Welsh Orthopaedic Society Annual Meeting 2025

Thursday 22nd – Friday 23rd May 2025

Poster Abstracts

The Vale Hotel, Hensol Road, Hensol, Pontyclun, CF72 8JY

The Royal College of Surgeons of Edinburgh has awarded up to 6.5 CPD points for attendance at this event.

Systematic Review and Meta-analysis: Use of Artificial Intelligence in Paediatric Fracture Detection

Jordan Calleja (Presenting), Jacques Calleja

Affiliated Unit(s): Mater Dei, Msida, Malta; NHS, Wales, United Kingdom

Background
Paediatric fractures are a frequent reason for emergency visits, yet their detection remains challenging due to subtle radiographic findings and anatomical variations. Missed fractures can lead to delayed treatment and medicolegal consequences. Artificial intelligence (AI) has emerged as a promising tool to improve diagnostic accuracy and efficiency. This systematic review and meta-analysis assess AI's performance in detecting paediatric fractures compared to human radiologists.

Methods
This study was registered in PROSPERO (CRD42024619744) and followed PRISMA guidelines. A systematic search of PubMed, EMBASE, and Web of Science (January 2019–December 2024) identified studies evaluating AI in detecting appendicular skeletal fractures in patients aged 0–21 years, comparing AI with human interpretation. Meta-analysis was performed using a random-effects model in RevMan software. Primary outcomes included diagnostic accuracy (sensitivity, specificity, and AUC), while secondary outcomes assessed time to diagnosis and clinical usability.

Results
Of 473 studies, 11 met inclusion criteria. AI showed high diagnostic performance, with sensitivity ranging from 88% to 96% and specificity between 63.7% and 97.1%. Meta-analysis revealed a significant sensitivity increase for AI (mean difference: 0.04, p=0.0005), while specificity remained comparable to human interpretation. AI-assisted diagnosis improved accuracy for radiology residents, particularly in subtle fractures, and reduced interpretation time. However, false positives remained a concern.

Conclusion
AI performs comparably or better than human readers in paediatric fracture detection and enhances diagnostic accuracy when used as an adjunct. Further multicentre studies are needed to validate AI's clinical applicability.

The effects of anaesthesia on children under 1 years of age undergoing surgery for developmental dysplasia of the hip

Sarah Dalby (Presenting), Clare Carpenter

Affiliated Unit(s): Cardiff University; Noah's Ark Children's Hospital for Wales

Purpose: Developmental dysplasia of the hip (DDH) affects 0.1% of newborns, with 30 children in Wales requiring corrective surgery each year. General anaesthetic has been linked to the induction of apoptosis, impaired neurogenesis and reactive oxygen species formation, which may cause complications in the developing brains of infants. This paper aims to determine whether there is a relationship between receiving general anaesthetic for DDH before 12 months of age and an increased risk of prolonged hospital stay.

Methods: Retrospective data was collected between 2013-2024 from 77 patients under 12 months, who had surgery for DDH. Additional days in the hospital were used as a proxy for postoperative complications and analysed against anaesthetic duration, age at the time of surgery, sex and the operative approach. A multivariate regression was performed and a p-value of <0.05, was deemed statistically significant.

Results: Anaesthetic duration had a positive relationship with the number of additional days spent in the hospital (p-value 0.0316). Age at the time of surgery also had a significantly positive relationship with the duration of hospital stay ($p<0.05$), however, no statistically significant relationship was proven when comparing sex, the operative approach of closed or open reduction and the patient requirement of unilateral/bilateral reductions.

Conclusions: This study has shown a positive relationship between the duration of anaesthetic and the likelihood of a prolonged hospital stay for those under 12 months requiring surgical intervention for DDH. There is also an increased risk of a prolonged unplanned hospital stay for those aged >9 months.

Cumulative effect of a 9 month jumping intervention on bone health outcomes in adolescent male athletes

Robert Clowes (Presenting)

Affiliated Unit(s): Swansea, Swansea, United Kingdom

This study investigates the impact of plyometric jump training (PJT) on bone mineral content (BMC) in adolescent athletes participating in osteogenic (football) and non-osteogenic (swimming, cycling) sports. Adolescence is crucial for bone development, with 80-90% of adult bone mass acquired by late adolescence. PJT, known for generating high-ground reaction forces, may enhance bone outcomes, particularly in non-osteogenic sports. However, the optimal number of jumps and force required to stimulate bone growth remains unclear.

