Welsh Orthopaedic Society Annual Meeting 2025

Thursday 22nd – Friday 23rd May 2025

Podium 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.

Thursday 22nd May 13:15 - 14:08

Podium Presentation Session 1: Hip, Knee

Enhancing Informed Consent in Orthopaedic Surgery: A Proof Of Concept Study of Language Model-Generated Clinic Letters

Wilfred Saunders, Charles Gamble, Alexander Glendenning, **Rich Roberts (Presenting)**

Affiliated Unit(s): Wrexham Maelor Hospital, Morriston Hospital.

Background: Effective communication is essential in clinical settings, particularly for obtaining informed consent following the landmark Montgomery v Lanarkshire ruling. With NHS resource constraints, optimising patient–clinician interactions is imperative. This study evaluated language models (LLMs) to generate clinic letters for common elective orthopaedic procedures, thereby enhancing informed decision-making.

Methods: Six commonly performed orthopaedic procedures were selected, and uniform prompts were crafted in a clinic-friendly style. Four LLMs—ChatGPT-O1, Deepseek, Gemini, and Copilot—each generated two letters per procedure. Outcome parameters included inclusion of gold-standard complication profiles, readability (Flesch-Kincaid, Gunning Fog, and SMOG indices), and understandability (PEMAT score by three blinded assessors).

Results: A total of 48 clinic letters were produced. GPT-O1 demonstrated the highest complication integration compliance (0.923 ± 0.104, $P<0.001$), followed by Gemini (0.86 ± 0.079). All models produced letters at a 7th–8th grade reading level (6.850–8.517). Gemini's letters were rated easiest to read according to Gunning Fog and SMOG (10.657 ± 1.291 and 11.583 ± 1.191 $P<0.001$), whereas GPT-O1 outputs were most challenging (8.830 ± 0.570 and 9.983). Additionally, Gemini achieved the highest understandability with a PEMAT score of 0.826 ± 0.054 compared to GPT-O1's 0.718 ±0.071 ($P<0.005$).

Conclusion: Our proof-of-concept study highlights the potential of LLMs to transform patient communication in orthopaedic surgery by generating informative and readable clinic letters. This could reduce clinician and clerical workload while further empowering patients to make informed decisions. Future work should focus on improving and optimising LLM capabilities, and addressing ethical considerations for ongoing effective clinical integration.

Total Hip Arthroplasty: Effect of different closure techniques and Peri-capsular Tranexamic acid on development of Heterotopic Ossification

Anurag Singh (Presenting), Krishna Charan Krishnasamy Kannan, Prashant Padhi, Nallamilli Rajyalakshmi Reddy, Balasundaram Ramesh, Madhusudhan Raghavendra

Affiliated Unit(s): Glan Clwyd Hospital

Heterotopic Ossification (HO) is one of the most common complications after Total Hip Arthroplasty (THA). Its incidence is between 15-90% in different studies. Immune cell infiltration and inflammatory response are the initiating factors for HO. Additionally, surgical approach, closure techniques, soft tissue handling also play an important role. Tranexamic Acid (TxA) in addition to its anti-fibrinolytic properties, it has also demonstrated an anti-inflammatory response. It reduces the levels of CRP, IL-6, TNF-α, reactive oxygen species and MMP-9. Another study showed that TXA reduces the recurrence of HO after excision in elbow injury. There are currently no studies demonstrating effect of local TXA on HO after THA.

This is a retrospective analysis of 235 patients who had THA. They were evaluated based of indication for surgery, approach, implant used, closure technique, intraoperative fracture, preoperative/postoperative/1 year follow up X rays. Finally, 195 were included in the study. A total of 175 were performed using modified Hardinge approach. There was a statistically significant reduction in HO when the patients received peri capsular infiltration of TxA during closure ($p<0.05$). Closure of capsule and abductors as a single layer significantly reduced HO as opposed to multi layered closure ($p<0.05$). Posterior approach had remarkably lower HO post surgery. There was no significant difference between cemented and uncemented implants.

Local infiltration of TXA significantly reduces incidence of HO after THA. However, there is a need of further prospective studies with a larger patient population to support these findings.

A study of arthroplasty templating in one hospital reviewing radiograph quality and accuracy of templating

Chris Woodward (Presenting), Anas Altahir, Amr Hussein

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

Background
Pre-operative templating is an important aspect of THR. Templating helps determine the size of prosthesis, and increases accuracy. Templating is only as good as information provided by radiographs. We investigated the quality of planning radiographs at our trust, and assessed templating accuracy.

Methods
The most recently operated 101 primary THR patients' radiographs were reviewed. Pre-operative radiographs were checked if within 6 months of surgery, included a scaling ball, and whether sufficient proximal femur was visible. Saved templates were then further assessed for accuracy, by comparing to prosthesis size from op-notes.

