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2022-Sept-01	<p>HAVE THERE BEEN DELAYS TO THEATRE IN PATIENTS WITH UPPER LIMB TRAUMA DURING THE COVID-19 PANDEMIC? A MULTI-CENTRE RETROSPECTIVE COHORT STUDY K. Hoban, L. Yacoub, R. Bidwai, Z. Sadiq, D. Cairns and AC. Jariwala. Ninewells Hospital, James Arrott Drive, Dundee, DD1 9SY, UK Email: Katie.hoban@nhs.scot</p> <p>The COVID-19 pandemic presented a significant impact on orthopaedic surgical operating. This multi-centre study aimed to ascertain what factors contributed to delays to theatre in patients with shoulder and elbow trauma.</p> <p>A retrospective cohort study of 621 upper limb (shoulder and elbow) trauma patients between 16/03/2020 and 16/09/2021 (18-months) was extracted from trauma lists in NHS Tayside, Highland and Grampian and Picture Archiving and Communication Systems (PACS).</p> <p>Median patient age =51 years (range 2-98), 298 (48%) were male and 323 (52%) female. The commonest operation was olecranon open reduction internal fixation (ORIF) 106/621 cases (17.1%), followed by distal humerus ORIF – 63/621 (10.1%). Median time to surgery was 2 days (range 0-263). 281/621 (45.2%) of patients underwent surgical intervention within 0-1 days and 555/621 patients (89.9%) had an operation within 14 days of sustaining their injury. 66/621 (10.6%) patients waited >14 days for surgery. There were 325/621 (52.3%) patients with documented evidence of delay to surgery; of these 55.6% (181/325) were due to amendable causes. 66/325 (20.3%) of these patients suffered complications; the most common being post-operative stiffness in 48.6% of cases (n=32/66).</p> <p>To our knowledge, this is the first study to specifically explore effect of COVID-19 pandemic on upper limb trauma patients. We suggest delays to theatre may have contributed to higher rates of post-operative stiffness and require more physiotherapy during the rehabilitation phase. In future pandemic planning, we propose dedicated upper-limb trauma lists to prevent delays to theatre and optimise patients’ post-operative outcomes.</p>
2022-Sept-03	<p>ROUTINE FIXATION OF HUMERAL SHAFT FRACTURES IS COST-EFFECTIVE: COST-UTILITY ANALYSIS OF 215 PATIENTS AT FIVE YEARS FOLLOWING INJURY W.M. Oliver, S.G. Molyneux, T.O. White, N.D. Clement, A.D. Duckworth Email: william.m.oliver@doctors.org.uk Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, Midlothian, EH16 4SA, UK</p> <p>The primary aim was to estimate the cost-effectiveness of routine operative fixation for all patients with humeral shaft fractures. The secondary aim was to estimate the cost-effectiveness of using a Radiographic Union Score for HUmeral fractures (RUSHU)<8 to facilitate selective fixation for patients at risk of nonunion.</p> <p>From 2008-2017, 215 patients (mean age 57yrs [17-81], 61% female) with a non-operatively managed humeral diaphyseal fracture were retrospectively identified. Union was achieved in 77% (n=165/215) after non-operative management, with 23% (n=50/215) uniting after nonunion surgery. The EuroQol Five-Dimension (EQ-5D) Health Index was obtained via postal survey. An incremental cost-effectiveness ratio (ICER) <£20,000 per quality-adjusted life-year (QALY) gained was considered cost-effective.</p> <p>At a mean of 5.4yrs (1.2-11.0), the mean EQ-5D was 0.736. Multiple regression demonstrated that uniting after nonunion surgery was independently associated with an inferior EQ-5D (beta=0.103, p=0.032). Routine fixation for all patients to reduce the nonunion rate would be associated with increased treatment costs (£1,542/patient) but confer a potential EQ-5D benefit of 0.120/patient. The ICER of routine fixation was £12,850/QALY gained. Selective fixation, based upon a RUSHU<8 at 6wks post-injury, would be associated with reduced treatment costs (£415/patient) and confer a potential EQ-5D benefit of 0.335 per ‘at-risk patient’.</p> <p>Routine fixation for patients with humeral shaft fractures, to reduce the nonunion rate observed after non-operative management, appears to be cost-effective at 5yrs post-injury. Selective fixation for patients at risk of nonunion based upon the RUSHU may confer greater cost-effectiveness, given the potential savings and improvement in EQ-5D.</p>