A retrospective analysis was conducted using data from the PRO-BONE study, involving 48 male adolescents aged 12-14 years. Participants completed a 9-month PJT program with progressive intensity through adjustable weight vests. BMC at the femoral neck, legs, and total body less head (TBLH) was measured using dual-energy X-ray absorptiometry (DXA). Total force was calculated based on body mass and vest weight. Linear regression models assessed the relationship between jump volume, total force, and BMC changes, adjusting for lean mass and peak height velocity.

Results indicated significant positive associations between jump volume and BMC at TBLH and femur neck in swimmers, while total force correlated with BMC at TBLH and legs. Footballers showed moderate positive associations between total force and BMC at TBLH and legs, whereas cyclists exhibited no significant relationships.

The findings suggest that PJT effectively enhances BMC in swimmers and footballers but not in cyclists. This highlights the potential of PJT for improving bone health in non-osteogenic sports. Further research is needed to optimize PJT protocols for adolescent athletes across different sports.

How have generic large language models progressed in their ability to write clinical letters and manage patients in the virtual fracture clinic?

Amy Smith (Presenting,) *James Brock, Rana Anss, Charles Kimberley, Claire Joyner, Francesca Solari, Tariq Yasin, Arwel Poacher*

Affiliated Unit(s): University Hospital of Wales

Objective: To evaluate the progression of large language models (LLMs) and their ability to write clinic letters and management plans for common orthopaedic scenarios.

Methods: Fifteen clinical scenarios were generated and GPT-4, Chat-GPT and GPT-3 were single prompted to write clinic letters and management plans. Letters were assessed for readability using the Readable Tool. Accuracy of letters and management plans were assessed by six independent blinded orthopaedic consultants.

Results: Readability was compared using Flesch-Kincade Grade Level (GPT-4:9.11;(SD 0.98);ChatGPT:8.77 (SD 0.918);GPT-3:8.47 (SD 0.982)), Flesch Readability Ease (GPT-4:34.26 (SD 7.91);ChatGPT:58.2 (SD 4.00);GPT-3,59.3 (SD 6.98)). GPT-4, Chat-GPT and GPT-3 produced accurate letters (Mean = 8.75/10 (SD 0.96), 8.7/10 (SD 0.60), 7.3/10 (SD 1.41)) respectively. GPT4 and Chat-GPT had a significantly increased letter accuracy compared to GPT-3 ($p=0.024$, $p=0.019$). Consultant-rated accuracy comparisons across 4.0, 3.5 and 3.0 revealed that ChatGPT-4 exhibited the highest accuracy for management plans (9.08/10 95%CI, 8.25-9.9). This represents a statistically significant progression of the ability of a large language model to provide accurate management plans from GPT-3 6.84 (95% CI, 5.41-8.27), to ChatGPT 7.63 to GPT4 ($p<0.0001$).

Conclusions: This study shows that next generation LLMs are effective for generation of clinic letters which are readable and accurate. Further, LLMs can produce generic management plans that are often accurate, demonstrating their evolving improvement. Given these findings a specific LLM trained on accurate and secure healthcare data could be an excellent streamlining tool for clinicians in high demand areas such as virtual fracture clinics.

The Impact of Vaping on Bone Health: Inflammatory Markers, Stem Cell Differentiation, and Orthopaedic Effects: A Systematic Review.

Michelle Diamond (Presenting), Yasmin Baker, Rami Sherif, Sashin Ahuja, Anthony Perera

Affiliated Unit(s): Cardiff University, Imperial College London, University Hospital of Wales, Spire Cardiff Hospital

Background
E-cigarette use has surged in the UK, reaching 9.1% of the population by 2023, particularly among youth. Marketed as safer than smoking, their long-term effects on bone health remain unclear. Emerging evidence suggests e-cigarette vapour may impair bone formation, healing, and orthopaedic outcomes.

Aim
This systematic review evaluates the impact of e-cigarette vapour on bone health, including inflammatory markers, osteoblast and osteoclast activity, bone healing, and orthopaedic outcomes.

Methods
A systematic search (January 6, 2025) across six databases identified studies examining bone health indicators in human and animal models. A total of 21 studies were analysed: seven in vivo and four in vitro animal studies, two in vivo and five in vitro human studies, one systematic review, one cross-sectional study, and one retrospective analysis.