Results
96% of radiographs were within 6months of surgery. 39% had a scaling ball present. The position and apparent size of the 25mm scaling ball varied; average apparent size of 32.3mm (magnified by a factor of 1.3). An average of 68mm of femur was visible below the LT. 62/101 patients had saved templates. 10(16%), showed enough femur to include the templated stem tip. 18 templated stems, and 15 cups, matched those implanted. Average cup discrepancy was 2.6mm (1.02x templated). The average stem discrepancy was one size.

Conclusion
This study shows planning radiograph quality varies. Overall templating was not accurate to that implanted. It is noted that templates were produced by both consultants and juniors. Presence and position of scaling ball varied, affecting magnification estimates. We propose to use a protocol to enhance local radiograph quality. This study shows how radiograph and templating quality varies, and that ongoing review is important to ensure use in THR planning is optimal.

The Efficacy of Mesenchymal Stem Cells in Autologous Chondrocyte Implantation

Arwel Poacher (Presenting), Bradley Whitehead, Clare Hughes

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

Background:
Autologous chondrocyte implantation is the gold standard therapy for osteochondral defects. However, it has significant limitations, particularly chondrocyte dedifferentiation, which leads to a non-native graft composition that may trigger further inflammatory processes. Cartilage-derived progenitor cells (CPCs) are a type of MSC that could potentially address these issues.

Methods:
Disc rings (DR) (n=72) were created from the bovine cartilage of 18-month-old steers. The central disc was substituted with native cartilage, chondrocytes, or CPC-seeded agarose, which was cultured for four weeks, stained with 2B6/DMMB, and sectioned to visualise integration. The DMMB assay and collagen fluorescence were employed to quantify matrix production.

Results:
Control cartilage-cartilage DRs exhibited some integration of cellular movement into the wound site. The chondrocyte-containing agarose showed no integration and no GAG production. The CPC-containing DRs revealed impressive agarose staining, with viable GAG-producing cells and cellular migration into the injury site. CPC-containing explants demonstrated significantly higher levels of collagen (<.001) and GAG ($p<.01$) compared to both the cartilage and chondrocyte controls.

Conclusion:
CPCs generate tissue that closely resembles native cartilage, exhibiting higher levels of GAG and Type II collagen. This suggests a superior healing potential in comparison to that of chondrocytes. Consequently, this innovative study presents evidence supporting the use of CPCs as a replacement for chondrocytes in ACI therapy, aiming to enhance outcomes for traumatic cartilage injury.

Routine Post Operative blood tests in healthy patients undergoing primary hip and knee arthroplasty: Do they influence the post operative management? A Single-Centre Retrospective Analysis

Reuben Johnson (Presenting)

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

Introduction

Increasing demand and financial burdens are placing significant strain on current health resources. There has been increased emphasis on improving patient flow and saving costs within the health service to help ease pressures. Routine postoperative blood tests in otherwise healthy patients may add to delays and healthcare costs without influencing subsequent management.

Aims

To assess the need for routine post op blood testing in ASA 1 & 2 patients undergoing primary hip and knee arthroplasty and to assess the risk factors and intervention rate based on the post operative blood results.

Methods

This was a retrospective review of the elective hip and knee replacements in ASA 1 and ASA 2 patients over a 1-year period from 2021-2022 at Wrightington Hospital. Operation notes and electronic databases were analyzed to collect data. Binomial logistic regression was employed to identify risk factors associated with postoperative abnormalities and the need for clinical intervention.

Results

1614 underwent elective hip and knee replacements in 2021-2022. The ASA grades were ASA 1 (10%) and ASA 2 (90%) respectively. Mean age in our cohort was 66.4 +/- 10.1 (range 38-88 years). Majority of the post operative blood results were abnormal with derrangment in hemoglobin and electrolytes. The post operative interventions rate was <4%.

Conclusions

No need for routine post op bloods in ASA 1 patients. Individualised testing in ASA 2 patients could be beneficial. This could potentially benefit significant cost savings and reduce the length of stay.

Effectiveness and functional outcome of Polyacrylamide Hydrogel Injection for Knee Osteoarthritis.

Karthikeyan Dhandapani (Presenting), Andrew Miller

Affiliated Unit(s): Betsi Cadwaladr University Health Board, Aneurin Bevan University Health Board,

Background:
Knee osteoarthritis (OA) is a prevalent condition causing pain and reduced mobility. Arthrosamid, an injectable polyacrylamide hydrogel (iPAAG), has emerged as a novel treatment option. This study aimed to evaluate the long-term efficacy and safety of Arthrosamid in patients with knee OA.

Methods:
In this prospective study, 86 patients with moderate to severe knee OA received a single intra-articular injection of 6 mL Arthrosamid. Outcomes were assessed at baseline, 3 and 6 months using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), WOMAC pain, WOMAC total, Oxford Knee Score (OKS), EQ5D5L and VAS Pain score.

Results:
Statistically significant improvements were observed in WOMAC subscales (pain, stiffness, and function), and significant reductions in PainVas score ($p<0.0001$) and OKS ($p<0.0001$) were observed from baseline to the end of treatment. Pain reduction and QALY improvement were clinically relevant and maintained throughout the follow-up. No serious adverse events related to the treatment were reported, with only mild and transient injection site reactions noted.