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2022-Sept-04	<p>NEONATAL HIP ASSESSMENT – PREDICTABLE FAILURE J. Burt, N. AlKandari, D.M. Campbell, J.G.B. Maclean Ninewells Hospital, James Arrott Drive, Dundee. DD2 1SG. UK. Email: Justine.burt@gjnh.scot.nhs.uk</p> <p>The UK falls behind other European countries in the early detection of Developmental Dysplasia of the hip (DDH) and there remains controversy surrounding screening strategies for early detection. Clinical detection of DDH is challenging and recognised to be dependent on examiner experience. No studies exist assessing the number of personnel currently involved in such assessments.</p> <p>Our objective was to study the current screening procedure by studying a cohort of new-born babies in one teaching hospital and assess the number of health professionals involved in neonatal hip assessment and the number of examinations undertaken during one period by each individual.</p> <p>This was a retrospective observational study assessing all babies born consecutively over a 14-week period in 2020. Record of each initial baby check was obtained from Maternity or Neonatal Badger. Follow-up data on ultrasound or orthopaedic outpatient referrals were obtained from clinical records.</p> <p>1037 babies were examined by 65 individual examiners representing 9 different healthcare professional groups. The range of examinations conducted per examiner was 1- 97 with a mean of 15.9 examinations per person. 49% individuals examined 5 or less babies across the 14 weeks, with 18% only performing 1 examination. Of the 5 babies (0.48%) treated for DDH, one was picked up on neonatal assessment.</p> <p>In a system where so many examiners are involved in neonatal hip assessment the experience is limited for most examiners. It is unsurprising that high current rates of late presentation of DDH are observed locally, which are in accordance with published national experience.</p>
2022-Sept-06	<p>CROSSING KIRSCHNER WIRES DURING SURGIAL FIXATION FOR BASE OF 5TH METACARPAL FRACTURES: A RISK FACTOR FOR POST OPERATIVE INFECTION? M. Biddle, V. Wilson, S. Phillips, N. Miller, K. Little & D. Martin Department of Orthopaedics & Trauma, Queen Elizabeth University Hospital, 1345 Govan Road, Govan G51 4TF Email: Mairiosa.biddle@ggc.scot.nhs.uk</p> <p>Our aim was to explore factors associated with early post operative infection for surgically managed base of 4th/5th metacarpal fractures. We hypothesised that K-wires crossing the 4th and 5th carpometacarpal joint (CMCJ) would be associated with an increased risk of post-operative infection.</p> <p>Data from consecutive patients requiring surgical fixation for a base of 4th/5th metacarpal fracture from October 2016 to May 2021 were collected. Patient demographics, time to surgery, length of surgery, operator experience, use of tourniquet, intra-operative antibiotics, number and thickness of K-wire used, as well as whether or not the K-wires crossed CMCJ joints were recorded. Factors associated with post operative infection were assessed using Chi Squared test and univariable logistic regression using R studio.</p> <p>Of 107 patients, 10 (9.3%) suffered post operative infection. Time to surgery (p 0.006) and length of operation (p=0.005) were higher in those experiencing infection. There was a trend towards higher risk of infection seen in those who had K-wires crossed (p=0.06). On univariable analysis, patients who had wires crossed were >7 times more likely to experience infection than those who didn't (OR 7.79 (95% CI, 1.39 - 146.0, p=0.056). Age, smoking, K-wire size, number of K-wires used, intraoperative antibiotics, tourniquet use and operator experience were not associated with infection.</p> <p>In patients with a base of 4th/5th metacarpal fractures requiring surgical fixation, we find an increased risk of post-operative infection associated with K-wires crossing the CMCJ, which has implications for surgical technique. Larger prospective studies would be useful in further delineating these findings.</p>

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">2022-Sept-08</p>	<p>EARLY OUTCOMES AFTER ADOPTION OF THE DIRECT ANTERIOR APPROACH FOR TOTAL HIP REPLACEMENT K Pawloy, HW Sargeant, KA Smith, I Rankin, P Talukdar, S Hancock, C Munro Email: harry.sargeant@nhs.scot Woodend Hospital, Eday Road, Aberdeen, AB15 6XS</p> <p>Our unit historically performed total hip replacement (THR) through either posterior or anterolateral approaches. In November 2020 a group of 5 consultants transitioned to utilising the Direct Anterior Approach (DAA). Appropriate training was undertaken and cases were performed as dual consultant procedures with intraoperative radiography or robotic assistance.