Results
E-cigarette use negatively impacts bone health at molecular, tissue, and orthopaedic levels. At the molecular level, vapour exposure induces oxidative stress, inflammation, and impaired osteoblast function while promoting osteoclast activity. Tissue-level effects include disrupted mesenchymal stem cell differentiation and reduced osteogenic markers. Flavouring chemicals, particularly cinnamon, exacerbate oxidative stress. Orthopaedic studies report increased fragility fractures, impaired post-surgical healing, and prolonged recovery, with flavoured e-liquids further compromising bone integrity.

Conclusion
E-cigarettes may pose risks to bone health comparable to smoking. Evidence suggests impaired osteogenesis, increased oxidative stress, and reduced healing capacity. However, inconsistencies across studies highlight the need for further research, particularly on long-term human outcomes and e-cigarette flavours. Clinicians should consider these risks when advising patients.

Too Many Cooks? The Impact of Multiple Reviews on Cauda Equina Pathway Delays

Jessica Potter (Presenting), Rahul Shah, Jerry Sam, Mamdouh Elbannon, Banjo Eapen, Jacob Feathers, Armandeep Bedi, Sanjit Singh

Affiliated Unit(s): Aneurin Bevan UHB, Swansea Bay UHB, Cardiff And Vale UHB, Royal Glamorgan Hospital (Cwm Taf Morgannwg UHB), Princess of Wales Hospital (Cwm Taf Morgannwg UHB), South Wales Spinal Network, Neath, United Kingdom

Introduction: This study audits the CES pathway in South Wales hospitals, assessing healthcare professional involvement before MRI and adherence to spinal network guidelines.

Aim: Primary aim was to determine number of competent HCP'S reviewed patients prior to MRI, Audited time scale of each segment of the patient pathway in this cohort.

Methods: A retrospective review of suspected CES cases was conducted using data from the South Wales Spinal Network. Patients aged >16 years presenting with suspected CES from various referral sources were included. Data points included symptom onset to presentation time, number of professionals seen pre-MRI, inter-hospital transfers, and MRI timing, benchmarked against network guidelines.

Results: 157 patients were included. Median time from symptom onset to presentation varied, with a subset presenting after 14 days. Most patients initially consulted GPs or Emergency Departments. Median time from first contact to MRI was the following in each trust-ABUHB- 10.15 Hours; CTMUHB- 15.5 Hours; SBUHB- 8.6 Hours; C&VUHB- 5.3 Hours, with notable variation. 3.2 % required inter-hospital transfer. Multiple professionals reviewed 60.89% of cases before MRI, potentially delaying diagnosis and the average no. of HP's seen in each trust was:

1. ABUHB - Mean = Mode = Median=2
2. CTMUHB -Mean=1.6 Mode=1 Median=1
3. SBUHB - Mean=2.4 Mode=2 Median=2
4. C&VUHB -Mean=1.3 Mode=1 Median=1.

CES was radiologically confirmed in 9.6% of cases.

Conclusion: CES diagnosis delays persist, especially in MRI access. Variability in pre-imaging professional reviews indicates inefficiencies. Enhancing MRI availability and refining referral pathways may improve patient outcomes. Standardized regional collaboration is needed to reduce delays.

Team-Based Clinician Deployment Enhances Outcomes in Orthopaedic Trauma Care: A Retrospective Cohort Analysis

Rich Roberts (Presenting), Jakub Majchrzak, Raminder Singh

Affiliated Unit(s): Wrexham Maelor Hospital

Background: Allocation of finite NHS resources remains a formidable challenge. Deployment strategies for junior clinicians, notably senior house officers (SHOs), can significantly influence clinical performance with two primary deployment models existing: location-based (Clinicians assigned to Wards/Outliers) and team-based (Clinicians assigned to consultant teams). This study evaluates whether transitioning to a team-based model enhances trauma patient outcomes.

Method: A retrospective cohort analysis was conducted following a transition to team-based SHO deployment model in August 2024. Trauma patients were identified over two distinct periods: pre-intervention (June–July 2024) and post-intervention (September–October 2024). Outcomes included hospital length of stay, mortality, Day 1 X-ray compliance, and Day 1 postoperative blood test compliance.