Discussion:
The study demonstrates that a single injection of Arthrosamid provides durable pain relief and functional improvement in knee OA patients. The long-lasting effects and favourable safety profile suggest that Arthrosamid may offer a valuable alternative to existing treatments.

Conclusion:
Arthrosamid is a safe and effective long-term treatment option for knee OA, providing sustained symptomatic relief and improved function. Further research is warranted to elucidate its mechanism of action and compare its efficacy to other treatment modalities.

Thursday 22nd May 15:25 - 16:17

Podium Session 2: Foot and Ankle, Paediatrics

Minimally Invasive Chevron Akin for Hallux Valgus Surgery: A Prospective Observational Study with Mean 6.8 year Follow Up

Niall Hill (Presenting), Adam Reaney, Oliver Townsend, Togay Koç, Thomas Lewis, David Gordon

Affiliated Unit(s): Cardiff University School of Medicine, Salisbury District Hospital, University Hospital Southampton NHS Foundation Trust, Orthopaedic and Arthritis Specialist Centre (Sydney), The London Clinic.

Introduction
Minimally invasive distal first metatarsal osteotomy with internal fixation has become an established technique for correction of hallux valgus deformities. Published data is limited to follow-up of 2-3 years. This study aimed to assess a large cohort of patients undergoing, MICA (Minimally Invasive Chevron and Akin), with minimum 5 year follow up. To evaluate the longer-term results of this procedure, patient reported outcome measures (PROMs) were used.

Methods
Five year PROM data was prospectively collected from consecutive patients who underwent primary MICA osteotomies performed by a single surgeon. The primary outcome measure was the Manchester-Oxford Foot Questionnaire (MOXFQ). Secondary outcome measures included visual analogue scale for pain (VAS-pain), and EuroQol-5 Dimensions Index (EQ-5D). Data were collected preoperatively, at 2 years and after a minimum of 5 years. Statistical significance was set at $p< 0.05$.

Results
240 MICA were performed on 164 patients. Mean follow-up was 6.8±1.0 years with all patients completing minimum 5 year follow-up scores. The MOXFQ scores for all feet improved across all domains: from 44.6±20.9 preoperatively to 9.5±17.7 post-operatively for Pain ($p < 0.001$), from 37.7±23.6 to 8.0±17.5 for Walking and Standing ($p < 0.001$) and from 47.9±22.0 to 7.8±17.1 for Social Interaction ($p < 0.001$). VAS-pain & EQ-5D also improved. There was no statistically significant change in scores between minimum two- and five-year follow up PROMs.

Conclusion
This study reports the longest PROMs for minimally invasive hallux valgus surgery and demonstrates significant improvement which is maintained at minimum five-year follow up.

STEPPING INTO THE FUTURE: THE ROLE OF COMBINED DYNAMIC IMAGING IN FOOT AND ANKLE SURGERY

Shady Hanna (Presenting), Mansoor Thekkinithethil, Angharad Evans, Karthik Somasundaram, Suresh Dalavaye

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

Ultrasound scanning has long been utilised as a non-invasive modality to evaluate musculoskeletal pathology. Multidisciplinary teamworking has allowed the launch of a new service at Swansea Bay University Health Board whereby a consultant radiologist together with a foot and ankle surgeon perform dynamic ultrasound scanning, termed a 'combined ultrasound scan' along with the provision of a steroid joint injection as appropriate.

We analysed the effectiveness of combined ultrasound scanning to identify complex foot and ankle pathology, focusing on the modalities ability to aid diagnosis, it's impact on patient symptoms and the appointment waiting times for all patients (n=34) referred to the scan between January and December 2024.

Combined ultrasound scanning aided diagnosis in the vast majority of patients, (29;88%) demonstrating a pathology which correlated with 'real time' clinical examination findings. Of these patients 23(68%) were offered a joint injection at the time of imaging with 3 patients declining. Following this, 9(34%) patients demonstrated clinical improvement, 11(35%) did not and the remainder are yet to be assessed. 10(34%) patients have been listed for further surgery. On average, wait time was 33 days (range 0 to 119 days) with 7 patients receiving same day imaging as clinical review.

Combined ultrasound scanning has proven invaluable in the diagnosis of patients with complex foot and ankle pathology, offering non-invasive screening alongside immediate therapeutic interventions when appropriate. We look forward to the continued assessment and follow-up of our patients to fully understand the long-term benefits and outcomes of this innovative service.

Evaluation of the 'Clicky' Hip in the Diagnosis of Developmental Dysplasia of the Hip

Arwel Poacher, **Muslim Bilal (Presenting),** Max Ross, Ella Daisy, Lily Scourfield, Hari Bhanchoo, Amy Smith, Elliot Kimber, Eleanor Carpenter

Affiliated Unit(s): Cardiff University, King's College London, London, Trauma Unit Cardiff University Health Board, Noah's Ark Children's Hospital.