</p> <p>Outcomes were collated prospectively. These included basic demographics, intraoperative details, complication rates and Oxford Hip Scores.</p> <p>A total of 48 patients underwent DAA THR over 1 year. Mean age was 67 and ASA 2. Over this time period 140 posterior approach and 137 anterolateral approach THR's were performed with available data. Propensity score matching was performed on a 1:1 basis using BMI, Age, Sex and ASA as covariates to generate a matched cohort group of conventional approach THR (n=37)</p> <p>Length of stay was significantly reduced at 1.95 days (p<0.001) with DAA compared to Anterolateral and Posterior approach. There was no significant difference with length of surgery, blood loss, Infection, dislocation and periprosthetic fracture rate. There was no significant difference in Oxford Hip Score between any approach at 3 months or 1 year.</p> <p>The transition to this approach has not made a negative impact despite its associated steep learning curve, and has improved efficiency in elective surgery. From our experience we would suggest those changing to this approach receive appropriate training in a high-volume centre, and perform cases as dual consultant procedures.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">2022-Sept-14</p>	<p>RE-REVISION KNEE ARTHROPLASTY – THE EFFECT OF TIME FROM PRIMARY TO FIRST REVISION. A STUDY OF 4723 PATIENTS FROM THE SCOTTISH ARTHROPLASTY PROJECT. A Jabbal, J Burt, M Moran, J Clarke, PJ Jenkins, P Walmsley Edinburgh Orthopaedics, Royal Infirmary of Edinburgh, EH16 4SA Email : Monu.Jabbal@nhs.scot</p> <p>Revision Total Knee Arthroplasty (rTKA) is predicted to increase by more than 600% between 2005 and 2030. The survivorship of primary TKA has been extensively investigated, however more granular information on the risks of rTKA is needed. The aim of the study was to investigate the incidence of re-revision TKA, with explanatory variables of time from primary to revision, and indication (aseptic vs septic). Secondary aim was to investigate mortality.</p> <p>This is an analysis of the Scottish Arthroplasty Project data set, a national audit prospectively recording data on all joint replacements performed in Scotland. The period from 2000 to 2019 was studied.</p> <p>4723 patients underwent revision TKA. The relationship between time from primary to revision TKA and 2nd revision was significant (p<0.001), with increasing time lowering probability of re-revision (OR 0.99 95% CI 0.987 to 0.993). There was no significant association in time to first revision on time from 1st revision to re-revision (p>0.05). Overall mortality for all patients was 32% at 10 years (95% CI 31-34), Time from primary TKA to revision TKA had a significant effect on mortality: p=0.004 OR 1.03 (1.01-1.05). Septic revisions had a reduced mortality compared to aseptic, OR 0.95 (0.71-1.25) however this was not significant (p=0.69).</p> <p>This is the first study to demonstrate time from primary TKA to revision TKA having a significant effect on probability of re-revision TKA. Furthermore the study suggests mortality is increased with increasing time from primary procedure to revision, however decreased if the indication is septic rather than aseptic.</p>

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<p style="text-align: center;">2022-Sept-15</p>	<p>FIVE YEAR SURVIVAL OF VANCOUVER B FRACTURES AROUND A CEMENTED POLISHED TAPERED STEM TREATED WITH FIXATION MFR. Powell-Bowns, E. Oag, D. Martin, M. Moran, CEH. Scott. Royal Infirmary of Edinburgh, Edinburgh; University of Edinburgh, Edinburgh Royal Infirmary of Edinburgh, Little France Cres, Edinburgh EH164SA. Email: Matilda.powell-bowns@nhslothain.scot.nhs.uk</p> <p>The aim of the study was to report the survival of open reduction and internal fixation (ORIF) of Vancouver B fractures associated with the Exeter Stem (ES) at a minimum of 5 years.</p> <p>This retrospective cohort study assessed 129 consecutive patients with Vancouver B type fractures treated with ORIF from 2008-2016 at a minimum of 5 years. Patient records were examined, and the following recorded: details of primary prosthesis, details of injury, Vancouver classification, details of operative management, complications, and requirement for reoperation. Data was analysed using SPSS. Survival analysis was undertaken using the endpoint ‘reoperation for any reason’.