohanlal, S Samsani, A Tolat [Medway]
After implementing all recommendations, a prospective re-audit was done, to collect data on missed medications on adult wards. For ease of analysis, missed medications were expressed as days missed out of total days prescribed. Of the 51 drug charts, the number of drug charts with no missed medication improved from 15% to 58.8%. The number of missed anti-coagulants reduced from 17.6% to 5.2% and number of missed anti-hypertensives reduced from 18.1% to nil for invalid reasons. There was significant improvement in other medications as well. Avoiding missed medications has greatly improved safety and quality of care for our patients.

727
Does the unpredictability of trauma mean orthopaedic fracture clinics are inherently inefficient?
A Simpson, T Chapple, A Macleod [Reading]
Introduction: time spent in clinical encounters and accessibility of services influence patient satisfaction. Fracture Clinics are notoriously overrun and frequently result in complaints.
Methods: fracture clinics in April 2012 were audited with re-audit in September 2012. In May 2012 a semi-automated booking system and staff education programme were introduced and the impact analysed. Results: clinic times, patient numbers, new to follow-up ratios, staff tardiness, appointment time duration and DNA numbers demonstrated no significant difference (P>0.05). Conclusion: interventions resulted in no significant difference. Orthopaedic clinicians and clinic administrators must be flexible to the dynamic clinical demands of an unpredictable patient cohort.

744
Practice of green orthopaedic surgery in United Kingdom
C Karunathilaka, F Chan, N Pinto [Ashton-Under-Lyne]
On average per year NHS produced 250 000 tonnes of clinical waste and £73 million was spent for disposal. Objective: identify the environmental effect on orthopaedic waste and how an orthopaedic surgeon can contributes for operating theatre waste management.
Methodology: observational study for 06 months. Results: identified orthopaedic waste related problems; improper segregation of waste, excessive usage of disposable wrappings and instruments. Conclusion: the NHS has a carbon footprint of around 19 million tonnes. The NHS can save £180 million by reducing its carbon emissions. Reusing and recycling programmes and redesigning the segregation of waste are required.

746
Dedicated neck of femur fracture theatre lists improve time to operation at a district general trauma unit
A Simpson, H Wilson, A Macleod [Reading]
Introduction: NOF fracture patients should receive surgery within 48 hours. To meet targets our Trauma Unit introduced tri-weekly dedicated NOF theatre lists in 2009. Methods: audit of NOF fracture patients was performed in 2008 identifying failure to meet targets. Since 2009 yearly audits have been performed. Results: prior to NOF list introduction 69.3% of patients received operation within 48 hours. Audits have since demonstrated targets met in 89.4%, 79.2% and 86.5% of cases (p<0.002). Conclusion: s dedicated NOF list improves time to operation at a busy Trauma Unit. Utilisation of the NOF list remains unpredictable but experiences on-going development.

872
Reconfiguration of trauma services provides enhanced surgical training
G Prasad, C Richards, L David, P Gibb, J Nicholl [Pembury]
We performed an audit to assess whether the consolidation of 2 units (Maidstone and Kent&Sussex) into the Tunbridge Wells Hospital at Pembury, resulted in a more consistent consultant-led service, resulting in higher quality patient care as well as enhanced surgical training. Registrar e-logbooks were analysed before and after re-configuration. Reconfiguration resulted in definite consistency in consultant-led service due to the presence of the on-call Orthopaedic consultant on-site 13 hours a day, 7 days a week. In addition to an increase in Trauma activity, 77% of registrar trauma operations were consultant supervised at the new site, an improvement of over 55%.
925

Post-operative hyponatraemia and elective arthroplasty surgery: a review of the incidence, contributing factors, treatment and outcomes following total hip arthroplasty (THA) and total knee arthroplasty (TKA) in a regional primary joint unit

C Higgins, C Mullan, C O’Neill, T Mawhinney, S Derbyshire, D Beverland [Belfast]

Post-operative hyponatraemia is a well recognised entity with a multi-factorial aetiology. A retrospective review of clinical data for 122 patients undergoing THA/TKA was performed. 18.6% of TKAs and 14.3% of THAs developed hyponatraemia. Thiazide diuretics were associated with development of hyponatraemia. Mean hospital stay was 3.5 days (4.5 days for patients with hyponatraemia and 3.4 days for unaffected patients). Mean admission duration was increased by 21% for THAs and 50% TKAs following development of hyponatraemia. Identification of patient sub-groups at risk of developing post-operative hyponatraemia may help reduce its incidence and provide substantial cost and resource savings.