Background: Early detection of developmental dysplasia of the hip (DDH) is essential in increasing the likelihood of successful treatment and reducing rates of complications and long-term disability. The British Society for Children's Orthopaedic Surgery (BSCOS) identified the need for research to evaluate the use of 'clicky' hip as indication for secondary assessment.

Objective: This study aims to evaluate the use of 'clicky' hip as a marker of DDH.

Methods: Prospective cohort study of all patients born within the catchment of a single tertiary centre (n=42,567). All patients underwent physical examinations at birth and 6-8 week baby checks with ultrasonographic screening if primary risk factors and/or abnormal examination findings (including 'clicky' hip) were present (n=7,563). Multivariate analysis was conducted to determine the adjusted odds ratios (OR) and predictive value of 'clicky' hip in relation to DDH (defined as Graf type IIb-IV requiring treatment).

Results: Pathological DDH requiring treatment had a presence of 5.8/1000 live births (n=245). The relative risk of DDH with a 'clicky' hip was 7.14. A 'clicky' hip was 16.3% sensitive and 97.4% specific with a positive predictive value of 3.6% and a 99.5% negative predictive value. When adjusted for sex, the presence of any other abnormal examination finding, or any primary risk factor(s) 'clicky' hip had a multivariate odds ratio of 2.90 (95% CI 1.91-4.41, $p < 0.001$).

Conclusion: This study has demonstrated that a 'clicky' hip is a statistically significant predictor of DDH addressing the principal need for research as per the BSCOS research statement.

Effective radiation exposure in missed cases of developmental dysplasia of the hip

Arwel Poacher, **Aled Evans (Presenting),** Daniel Thomas, Amy Smith, Lily Scourfield, Gregor Ramage, Kendra Nwamadi, Joanna Craven, Clare Carpenter

Affiliated Unit(s): University Hospital of Wales, Cardiff University, Royal Glamorgan Hospital, Queen Elizabeth University Hospital, University Hospital of Wales, Imperial College Healthcare NHS Trust, Liverpool University, Noah's Ark Children's Hospital.

Introduction:
Developmental dysplasia of the hip (DDH) is a common condition that can be managed conservatively if diagnosed early. Surgical intervention and radiographic evaluation are highly likely if the diagnosis is made beyond six months of age (i.e. missed). The radiation exposure of individuals with DDH has not been assessed previously.

Methods:
110 missed cases of DDH were monitored during the first five years of life between 2000 and 2018. The radiation dose was calculated during radiological exposures for XR, CT, and intraoperative radiation. These values were recorded prospectively and re-validated through retrospective review. The effective dose (mSv) was estimated according to the International Commission on Radiological Protection (ICRP60) criteria.

Results:
1,337 conventional radiographs, 36 CT hip scans, and 134 CT pelvis scans were conducted on 110 patients. Most radiation exposure occurred early in life, with 90% occurring between 6 and 18 months of age. The median radiation exposure from all sources was 17.1 mSv (ranging from 8.82 to 72.5), with males experiencing a median exposure of 20.7 mSv and females 16.2 mSv ($p=0.047$). The mean gonadal exposure was 23.2 mSv.

Conclusions:
High median radiation exposure is comparable to that of individuals living in Chernobyl during the 1986 disaster. The risk of fatal cancer in this population ranges from 0.1% to 0.5%, with some children receiving doses more than 3.5 times higher. Gonadal exposure is significantly elevated, raising concerns regarding fertility and potential malignant changes.

The association of social deprivation with outcomes of Developmental Dysplasia of Hip screening and management.

Arwel Poacher (Presenting), James Brock, Mohamed Essam, Tariq Yasin, Omar Basbous, Amy Smith, Gregor Ramage, Clare Carpenter

Affiliated Unit(s): Cardiff University, University Hospital of Wales, Noah's Ark Children's Hospital

Introduction:
The association between social deprivation and poorer health outcomes is well-documented. However, there is a paucity of evidence on how these factors influence developmental dysplasia of the hip (DDH) outcomes. This study investigated the link between social deprivation and DDH outcomes and screening programme effectiveness.

Methods:
This study used routinely collected registry data of all live births within a single tertiary centre in Wales between 2011 and 2020. The screening programme identified cases of DDH, and the number of late-presenting cases (>24 weeks of age) was identified. The social deprivation of these groups was compared using the Welsh Index of Multiple Deprivation.

Results:
There were statistically significant links between the rates of missed DDH cases and overall deprivation ($p<0.001$). Other factors, including household income, employment, health and education scores, were also associated with ($p<0.001$). Therefore, individuals who live in a more deprived area are less likely to be detected by DDH screening programmes and are more likely to present as missed cases.

Conclusions:
In conclusion, our data suggests that those who live in a more deprived area are more likely to have a late diagnosis of DDH. This early data identifies demographic factors which put infants at higher risk of the morbidity associated with a late DDH diagnosis and, hence, populations where a universal screening programme would benefit most. These findings underscore the importance of targeted interventions and improved screening in deprived areas, which can potentially reduce the burden of DDH and improve public health outcomes.