</p> <p>Mean age at fracture was 78.2 (SD10.6, 46-96) and 54 (43%) were female. Vancouver subclassifications were: 24% B1, 70.5% B2 and 5.5% B3. For all Vancouver B fractures, Kaplan Meier analysis demonstrated a 5 year survival free from reoperation of 88.8% (82.0-94.7 95%CI). Fourteen patients required reoperation, most commonly within the first year for non-union and plate fracture (5.4%). Five-year survival for any reoperation differed significantly according to fracture type (p=0.016) and was worst in B1s: B1 76.6% (61.3-91.9); B2 92.6% 986.9-98.3); and 100% of B3. Univariate analysis identified B1 type (p=0.008) and a transverse fracture pattern (p=0.003) to be significantly associated with the need for reoperation.</p> <p>Adopting a strategy of fixation of all Vancouver B fractures involving the ES where the fracture was anatomically reducible and the bone cement interface was well-fixed was associated with a 5 year survival, free from reoperation of 88.8%.</p>
<p style="text-align: center;">2022-Sept-17</p>	<p>PROJECTED HIP FRACTURE INCIDENCE IN SCOTLAND E. Harris, L. Farrow, C. Martin, K. Adam, and G. Holt. Glasgow Royal Infirmary, 84 Castle Street, Glasgow, G4 0SF Email: ejharris@doctors.org.uk</p> <p>The hip fracture burden on health and social care services in Scotland is anticipated to increase significantly, primarily driven by an ageing population. This study forecasts future hip fracture incidence and the annual number of hip fractures in Scotland until 2029.</p> <p>The monthly number of patients with hip fracture aged ≥ 50 admitted to a Scottish hospital between 01/01/2017 and 31/12/2021 was identified through data collected by the Scottish Hip Fracture Audit. This data was analysed using Exponential Smoothing and Auto Regressive Integrated Moving Average forecast modelling to project future hip fracture incidence and the annual number of hip fractures until 2029. Adjustments for population change were accounted for by integrating population projections published by National Records of Scotland.</p> <p>Between 2017 and 2021 the annual number of hip fractures in Scotland increased from 6675 to 7797, with a respective increase in hip fracture incidence from 313 to 350 per 100,000. By 2029, the averaged projected annual number of hip fractures is 10311, with an incidence rate of 463 per 100,000. The largest percentage increase in hip fracture occurs in the 70-79 age group (57%), with comparable increases in both sexes (30%). Based upon these projections, overall length of stay following hip fracture will increase from 142713 bed days per annum in 2021, to 203412 by 2029, incurring an additional cost of over £25 million.</p> <p>Forecast modelling demonstrates that the annual number of hip fractures in Scotland will rise substantially by 2029, with considerable implications for health and social care services.</p>

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2022-Sept-21	<p>NATIVE KNEE KINEMATICS ARE REPRODUCED DURING THE GOLF SWING AFTER TOTAL KNEE ARTHROPLASTY: A CASE CONTROL STUDY OF HIP AND KNEE KINEMATICS OF PATIENTS RETURNING TO GOLF COMPARED TO MATCH CONTROLS</p> <p>C.S. Rankin, S. Coleman, P.G. Robinson, I.R. Murray, N.D. Clement. Edinburgh Orthopaedics, Royal Infirmary Edinburgh, 51 Little France Cres, Old Dalkeith Rd Edinburgh, EH16 4SH Email: conorrankin11@gmail.com</p> <p>We aim to determine the differences in lower limb joint kinematics during the golf swing of patients who had undergone Total Knee Arthroplasty (TKA) and a control group of native knee golfers.</p> <p>A case-control study was undertaken with ten golfers who had undergone TKA (cruciate retaining single radius implant) and five age and matched golfers with native knees. Each golfer performed five swings with a driver whilst being recorded at 200Hz by a ten-camera motion capture system. Knee and hip three-dimensional joint angles (JA) and joint angular velocities (JAV) were calculated and statistically compared between the groups at six swing events.</p> <p>The only significant differences in knee joint kinematics between TKA and control groups was a lower external rotation JA in the left knee during the backswing ($p=0.010$). There was no significant difference in knee JAV between the groups. Both hips demonstrated significantly ($p=0.023$ for left and $p=0.037$ for right) lower flexion in the TKA group during the takeaway swing event, and there was lower internal rotation in the backswing and greater external rotation in the downswing of the right hip. There was also slower left hip extension JAV in the downswing.</p> <p>Normal knee kinematics were observed during the golf swing following TKA, with the exception of reduced external rotation in the left knee during the back swing and the right during the down swing. The differences demonstrated in the hip motion indicate that they may make compensatory movements to adjust to the reduced external rotation demonstrated in the knee.</p>