Results: Retrospective analysis identified 169 trauma patients, 71 were managed in a location-based system (mean age 73.59±17.58; 73.3% F; deprivation 6.17±2.67; Charlson 1.31±1.60) and 98 in a teams-based system (mean age 66.23±20.43; 51.65% F; deprivation 6.33±2.44; Charlson 1.07±1.53;). Length of stay decreased from 25.73±32.86 to 15.32±19.70 days ($p<0.05$) and Day 1 X-ray compliance improved from 53.9% to 85.7% ($p<0.05$) in Neck of femur fracture patients. Day 1 post op Blood measurements remained similar overall.

Conclusion: The transition from a location-based to a team-based SHO deployment model was associated with significant improvements length of stay and Day 1 X-ray compliance. The findings indicate that a team-based deployment strategy can optimise resource use and potentially improve clinical outcomes in the NHS setting. Further evaluation is recommended to explore the broader implications for patient care.

Evaluation of the Early Clinical Outcome of Anterior Cruciate Ligament Reconstruction by Soft Tissue Pure Semitendinosus Vs. Augmented Soft Tissue Graft by full thickness peroneus longus tendon.

Fahad Al-hasani (Presenting), Mohammed Mahdi, Mohammed Yousuf

Affiliated Unit(s): Swansea Bay UHB, Basra General Hospital, Basra, Iraq

Background
Anterior cruciate ligament (ACL) injuries are common, necessitating effective reconstruction techniques to restore knee stability and function. This study addresses the need for a comprehensive investigation into outcomes following ACL reconstruction, considering both autologous hamstring grafts and augmented graft approaches.

Aim of the study
The aim of this study was to evaluate the effectiveness of augmented graft as a viable alternative to the standard insufficient (diameter less than 8 mm) semitendinosus graft in the reconstruction of ACL-deficient knees.

Method
The study employs a cohort prospective phase with 25 cases of autologous hamstring grafts and 25 cases of augmented grafts. Patient cohorts are categorized based on graft type. Outcome measures encompass knee stability assessments, functional scores, patient-reported outcomes, complications, return to activities, radiographic analysis, graft morphology, range of motion, postoperative pain, and reoperation rates. Ethical clearance is obtained, and a robust follow-up plan over 6 months includes regular evaluations, radiographic assessments, and patient-reported outcomes.

Results
Intraoperative findings reveal comparable rates of associated injuries, but postoperative outcomes exhibit significant differences in stability, favouring the augmented graft group. Complication rates are similar, with a potential trend towards lower rates in the augmented group.

Conclusion
This study provides valuable insights into the outcomes of ACL reconstruction, emphasizing the superiority of augmented graft approaches in achieving enhanced postoperative stability. The mixed methods approach and rigorous evaluation of diverse parameters strengthen the study's credibility and relevance for orthopaedic practice.

Age-related differences in the impact of a Fracture Liaison Service on Mortality and Refracture Prevention

Pritika Anthonypillai (Presenting), Amara Williams, Sophie Maggs, Linda Scanlon, Chris Edwards, Inder Singh

Affiliated Unit(s): Cardiff University, Aneurin Bevan University Health Board, Ystrad Mynach

Introduction: Patients who have fragility fractures, have increased risk of mortality and refracture, particularly within the first year. A fracture liaison service (FLS) assesses patients who have fractures and screens for osteoporosis. Relevant patients receive treatment to prevent further fractures. This study aimed to evaluate mortality and re-fractures within a year of assessment by a FLS in 2 age groups: 50-80 and above 80.

Design: 1099 fracture patients seen by the Aneurin Bevan FLS were retrospectively reviewed using the routinely collected FLS-database between July 2023 and December 2023. 10 patients were excluded for missing data and 1089 patients were separated into ages above and below 80. Data was collected on previous fractures, new fractures, and the fracture type (Hip/Femur, Spine, Wrist, Humerus, Pelvis or Others). Patients were followed for mortality and refractures until December 31, 2024.

Results: 534 patients (49%) were below 80 and 555 were above 80 (51%). 53% (n=577) of patients had a previous fracture. 173 patients (15.8%) had a re-fracture within the year. 61.3% (n=106) was in those above 80 and this was significantly higher compared to under 80 (38.7%, n=67, $p<0.0001$).

199 patients (18.3%) died within 1 year of their fracture. 74.8% (n=149) of this was in those above 80, which was significantly higher than mortality in those under 80 (25.1%, n=50, $p<0.0001$)

Conclusions: This study showed mortality and re-fracture within a year was significantly higher in patients over 80 than under 80. This shows that older patients need more tailored interventions to improve outcomes.