Friday 23rd May 09:15 -10:07

Podium Session 3: Upper limb, General

Comparative Analysis of Patient Satisfaction and Cost-Efficiency of PRP Injections for Lateral Epicondylitis in Clinical vs. Operating Theatre Settings

Aakaash Venkatesan (Presenting) aakaash.venkatesan2@wales.nhs.uk, Nicola Vannet

Affiliated Unit(s): Aneurin Bevan University Health Board

Objective:
To evaluate and compare patient satisfaction levels and cost implications of PRP injections administered for lateral epicondylitis in clinic versus operating theatre settings.

Methods:
This prospective study included 30 patients diagnosed with lateral epicondylitis, randomly assigned to receive PRP injections in either a clinic (n=15) or an operating theatre (n=15). Patient satisfaction was assessed using a 10-point Likert scale, focusing on pain control, convenience, and overall experience. Cost analysis included direct and indirect costs, encompassing staff salaries, facility usage, and medical consumables. Statistical analysis was performed using paired t-tests and chi-square tests to identify significant differences between the two groups.

Results:
Patients in both groups reported high satisfaction, with mean satisfaction scores of 8.7 ± 0.8 in the clinic group and 8.3 ± 1.0 in the theatre group ($p=0.19$). Clinic-based treatments demonstrated significantly lower costs, averaging £250 per procedure compared to £750 in the operating theatre ($p<0.01$). The cost savings were driven by reduced staffing requirements and the elimination of theatre overheads. Additionally, 93% of clinic patients expressed preference for the same setting in future procedures, compared to 80% in the theatre group ($p=0.03$).

Conclusion:
PRP injections for lateral epicondylitis delivered in a clinical setting are associated with comparable patient satisfaction and substantial cost savings for the NHS. This study highlights the potential for clinic-based procedures to optimize healthcare resource utilization without compromising the quality of care.

A Comprehensive® Review - Our Experience With The Zimmer-Biomet Comprehensive® Total Shoulder Arthroplasty System

Niall Hill (Presenting), Peadar A Mac Suibhne, Jerry Sam, Emma Poyser, Nicola Vannet, Hemang Mehta, Huw Pullen

Affiliated Unit(s): Cardiff University, Sydney OrthoSports Fellowship, Grange University Hospital

Background
Our shoulder arthroplasty unit has streamlined implants reducing variability and training time. All surgeons use the Zimmer-Biomet Comprehensive® platform for total shoulder (TSA) and reverse total shoulder arthroplasty.

Objectives
To review departmental performance in primary shoulder osteoarthritis and rotator cuff arthropathy.

Study Design & Methods
All TSAs between 01/01/2019 and 01/01/2024 were included. Radiographs were reviewed and ultrasound or MRI where available. Operative records and clinic documents were reviewed for post-operative performance and complications.

Results
Fifty-five female and 29 male patients underwent 84 primary TSA (19 Nano, 65 Mini). MRI scans were performed pre-operatively in 32% cases. 48% of these demonstrated rotator cuff pathology. 10.7% of patients had inflammatory arthropathy. Median pre- and post-operative Oxford Shoulder Scores were 19.5 and 44 with an IQR of 16 and 11 respectively. Two cases required revision to a reverse TSA; 1 infection & 1 cuff failure. One case of subscapularis failure was repaired within 6 weeks. No peri-prosthetic implant fracture occurred with a single infection (1.19%).

Reverse TSA was performed in 99 patients (median age 76). MRI was performed in 3 patients. A mini stem was used in 95 patients with 4 receiving a cemented trauma stem. Fifty-five patients underwent surgery for OA or rotator cuff arthropathy with the remaining for trauma. There were 4 cases of peri-prosthetic fracture (2 glenoid, 2 humeral), neither requiring surgery, 1 case of peri-prosthetic infection and 1 dislocation.

Conclusions
Our experience with the Comprehensive® TSA platform demonstrates good results with a low revision and failure rate.

The use of a plate-in-a-box system as a solution to individually packed sterile implants in the fixation of distal radius fracture

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

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

Hypothesis:
Displaced or unstable distal radius fractures are often treated with a volar locking plate to stabilise the fracture and allow early mobilisation. Recent legislative changes around Medical Device Regulation (MDR) and concerns around infection and corrosion have led to a push towards individually sterile packed implants. Surgeons are concerned about how single packed sterile implants will increase operative time and increased requirement for additional stock management compared with having sterile screws available on a caddy.

Methods:
A retrospective cohort study of all patients who underwent an isolated acute distal radius fracture fixation, under regional block in a Day Surgery Unit, using the Stryker Variax Xpress system. The usability of this system was assessed by looking at tourniquet times, additional screw requirements and storage space.

Results:
395 isolated distal radius fractures were fixed with the Xpress system. The average tourniquet time was 46 minutes compared to 70 minutes using a system with individually packed screws and 68.8 minutes in the literature. Up to 5 distal radius fixations were performed on one theatre list This system occupies 80% less storage space than a typical sterile packed system and is portable to take to peripheral hospitals. It was used for 96% of all distal radius fracture fixations, with alternative systems mainly used for dorsal plating.