997

Changing trends in the management of the Charcot neuroarthropathy through a consultant led diabetic foot service

S Yousaf, A Wee, P Chong, E Bingham [Camberley]

We present our preliminary results of management of Charcot neuroarthropathy by a consultant led diabetic foot service at a DGH.

1015

Patients’ experience of the consent process

E Bagouri, KV Sigamoney, C Anderson, S Ong [Sutton in Ashfield]

Introduction: the Care Quality Commission requires the trust to have evidence of valid consent obtained for every procedure. Objectives: to assess the patients’ experience of the consent process

Methods: data was collected by questionnaires filled on the operation day. 2 groups of patients: inpatients consented before day of surgery and day-case patients consented on day of surgery. Results: (84) patients Day-case patients were (66%) while (34%) were inpatients. Of 42 patients answered by Yes in all their questions, (78%) were inpatients & (39%) day-case patients.

Conclusion: we recommend that consenting be conducted in a private environment before the day of surgery.

General Orthopaedics

100

YouTube - an emerging tool in the development of orthopaedic examination skills

A Fohy, J Sutherby, K Kunasingam, Z Shah [London]

Abstract not provided

208

The effect of the 2010 Canterbury earthquake on orthopaedic services in Christchurch, New Zealand

A Rooney [London]

Introduction: on 4th September 2010 a magnitude 7.1 earthquake struck the Canterbury region of New Zealand. Objectives: in the wake of the earthquake this study looked at the number of orthopaedic admissions/operations, patient demographics, and operations performed. Methods: data was collected from trauma logbook, Orthopaedic department. Results: admissions fell in the week following the earthquake; acute admissions and trauma operation numbers increased; small variation in patient demographics; no significant variation in the operations performed. Conclusion: the relatively small impact on the department was due to the nature of the earthquake, building regulations.
**338**

**Postoperative blood use following elective total hip and total knee arthroplasty**

**Ji Murnaghan, J Gollish, Y Lin, D Murnaghan, H Razmjoj [Toronto, Canada]**

The purpose was to document transfusion rates following total hip (THA) and total knee arthroplasties (TKA). Secondary analysis of prospectively collected data Jan-Dec 2011. Univariate analysis and stepwise logistic regression analyses. 1606 patients: 989 females (62%), age 66 years. TKA: Unilateral 821 (Transfusion Rate (TR) 2%), Bilateral: 41 (TR 10%), Revision: 91 (TR 5%), THA: 588 (TR 4%), Bilateral: 4 (TR 50%), Revision: 60 (TR 22%). Intra-operative blood loss ≥500 ml, drop in hemoglobin ≥50 g/l, being female, age over 80, receiving general or epidural anesthesia, low BMI (< 18.5), and type of surgery as risk factors for blood transfusion.

**442**

**What effect has routine usage of thromboprophylaxis in orthopaedics and trauma had on the proportion of venous thromboembolism attributable to this speciality?**

**HK Ribee, JD Edwards, T Clare [Dudley]**

Traditionally, between 30-45% of VTE associated with hospital care occurred in patients receiving orthopaedic inpatient or outpatient care. We assessed all patients diagnosed in the trust with VTE over a six month period from September 2012 to March 2013. 191 were identified in total. 16 patients had orthopaedic surgery in the preceding three months. 14 were diagnosed as DVT, 2 as PE. 5 patients were post trauma. 11 were elective patients. All had been prescribed and reported compliance with the trust guideline recommendation for VTE prophylaxis. This represents 8.4% of the overall VTE burden during this time period, a marked reduction.

**395**

**Publications and presentations: are they becoming more important in shortlisting for national training numbers in trauma and orthopaedics?**

**P Davies, S Graham, K Razi, S Purlackee, J Braithwaite [Liverpool; Chester]**

Introduction: Trauma and Orthopaedics (T+O) is a highly competitive specialty. Publications and presentations may be used to shortlist applicants. Methods: a telephone survey was undertaken to identify how the characteristics of the T+O trainee has changed over the last 6 years. Results: seventy NTN trainees were identified. Discussion: it appears that trainees who obtained their NTN half a decade ago had similar credentials to those from last year, by way of presentations and publications. Conclusions: there is no evidence that today’s applicants require a stronger portfolio of publications and presentations than their predecessors.