Is it time to update the Tokuhashi scoring system for Metastatic Spinal Cord Compression from a Lung primary– A Systematic Review

Dev Panchal (Presenting), Dr. Najmus Sahar Iqbal, Prof Sashin Ahuja

Affiliated Unit(s): Cardiff University, Velindre Hospital, University Hospital of Wales

Background:
The Tokuhashi scoring system helps to plan management for patients presenting with metastatic spinal cord compression (MSCC). One of the scoring parameters is the primary cancer. Lung cancer is historically associated with poor survival outcomes and is hence given a score of zero.

Objective:
The objective of the study was to perform a systematic review to assess survivorship for patients with Lung cancer over the last 25 years.

Method:
2017 NICE guidelines classify Lung Cancer into the following subtypes: Small Cell Lung Cancer (SCLC), Squamous Non-Small Cell Lung Cancer (Sq NSCLC), and Non-Squamous Non-Small Cell Lung Cancer (Non Sq NSCLC). Medline, Scopus and Pubmed databases were utilized to perform a systematic review using PRISMA guidelines. The data acquired was statistically analyzed using an unpaired T-test.

Results:
SCLC median overall survival (mOS) in 2000-2004 was 9.3 months. This rose to 19.01 months in 2020-2024 ($p<0.05$). Sq NSCLC mOS in 2000-2004 was 10.3 months, which rose to 20.7 months in 2020-2024 ($p<0.05$). Non Sq NSCLC mOS in 2000-2004 was 10.3 which rose to 27.97 in 2020-2024 ($p<0.05$).

Conclusion:
The systematic review shows statistically significant improvement in median overall survival times over the years for all three types of Lung Cancer. These results suggest that a review of the Tokuhashi scoring system for MSCC caused due to Lung cancer should be considered. This would help patients with MSCC due to lung cancer to have appropriate and timely care.

Cannulated Screws with and without Tension Band wiring versus tension banding wiring alone for fixation of Patella Fractures: A Systematic Review and Meta-analysis

Chinmay Tijare, **Raven Joseph (Presenting),** Khalis Boksh, Pip Divall, Tawfiq Korim, Randeep Aujla

Affiliated Unit(s): Nottingham University Hospitals NHS Trust, University Hospitals of Leicester NHS Trust, Swansea Bay University Health Board

Purpose

To evaluate and compare clinical outcomes, complication rates and time to union in patients with patella fractures treated with cannulated screws (CS), cannulated screws with a tension band wire construct (CSTBW) and tension banding wiring (TBW) alone.

Methods

A systematic search was conducted for articles in PubMed, Medline, Embase, Cochrane CENTRAL and Cochrane database from inception to March 2024. Data pertaining to range of motion, flexion, patient reported outcome measures (PROMS), complications and time to union were extracted. Meta-analyses were performed. Odds ratios were used for dichotomous variables and the standard mean differences was used for continuous variables

Results

14 studies were included. 2 compared TBW to CS, 11 TBW to CSTBW and 1 compared all three. Systematic review showed favourable results in the domains of PROMS (measured by VAS and Lysholm Score).

Meta-analyses showed favourable outcomes in a range of domains in the CSTBW group over the TBW group. These include; degree of flexion at 3 months (SMD 0.92 95% CI 0.28 to 1.56, p=0.0048), in VAS at 3 months (SMD -1.27, 95% CI -1.73 to -0.82, p<0.001) and Lysholm score at 12 months (SMD 0.80, 95% Cl 0.21 to 1.39, p=0.0082).

Complications were observed more frequently in TBW group over the CS and CSTBW groups, leading to more frequent implant removal.

Conclusion

Cannulated screw fixation with or without a tension band system were associated with better clinical outcomes and fewer complications than the traditional TBW technique for fixation of patella fractures.

PERMENANT HYDROGEL INJECTIONS FOR KNEE ARTHRITIS – PROMISING NEW TREATMENT OR SNAKE OIL?

Karthikeyan Dhandapani (Presenting), Srijan Curpad, Zakiyy Azeez, Nadia Mansour, Emma Blain, Andrew Miller

Affiliated Unit(s): Aneurin Bevan UHB, University College London, Cardiff University

The increasing societal and economic burden of osteoarthritis is well known with over 6% of the current adult population suffering with symptomatic knee OA. Mild to moderate knee arthritis has few effective solutions. Repeated steroid injections have been proven to be progressively ineffective and detrimental to large weightbearing joints.