Evaluation of Pre-packaged Sterilised Orthopaedic Implants versus Re-sterilisable Alternatives.

Saitom Jacob (Presenting), Faisal Mohammed, Edwin Jesudason

Affiliated Unit(s): Cardiff University, Bangor University, Bangor, Ysbyty Gwynedd,

Several hospitals and implant companies have moved to sterile separately packed implants due to recent legislative changes in Medical Device Regulation (MDR), alongside concerns of infection risk and corrosion, which have not been clinically proven. The British Society of Hand Surgeons has identified risks with prepacked sterile implants, including increased operative time and decreased surgeon satisfaction due to difficulty in fracture reduction.

We compared screw retrieval times and waste generation between prepacked (APTUS) and re-sterilisable (IXOS) implants for distal radius fractures. An observational study conducted over three weeks included adult patients requiring internal fixation, with surgeons choosing between the two implant types. Four procedures were observed, screw retrieval times were recorded using a stopwatch, and waste generated was measured using a weighing scale. A survey was sent to surgeons and staff to assess satisfaction.

The mean screw retrieval time for IXOS was 14 seconds, compared to 57 seconds for APTUS, resulting in an average savings of 43 seconds and £15 per screw. All respondents preferred re-sterilisable implants, citing better surgical times, convenience, and reduced waste. The waste generated by each screw was 11g for APTUS and less than 1g for IXOS.

Re-sterilisable implants are associated with better surgical times, reduced screw retrieval times, and less waste, making them the preferred choice for small bone fixation.

Why Not Ortho? Investigating Perceived Barriers to a Career in Trauma & Orthopaedics

Hannah Wise (Presenting), Joanna Craven, Aureola Tong

Affiliated Unit(s): Cardiff University, Royal Glamorgan Hospital

Introduction

In 2022, women comprised 58% of medical school entrants in the UK. However, Trauma & Orthopaedics (T&O) has the lowest female representation. The number of applicants per training place is declining. To attract top talent, T&O must be accessible and appealing to all trainees.

Aims

This study investigates attitudes toward T&O and the influence of gender on career decision-making.

Methods

A survey was distributed to first-year medical students, collecting data on age, gender and career interests. Participants identified the primary barrier to entering orthopaedics and any additional perceived obstacles. Free-text responses captured perceptions of the specialty.

Results

The survey received 54 responses (45% response rate), with 67% (n=36) female and 33% (n=18) male participants. When asked about the biggest barrier to an orthopaedic career, 43% (n=23) cited the competitive entry process, 28% (n=15) noted work-life balance concerns, 9% (n=5) reported gender bias, 6% (n=3) mentioned a lack of diversity, 7% (n=4) listed other factors and 7% (n=4) reported no barriers.

Discussion

Even at the start of medical school, gender bias and lack of diversity are recognised as barriers to T&O. While 15% (n=8) identified these as the primary obstacle, 44% (n=24) acknowledged them as additional concerns. Although maintaining a competitive standard in orthopaedics is essential, the specialty must also be perceived as accessible and appealing to ensure it remains a viable career option for future doctors. Addressing diversity and inclusion early in medical training may help achieve this balance and improve representation in orthopaedics.

Radiation Personal Protective Equipment (RPPE) in Orthopaedic Theatres: A Nationwide Stocktake

Francesca Solari (Presenting), Clara Miller, Lucy Scales, Alice Jones, Claire Joyner, Martin Clarkson, Zayd Jawad, Deepika Pinto, Sonu Mehta, Vinay Joseph, Sanjeevan Yoganathan, Beibit Bashabayev, Avadhut Kulkarni, Clare Carpenter

Affiliated Unit(s): University Hospital Wales, Prince Charles Hospital, Royal Glamorgan Hospital, The Grange University Hospital, Glangwilli Hospital, Morriston Hospital, Neath Port Talbot Hospital, Ysbyty Gwynedd, Wrexham Maelor Hospital, Ysbyty Glan Clwyd, University Hospital Wales

Introduction
Adequate access to radiation personal protective equipment (RPPE) is crucial for surgical team safety, minimizing exposure to ionizing radiation during intraoperative fluoroscopy. The British Orthopaedic Association (BOA) recommends radiation protective gowns be wrap-around style with high axillary coverage. This study assessed RPPE stock levels across Welsh hospitals with Trauma & Orthopaedics (T&O) higher surgical trainees.

Methods
A nationwide stocktake was conducted in January 2025 across Welsh hospitals hosting T&O higher surgical trainees. Data were collected on the number of orthopaedic theatres, daily surgical lists, and available RPPE, including gown style, thickness, size distribution, and thyroid guard availability.

Results
Data from 11 hospitals showed orthopaedic theatres per hospital ranged from 1 to 6, with daily surgical lists between 1 and 6. RPPE stock levels varied widely: tabard (open-sided) gowns ranged from 12 to 35 per hospital, wrap-around gowns from 1 to 22, and thyroid guards from 2 to 22. Gown thickness and size availability were inconsistent, with shortages of small and medium sizes in some hospitals. One hospital had no access to wrap-around gowns, and another 4 had fewer than 5 available. Overall, only 29.4% of RPPE stock consisted of BOA-recommended wrap-around gowns.