2022-Sept-22	<p>ASSESSING PRE-OPERATIVE LOWER LIMB CORONAL ALIGNMENT IN THE SETTING OF KNEE ARTHROPLASTY: A COMPARISON OF WEIGHTBEARING HKA RADIOGRAPHS WITH INTRAOPERATIVE ASSESSMENT USING CT-BASED NAVIGATION</p> <p>H Vidakovic, N Ohly Department of Orthopaedics, Golden Jubilee National Hospital, Clydebank, Scotland Email: herv.vidakovic@gjnh.scot.nhs.uk</p> <p>Accurate evaluation of lower limb coronal alignment is essential for effective pre-operative planning of knee arthroplasty. Weightbearing hip-knee-ankle (HKA) radiographs are considered the gold standard. Mako SmartRobotics uses CT-based navigation to provide intra-operative data on lower limb coronal alignment during robotic assisted knee arthroplasty. This study aimed to compare the correlation between the two methods in assessing coronal plane alignment.</p> <p>Patients undergoing Mako partial (PKA) or total knee arthroplasty (TKA) were identified from our hospital database. The hospital PACS system was used to measure pre-operative coronal plane alignment on HKA radiographs. This data was correlated to the intraoperative deformity assessment during Mako PKA and TKA surgery.</p> <p>443 consecutive Mako knee arthroplasties were performed between November 2019 and December 2021. Weightbearing HKA radiographs were done in 56% of cases. Data for intraoperative coronal plane alignment was available for 414 patients. 378 knees were aligned in varus, and 36 in valgus. Mean varus deformity was 7.46° (SD 3.89) on HKA vs 7.13° (SD 3.56) on Mako intraoperative assessment, with a moderate correlation ($R=0.50$, $p<0.0001$). Intraoperative varus deformity of $0-4^\circ$ correlated to HKA measured varus (within 3°) in 60% of cases, compared to 28% for $5-9^\circ$, 17% for $10-14^\circ$, and in no cases with $>15^\circ$ deformity. Mean valgus deformity was 6.44° (SD 4.68) on HKA vs 4.75° (SD 3.79) for Mako, with poor correlation ($R=0.18$, $p=0.38$).</p> <p>In this series, the correlation between weightbearing HKA radiographs and intraoperative alignment assessment using Mako SmartRobotics appears to be poor, with greater deformities having poorer correlation.</p>

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2022-Sept-24	<p><u>RESTARTING ELECTIVE ORTHOPAEDIC SERVICES ACROSS SCOTLAND DURING A YEAR OF COVID-19</u> T. Harding, , J. Dunn, A. Haddon, E. Fraser, R. Sinnerton, P. Davies, B. Clift SCORE Collaborative Ninewells Hospital, Dundee, Scotland Email: Thomas.harding1@nhs.scot</p> <p>COVID 19 led to massive disruption of elective services across Scotland. This study was designed to assess the impact on elective service that the COVID-19 pandemic had, to what extent services have been restarted and the associated risks are in doing so.</p> <p>This is a retrospective observational study. The primary outcomes are the number of operations completed, 30-day mortality, 30-day complication rates and nosocomial infection with COVID-19 compared to previous years. Data was collected from 4 regions across Scotland from 27th March 2020 - 26th March 2021. This was compared to the same time period the previous year.</p> <p>3431 elective operations were completed in the year post-pandemic compared with 12255, demonstrating a reduction of 72%. Both groups had comparable demographics. Major joint arthroplasty saw a 72% reduction, with TKR seeing a reduction of 82%. Each of the 4 health boards were affected in a similar fashion. Nosocomial COVID-19 infection was 0.4% in the post covid group. 30 day mortality was the same at 0.1%. Total complications rose from 5.7% to 10.1% post covid.</p> <p>This study shows that there has been a substantial reduction in elective activity across Scotland, that is disproportionate to the level of COVID-19. The risk of developing COVID-19 from elective surgery is low at 0.4%, however all complications saw a significant rise. This is likely multifactorial. This study will inform decision makers in future pandemics, that it is safe to continue elective orthopaedic surgery and of the potential impact of cessation of services.</p>
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