Polyacrylamide hydrogels are bio-inert, non-degradable and highly viscous. The gel initially produces a low friction environment before integrating into the synovium and forming a neo-intima that produces an anti-inflammatory effect by prevent pro-inflammatory macrophages migrating from the synovium.

Here we present our short-term results, UK satisfaction survey and complications.

204 Patients have received hydrogel injections to-date with 58 available full data sets (age 41-89 years, KL 2-4 Knee OA) Baseline and 3 months data presented. VAS Pain 68 vs 41 ($p<0.0001$), OKS 28 vs 17 ($p<0.0001$),WOMAC Pain 60 vs 34 ($p<0.0001$), WOMAC Total 56 vs 35 ($p<0.0001$).

95 Patients from 6 UK Surgeons responded to an anonymous survey. Sixty-eight percent “would recommend this treatment” and 62% were “satisfied”.

Of the 204 patient treated locally, 2 re-attended. One patient underwent joint aspiration at 3 weeks and one developed a severe soft tissue reaction requiring washout, muscle debridement and soft tissue coverage. Both had negative aspirates for infection but elevated inflammatory markers.

Initial short term results following hydrogel injections are extremely promising. Patient satisfaction is good when compared to 72–86% satisfaction following TKR. Further understanding of the rare post-injection inflammatory reaction is essential before more wide spread use of hydrogel injections.

Senior House Officer lead neck of femur fracture operating in Morriston Hospital

Robert Clowes (Presenting), Adedamola Olaniyi, Robyn Caldwell, Pamela Wong, Lucy James, Piers Page

Affiliated Unit(s): Swansea Bay UHB

Surgical training is essential for senior house officers (SHOs) to develop operative skills and progress in their careers. In Swansea, SHO participation in operating theatres was limited, particularly in neck of femur (NOF) fracture surgeries, which are a fundamental component of SHO training. Insufficient exposure to these procedures posed a barrier to meeting training requirements for progression to ST3 level.

This study assessed the impact of an intervention aimed at increasing SHO involvement in surgeries, ensuring they met ST3 training requirements, including performing 12 NOF fracture surgeries as the primary surgeon.

A retrospective cohort study compared SHO surgical participation before and after the intervention. The intervention involved recognising training gaps, engaging key stakeholders (supervisors, head of SHOs, clinical director, and HEIW), and implementing a rota adjustment. Gaps in the rota were covered with locum doctors to facilitate protected trauma theatre time for SHOs. Data on total cases, SHO cases overall, SHOs as primary surgeons, and average SHOs per case were collected. Statistical analyses, including a two-sample -test, Fisher's exact test, and chi-square test, were conducted to assess the intervention's impact.

Among 171 cases (87 pre-intervention, 84 post-intervention):

- **SHOs per case** significantly increased (**$p < 0.001$).**
- **SHOs as primary surgeons** increased (**$p = 0.006$**).
- **Overall SHO participation** rose significantly (**$p = 0.0001$).**

The intervention effectively enhanced SHO participation in surgery, securing trauma theatre time and improving training opportunities. These findings support the continued implementation of structured interventions to improve surgical education for junior doctors.

Two stemmed implants in one femur, should they be bridged?

Adnan Shabbir Hussain (Presenting), Omar Basbous, Samuel Stevens, Sanjeev Agarwal, Yousuf Mirza

Affiliated Unit(s): Heiw, Cardiff, University Hospital Wales

Introduction: Increasing number of patients are having lower limb arthroplasty with stemmed knee and hip implants present in the same limb for various indications. The presence of two stemmed implants theoretically produces a stress riser between the implants and may cause a interprosthetic fracture there is no consensus regarding the need to mitigate this and there are no recommendations regarding bridging the implants to minimize this risk. We present our series of patients who had two implants in same femur without bridging plates and their observed fractures

Methods: From our hospital database of patients with stemmed knee implants operated from 2017 to 2021 we identified patients with ipsilateral stemmed hip implants using xrays and patient notes. Demographic data, Patient co-morbidities, interprosthetic distance presence of cement mantle and cortical thickness of femur at level of isthmus was measured. Complications were identified through patient notes and xrays. Combined implant survival was noted in years.