Conclusion
There is significant variability in RPPE stock across Wales, with many hospitals lacking BOA-recommended protection. More than half of surveyed hospitals had limited access to wrap-around gowns and thyroid shields, potentially compromising occupational safety. Ensuring appropriate gown fit and standardizing RPPE provision across hospitals is essential to improve radiation safety for orthopaedic teams.

Friday 23rd May 10:40 – 11:32

Podium Session 4: Spine/Trauma

Impact of the 20mph Speed Limit on Spinal Trauma Admissions to the Major Trauma Centre for Wales

Sanjana Purbhoo (Presenting), Michael McCarthy

Affiliated Unit(s): Cardiff University School of Medicine, Cardiff and Vale University Health Board

Motor vehicle collisions (MVCs) are a common cause of spinal trauma. On 17th September 2023, Wales issued a new default speed limit of 20mph. We assessed the number of MVC-related spinal trauma admissions to the Major Trauma Centre (MTC) for Wales, 1-year before and 1-year after implementation of the 20mph speed limit. For all patients admitted to the MTC between 17/09/22-04/01/25 and who sustained spinal trauma from a reported 'vehicle incident', data was analysed regarding demographics, mechanism of injury and management. There was no statistical difference when comparing the total number of MVC patients who sustained spinal trauma before (n=136) and after (n=140) introduction of the new speed limit, X^2 (1, N=1306) = 0.196, p=0.658. Only 15.7% of post-20mph spinal trauma admissions happened on 20mph speed limit roads. However, the MVC location for 73 patients is unknown, due to missing data. Patient demographics were similar for both groups; there was no statistical difference in mean age on admission (P>0.05, 95% CI -6.85, 3.05) and the majority of spinal trauma patients were male, both in the pre-20mph (73.4%) and post-20mph (66.4%) groups. Car occupants were the most common road users to sustain spinal trauma, both before (44.9%) and after (47.9%) introduction of the new speed limit. Conservative management was the most common approach for treatment, both pre-20mph (64.0%) and post-20mph (50.0%). We can conclude that the 20mph speed limit has had no significant impact on the number of spinal trauma admissions to the MTC for Wales.

A Retrospective Analysis of Pedicle Screw Placement in Adolescent Idiopathic Scoliosis Over Ten Years: The Impact of Image Intensification and Medacta MySpine® 3D Printed Guides

Sophie Griffiths (Presenting), Michael McCarthy, Stuart James, Alwyn Jones, Sashin Ahuja, John Howes, Paul Davies, Naz Moideen

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

Pedicle screw malplacement can result in serious complications. This study reviewed surgical techniques used in our hospital to identify the best method for reducing screw malplacement. Various clinical data was retrospectively collected for patients undergoing primary surgical intervention for the treatment of adolescent idiopathic scoliosis (AIS) between January 2013 and 2023. Most recent post-operative x-rays were analysed by a spinal consultant and compared to post-operative CT imaging (if performed). Patients who underwent revisional surgery were identified.

5070 screws were placed in 265 patients during the study period, with 516 (10%) being malplaced. Where a freehand technique was used without any intraoperative imaging between 2013 and 2016, 14% (260/1866) screws were malplaced. Where intraoperative image intensification (II) was used alongside the freehand technique between 2017 and 2022, 9% (238/2627) screws were malplaced. Then, in 2023, when Medacta MySpine® 3D Printed Guides were used alongside II, 3% (18/577) of screws were malplaced. 23% (61/265) of patients required post-operative CT imaging. 6% (78/1230) of these screws were malplaced on x-ray and 18% (227/1230) were malplaced on CT. 23 patients (9%) required a return to theatre during the study period, 4 of which had a revision of malplaced screws.

Overall, the use of II alone reduces pedicle screw malplacement. However, malplacement is significantly reduced when II is used alongside the guides, suggesting that combining both techniques is the superior method.

An Investigative Analysis on the Impact of Antibiotic Duration on Outcomes in Primary Spinal Infections with Retained Metalwork: A 10-Year Review

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Introduction

The management of primary spinal infections with instrumentation remains controversial, particularly regarding the duration of postoperative antibiotic therapy and the necessity of metalwork removal. While prolonged antibiotic courses are often prescribed, evidence supporting extended treatment remains limited. This study evaluates whether prolonged antibiotic therapy improves outcomes in patients with retained spinal metalwork.

Materials and Methods

A retrospective review of patients treated surgically for primary spinal infections between 2013 and 2022 was conducted. Fifty-two patients with spinal metalwork treatment were included. Data on infection type, microbiology, surgical details, antibiotic duration, hospital stay and need for revision surgery were analysed. The primary outcome was infection recurrence, with secondary outcomes including revision surgery rates and hospital length of stay.