**482**

**Delayed or missed diagnosis in the treatment of knee pathology - costs from a review of the national health service litigation authority database**

**Y Khan, A Chen, K Akhtar, JP Cobb, CM Gupte [London]**

Aims: to determine the medico-legal cost of delayed or missed diagnoses. Methods: the NHSLA database was reviewed and analysed for case-mix and total payout. Results: 60 cases were identified costing £2.90 million. The highest payout was for delayed diagnosis of popliteal artery transection (£520, 136). 10 cases of missed ligament / meniscal damage paid out £301,790, 10 cases of missed fractures paid out £307,321. 2 missed tendon ruptures - £151,237 delayed diagnosis of 4 bone tumours - £388,985, 2 deep infections - £409, 957. Conclusions: our study highlights the cost of missed diagnosis despite the increased availability of imaging technology.

**783**

**Why do UK medical students choose Orthopaedics as a career?**

**A Vaughan, J Mutimer, S Smith [Cheltenham]**

Aim: this study explores medical student perceptions and motivational factors when pursuing a career in Orthopaedics. Method: a traditional London medical school was compared with a modern South West medical school, participants completed an online questionnaire. Results: 444 students were recruited. 89% thought Orthopaedics was male dominated. Medical school experience (83%), influence of a mentor (77%), and earning potential (71%) were important. Discussion: despite efforts for gender equality, the perception remains that Orthopaedics is male dominated. Student attachments and mentorship are strong influences and should motivate trainers if the speciality is to attract the most gifted students.

**798**

**An analysis of orthopaedic information available for patients on the internet**

**A Ghash, R Berber, R Chau [Leicester]**

The use of the Internet to obtain health related information is now widespread. We analyse the information available on
the internet for 5 common Orthopaedic conditions/procedures- Rotator Cuff Injury, Carpal Tunnel Syndrome, Total Hip Replacement, Total Knee Replacement and Hallux Valgus. Websites were assessed by 3 independent reviewers for type of website, author, IS/HON certification and content. Our study shows the quality of information available on the Internet is variable. Exceptionally good websites for patients are available of which the clinician should be aware, but popular websites were often found to provide biased, incorrect information.

805
A prospective study of the quality of hand trauma referrals made to a tertiary UK hand trauma centre
MA Mussa, M Tare [Chelmsford]
Analyses of data from 200 referrals showed successful documentation of advice given out regarding following; antibiotics in 50%, tetanus booster in 49%, use of dressings in 24% and radiology in 56% of cases. Appropriate use of antibiotics in 72%, tetanus in 81%, dressings in 66%, and radiology in 90%. We suspect that in a reasonable proportion of cases, correct advice was given out but there has been a failure of documentation. This makes it difficult to assess performance of referring hospitals; is it a lack of documentation, a lack of advice, a lack of awareness - or all three?

846
The role of tranexamic acid in shortening hospital stay in elective arthroplasty
Z Abual-Rub, G Joseph, M Hashmi [Newcastle Upon Tyne]
Postoperative wound bleeding in elective arthroplasty is a common complication that is more noticeable following NICE recommendation of pharmacologic VTE prophylaxis. We observed the effect prior and after administering intravenous tranexamic acid on induction regarding the length of hospital stay on the patients of a single consultant who had standardized criteria of care. We have noticed that patients who received tranexamic acid had a shorter stay in hospital regardless of their co-morbidities. However, this effect was not constantly significant statistically. Tranexamic acid can indirectly shorten hospital stay of patients and play a role in achieving enhanced recovery goals.

876
Safety and efficacy of modified protocol using oral thromboprophylaxis agents: a complement to enhanced recovery
R Raman, C Shaw, J Marcinaik, G Johnson, A El-Khouly [Hull]
Patients in our modified protocol for thromboprophylaxis received 2 doses of LMWH (5000iu) on the day of surgery and 24 hours later followed by Dabigatran (110mg or 220mg) orally for 8 days in knee replacements and 26 days in total hip replacements. We prospectively reviewed 1214 consecutive primary total hip and knee arthroplasties over a period of 18 months who received the modified protocol. Clinical DVT was recorded in 69 patients and was radiologically proven in 26 patients (2.1%). The incidence of symptomatic radiologically confirmed pulmonary embolism was 0.5%. 10 patients returned to theatre for wound related problems. Deep infection was confirmed in 3 patients and a further 3 needed 2 or more washouts. The overall rate of deep infection is 0.34%. Extended thromboprophylaxis with Dabigatran is a good oral alternative to LMWH.

882
Oral thromboprophylaxis in revision hip and knee arthroplasty: analysis of efficacy and complications
R Raman, G Johnson, C Shaw, S Gopal, S Jehan, K Sivasankaran [Hull]
We report the efficacy of Dabigatran in preventing all thromboembolic events and its effect on wound complications, infections and return to theatre following revision arthroplasty in 231 patients. Clinical DVT was recorded in 24 patients (11.5%) and was radiologically proven in 10 patients. The incidence of symptomatic radiologically confirmed pulmonary embolism was 0.5%. 10 patients returned to theatre for wound related problems. Deep infection was confirmed in 3 patients and a further 3 needed 2 or more washouts. The overall rate of deep infection is 0.34%. Extended thromboprophylaxis with Dabigatran is a good oral alternative to LMWH.