Results: 29 patients selected, 20 females, 9 males. In 20 cases hips were implanted first. Mean age of our patients was 70. Median implant survivorship was 5 years. Median interprosthetic distance was 90 mm and cortical thickness 31.25. Complication rate was 34.6 percent which included infections, aseptic loosening, 1 hip dislocation and 1 interprosthetic fracture.

Conclusion: In our series significant numbers of interprosthetic fractures were not demonstrated and in our experience subjecting patients to additional operative time and associated morbidity of bridging fixation is not necessary and two stemmed implants in femur without bridging is a safe option.

Chevron Vs Transverse Cut Comparison In Minimally Invasive Hallux Valgus Correction. Does The Osteotomy Affect Outcome?

Niall Hill (Presenting), Thomas Lorchan Lewis, Robbie Ray, David J Gordon

Affiliated Unit(s): Cardiff University, Orthopaedic & Arthiritis Specialist Centre (Sydney), King's Foot and Ankle Unit (King's College Hospital), The London Clinic

Background:
There has recently been a move to utilising distal transverse osteotomies (META) rather than chevron osteotomies (MICA) during minimally invasive hallux valgus surgery (MIS HV). The aim of this study is to investigate if there are any differences in union rates or clinical outcomes between these two techniques.

Methods:
A retrospective comparative analysis of a single surgeon research registry containing prospectively collected patient reported outcomes for patients undergoing MIS HV. Patients with minimum two year follow up were divided into two cohorts based on which osteotomy technique was used. Outcome measures were union rates and clinical outcomes (assessed using the Manchester-Oxford Foot Questionnaire, a validated outcome measure).

Results:
Between 2014-2018, 292 feet underwent MICA and between 2019-2021 228 feet underwent META. The symptomatic delayed union rate was higher in the META cohort compared to the MICA cohort (4.4% vs 1.5%) but not statistically significant ($p=0.07$). The revision for non-union rate was also higher in the META cohort compared to the MICA cohort (2.6% vs 1.2%) but not statistically significant ($p=0.30$). There was no statistically significant difference between the two cohorts in any of the MOXFQ domains at final follow up ($p>0.05$).

Conclusion:
There was a higher, but not statistically significant, rate of symptomatic delayed union and revision for non-union in patients undergoing MIS HV with a transverse osteotomy compared to those treated with a chevron osteotomy.

Is immobilisation and routine follow-up necessary after all distal radius fracture fixation?

Matthew Jones, **Olivia Ambler (Presenting),** Suzanne Tolley, Ian Russell

Affiliated Unit(s): Singleton Hospital, Morriston Hospital (Swansea Bay UHB)

Hypothesis:
After plate fixation of distal radial fractures, many surgeons immobilise patients in plaster post-operatively for patient comfort, to protect wounds or to support the fixation.

It is our practice to not routinely immobilise patients and to be pragmatic with follow-up. Many patients have therapy only appointments and patient-initiated surgeon follow-up. We believe not immobilising patients after distal radius fracture fixation does not increase complication rates and is safe practice.

Methods:
A retrospective review of all patients who underwent an acute, isolated distal radius fracture fixation, using the same plating system, under regional block in a day surgery unit, over a 6-year period was conducted. Post-operative dressing, complications, follow-up appointments and investigations were recorded.

Results:
395 patients were included with a minimum 3-month follow-up. 92% were not immobilised and dressed only with wool and crepe bandage with a complication rate of 9.1% and a further surgery rate of 5.8%. This included only a 1.1% (4) failure of fixation rate. The overall complication rate was lower than those immobilised with a plaster (12.9%). In those who were not immobilised, 44% (n=175) were not imaged post-operatively, with only one wound infection and no other complications seen. Of these patients 37 were not follow-up by a Surgeon without issue. In those immobilised with a plaster a rationale was documented in 65% of cases.

A family centred core outcome set for infants with Developmental Dysplasia of the Hip undergoing brace treatment

Joanna Craven (Presenting), Wesley Theunissen, Olivia O'Malley, Dan Winson, Clare Carpenter, Daniel Perry

Affiliated Unit(s): University of Liverpool, Wales deanery, Máxima Medical Center (Veldhoven), Imperial College London, Children's Health Queensland Hospital and Health Service, University Hospital Wales

Background
There is significant variation in brace-wearing regimes for Developmental Dysplasia of the Hip (DDH), particularly regarding duration and discontinuation, which highlights the need for clinical trials to establish evidence-based guidelines. These trials should also consider the broader impact of brace treatment on families.