Results

The cohort included 31 males and 21 females (mean age: 61 years). The mean duration of postoperative antibiotic therapy was 8.4 weeks. Patients receiving prolonged antibiotic courses (more than 8 weeks) had no significant reduction in infection recurrence compared to those receiving less than 8 weeks. Revision surgery was required in 17% of cases (9 patients), yet no patients required metalwork removal. Hospital stay averaged 73 days, with almost no correlation to antibiotic duration (minimum follow-up was 2 years).

Conclusion

These findings suggest that spinal metalwork can be safely retained in primary spinal infections without necessitating prolonged antibiotic courses. Optimising antibiotic duration may reduce unnecessary treatment without compromising patient outcomes.

Distal femoral fractures in the elderly: to fix or replace? A multicentre comparison of outcomes

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Distal femoral arthroplasty is increasingly being used in the management of distal femoral fractures in the elderly, particularly for highly comminuted fractures with poor bone stock. We sought to compare the outcomes of this procedure with conventional methods of fixation.

Data were retrospectively collected for all procedures that had been performed for distal femoral fractures in 2 units over a 2 year period between 1/12/2020 and 30/11/2022. Open fractures and periprosthetic fractures were excluded.

19 patients underwent distal femoral replacement (DFR) during this period and 54 underwent fixation with either a distal femoral locking plate (n=23), a retrograde nail (n=23), both a retrograde nail and a distal femoral locking plate (n=4) or cannulated screw fixation (n=4). Both groups had a mean age of 78. Early surgery (<36hours) was more common in the fixation group ($p<0.005$) and these patients also had a shorter length of stay ($p<0.05$) and returned to their own home ($p<0.0005$). Inpatient death was more common in the DFR group ($p<0.05$). Post operative full weight bearing status was more common in the DFR group ($p<0.005$).

Although DFR patients were more likely to be full weight bearing post operatively, they have a higher rate of inpatient death, a longer length of stay and were less likely to return to their own home after discharge. The conclusions that we can draw from this project are limited by the small sample size and the next stage is currently in progress where similar data is being collated across another trauma unit.

Prospective study of surgical site infections in neck of femur fractures in Morriston Hospital; a 5 year analysis from 2019-2024

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Background: Surgical site infections (SSIs) following neck of femur fracture surgery are associated with increased morbidity, mortality, and healthcare costs. Identifying risk factors for SSIs is essential for improving patient outcomes.

Methods: This is a prospective cohort study in Morriston Hospital, Swansea, analysing neck of femur fracture surgeries between 2019 and 2024. Data were collected on ASA grade, Abbreviated Mental Test (AMT) score, duration of operation, time to theatre, closure type, grade of surgeon, and operation type. Statistical analysis was performed using univariate (chi-square, Mann-Whitney U) and multivariate logistic regression analyses.

Results: 1,737 cases were included. The overall, SSI rate was 4.3%, falling from 9.43% in 2019 to 1.93% in 2024. Closure type influenced infection rates, with a reduction in SSI following the transition from clips (88.3% in 2019 to 5.8% in 2024) to Monocryl (11.3% to 93.3%). On univariate analysis, significant associations were found between SSI incidence and closure type ($p = 0.022$), time to theatre ($p < 0.0001$), and operative duration ($p < 0.0001$). On multivariate analysis, higher AMT scores were found to be protective against infection ($p < 0.0001$ for AMT 8, $p = 0.023$ for AMT 9). Additionally, hemiarthroplasty and intramedullary nailing were associated with a lower rate of infection, both with $p < 0.0001$.

Conclusion: Findings suggest that closure type plays a role in SSI risk in neck of femur fracture surgery. Further prospective studies are needed to validate these findings and explore additional risk factors. This study contributes to optimising surgical techniques and improving patient outcomes.

Evaluation of the Repatriation Process Involving Major Trauma Patients

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Introduction

Major trauma patients succumb to significant injuries that require transfer to a major trauma centre for appropriate management, but once the acute phase of treatment is over, then comes the challenge when these patients require repatriation back to their local NHS hospitals for further rehabilitation. According to the "Major Trauma Clinical Network Specification", one of the metrics is for patients to be repatriated to their local Trauma Unit within 48 hours of getting an accepting consultant. This study aims to look into whether we are able to repatriate the patients within that timeframe.

Methodology

We reviewed patients admitted to our Trauma and Orthopaedics department between January 2022 and June 2024. Records of patients were extracted through hospital IT records. Patients who were not local to our major trauma centre and required repatriation were included in the study.

Results

A total of 224 patients were included in the study. 154 patients were repatriated to their local TU. Only 31 patients, about 14%, got repatriated within 48 hours of getting an accepting consultant. 70 patients (31%), patients ended up getting discharged to their usual place of residence as they became medically and therapy fit for discharge before having an available bed. 4 bed days per patient were lost on average during the repatriation process.

Conclusion

Repatriation of major trauma patients is an essential and complex process requiring efforts and use of resources. It helps patients in terms of functional recovery and psychological wellness as they are closer to family and friends.