904
Surgical site infection in orthopaedic implant surgery
H Kovilazhikathu Sugathan, W Pizon [South Shields]
Aim of our study was to assess the surgical site infection (SSI) in orthopaedic implant surgery. We collected data prospectively based on the Centre for Disease Control criteria and Tsukayama classification. We identified 32 cases of SSI over a period of 16 months (rate-1.1%). The mean age of the group was 60 years. We had 17 elective (11 joint replacement) and 15 trauma cases. The most common organism identified was staphylococcus aureus (17). We had 6 deep joint infections requiring revision surgeries. We conclude that surveillance of SSI in implant surgery should be an integral part of clinical governance.
Use of robotic technology in cam femoroacetabular impingement corrective surgery
M Masjedi, A Aqil, W Tan, J Sunnar, S Harris, J Cobb [London]

Introduction: we assessed CAM surgery accuracy when using robotic technology.
Methods: three operators used a robot on three different models. Forty-two specimens were CT scanned and alpha angles and head neck ratios (HNR) calculated. Mann-Whitney U and Coefficient variation (CV) studies assessed pre/post resection alpha angles and inter/intra observer repeatability.
Results: maximum alpha angles were reduced from 91°, 91° and 87° to 48°±3°, 53°±5°, 47°±2° p< 0.001. The HNRs were reduced from 3.2, 3.4 and 3.1 to 3.0 ± 0.1, 3.1 ± 0.1 and 3.1 ± 0.0. Inter/intra-observer repeatability was acceptable (CV< 10%). Conclusion: robots enable accurate CAM surgery.

Five-year follow-up of minimally invasive computer assisted total knee arthroplasty (MICATKA) versus conventional computer assisted total knee arthroplasty (CATKA) - a comparative study
RS Khakha, M Norris, A Kheiran, S Chauhan [Brighton]

Introduction: minimally invasive Computer Assisted Total Knee Arthroplasty (MICATKA) has theoretical benefits to CATKA. Methods: 40 patients who underwent MICATKA were compared with 40 undergoing CATKA. Results: post-operatively mean femoral component alignment was 89.7 degrees for MICATKA and 90.2 for CATKA. Mean tibial component alignment was 89.7 degrees for both. Knees Society Scores in the short term were statistically better in the MICATKA (< 0.001) group. Straight leg raise at day one in 93% of the MICATKA and 30% of the CATKA. Conclusions: MICATKA have significantly better outcomes in the immediate short-term compared to CATKA but not in medium term.
Triathlon TKR using conventional jig. No significant difference between the groups was noted in mean WOMAC pain, function and stiffness scores at one and two years follow up. Significant difference between the groups was only found in the physical function component of SF36 score at one year (P=0.019) but this difference was not observed at two year follow up.

860

Comparison of computer navigated versus non navigated techniques in leg length restoration in total hip arthroplasty

B Sankar, M Changulani, MS Khan, S Atiya, K Deep [Glasgow]

This study compared the accuracy of computer navigated limb length restoration with non navigated techniques in THA. 160 consecutive THAs (57 non navigated and 103 navigated) included. Analysis included measurements on radiographs and computer generated limb length alteration data. The navigated group had a significantly lower mean limb length discrepancy. (p=0.04). 18% in the non-navigated group and 12% in the navigated group had a clinically relevant limb length discrepancy (>10mm). Computer predicted leg length alterations matched those measured on plain radiographs. (p=0.15). The use of Computer navigation in THA can be useful in reducing errors related to limb length discrepancy.

936

Trainees’ perception of CAOS (computer aided orthopaedic surgery)

Y Morar, S Robati [Ashford]

CAOS is a training tool for surgeons. An email questionnaire sent to 110 UK orthopaedic trainees (2011) resulted in 64 responses. 21% (n=13) of the respondents were from ST3 trainees, 15% (n=10) from ST6 and 31% (n=20) from ST8. 76% (n=49) of trainees had been exposed to or used computer navigation in surgery, but 62% (n=40) had not. 82% (n=52) thought that there was a difference between conventionally taught and navigated arthroplasty. 97% (n=62) thought that there was a future for CAOS and should be part of the orthopaedic curriculum. 56% (n=36) thought that it would enhance surgical skills training.
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