Aim
To identify the minimum set of family-centred outcomes to be collected in research involving infants with DDH undergoing brace treatment.

Methods
A comprehensive list of potential outcomes was developed through a literature review and stakeholder survey, including caregivers, clinicians, and researchers. These outcomes were evaluated in a two-round Delphi consensus process with an international panel of orthopaedic surgeons, physiotherapists, nurse practitioners, researchers, parents, and charity representatives. Outcomes that did not reach consensus were discussed in a final meeting, where stakeholders voted on their inclusion.

Results
Fourteen family-centred outcomes were identified for the Delphi process, with twelve derived from the literature review and two from the stakeholder survey. Eight outcomes reached consensus, while six required further discussion at the final meeting. One additional outcome was added, resulting in a final set of nine outcomes: infant cleanliness, sleep, comfort, development, skin irritation and feeding, as well as parental well-being, bonding, and access to information/resources.

Conclusion
This family-centred core outcome set provides a standardised framework for future DDH brace treatment trials, ensuring the impact on families is consistently considered in research and clinical decision-making.

Good training should be patient-centred: An analysis of patient-centredness among Trauma & Orthopaedic trainees in Wales

Deepika Pinto (Presenting), Peter Cnudde, Stefan Bajada, Clare Carpenter

Affiliated Unit(s): Prince Philip Hospital, Glangwili General Hospital, University Hospital of Wales

Background: Patient-Centred Care (PCC) is a model of healthcare which encourages collaboration and shared decision-making between patients, families and healthcare providers; to provide holistic and bespoke care.

Aims: To assess the current state of PCC among Orthopaedic trainees in Wales and identify areas for improvement.

Methods: A survey was designed to elicit trainee attitudes towards PCC, self-perceived competencies in providing PCC, and training support for providing PCC. After refinement by trialling in a pilot group, the questionnaire was electronically circulated among trainees and anonymized responses collected.

Results: Sixty-six percent trainees (41/62) responded to the survey. The majority believed that PCC is very important in Orthopaedic surgery, and were confident in their abilities to provide PCC (abilities to communicate, address patient fears/anxieties, and provide culturally-sensitive care scoring medians of nine, eight and seven respectively on Likert scales ranging from one to ten – higher scores indicating higher levels of confidence). The majority of respondents 'often' or 'always' practiced shared decision-making, elicited patient ideas/concerns/expectations, and considered patient lifestyle/goals when discussing treatments. Time constraints, workload, lack of resources, and systemic issues were the commonly experienced barriers to providing PCC. While 73% trainees had not received any formal training in PCC, most felt that they received sufficient support and feedback on provision of PCC from their supervisors; and 61% expressed interest in receiving PCC training (workshops/lectures/simulation/mentorship).

Conclusion: Orthopaedic trainees in Wales are cognizant of PCC and confident in providing it, but would benefit from further training and resources.

Radiation Safety in Orthopaedic Trauma Theatre: A Two-Cycle Audit in Hywel Dda Health Board

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Background:
Ionising radiation poses significant occupational risks in orthopaedic trauma theatres. The Ionising Radiation Regulations 2017 (IRR17) mandate adherence to the ALARA principle to minimize exposure. This audit assessed awareness of radiation safety, use of protective equipment (PPE), and compliance with local guidelines across Hywel Dda Health Board.

Methods:
An online questionnaire was distributed to Trauma and Orthopaedics Consultants, Middle Grade and Junior Doctors, Anaesthetists, Anaesthetic Team members, Scrub Nurses, and other theatre staff. The first cycle identified gaps in radiation safety knowledge and inconsistent PPE use. After introducing additional lead vests and thyroid guards, a second cycle was conducted to assess improvements.

Results:
Staff awareness of radiation safety principles and local guidelines improved in the second cycle. However, PPE compliance remained suboptimal, particularly with lead eyeglasses, and misconceptions persisted, such as the belief that standing behind a protected colleague provides adequate shielding.

Conclusion & Next Steps:
Despite increased awareness, PPE use remains inconsistent. Further education, stricter enforcement, and better PPE availability, including lead glasses, are recommended. After presenting our findings at the departmental audit meeting, a Consultant offered support in acquiring radiation dosimeters for surgeons. This initiative will measure real-time radiation exposure, particularly in hand and foot surgeries using close-range X-ray machines, guiding future safety improvements in orthopaedic trauma practice.