NZOA Annual Scientific Meeting

CONFERENCE

20th – 22nd October
The Devon, New Plymouth

2024

NZOA
New Zealand Orthopaedic Association

Welcome

Welcome to the 2024 NZOA ASM in New Plymouth.

Convenors Charlie Lewis and Ritwik Kejriwal have curated an outstanding scientific program encompassing a broad spectrum of subspecialty interests.

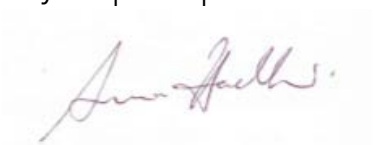
The conference will feature a distinguished roster of global experts, particularly in the fields of navigation and robotics in orthopaedics, offering invaluable insights for orthopaedic surgeons committed to staying at the cutting edge of technological advancements.

The agenda includes plenary sessions on hip and knee arthroplasty and spine surgery, as well as two days of free paper presentations.

Contributions from both local and international faculty will enrich the programme, with a special session dedicated to the latest findings from the New Zealand and Australian Joint Registries.

Additionally, a plenary session addressing the challenges of Competency-Based Education will feature the international Carousel Presidents.

Our social program offers a variety of activities, including a sports afternoon, a gala dinner, and partner events on Monday and Tuesday around Taranaki. We look forward to your participation in what promises to be a highly educational and collegial event.



Simon Hadlow
NZOA President

General Information

Abstracts

If you have an accepted podium presentation, please ensure to load your presentation on Sunday the 20th of October between 12pm and 5pm with the AV tech at the speaker prep desk, located in the entrance lounge area on the ground floor of the Devon Hotel. If you cannot be there on Sunday to load prior to the ASM on Monday, you will need to do so during the morning sessions after the official opening and before the morning tea break (8:00am – 10:00am). Note, you will need to bring your presentations on a USB stick for the AV tech. Once you have loaded your presentation, no changes are able to be made.

If you have a poster presentation, please go to the entrance lounge area on the ground floor of the Devon Hotel to load your digital posters. These will be featured on screens in the trade's foyer area for viewing.

Catering

All catering will be held in the exhibition hall (Courtney/Watson rooms next to the main plenary room) during the event, aside from the gala dinner, which will be held at the Plymouth International Hotel on Monday evening. Note, only those registered for the gala dinner may attend.

The gala dinner has limited capacity, so if you have registered to attend and are no longer able to, please contact Nikki. If the event comes to maximum capacity, a waiting list will be established, and spaces will be allocated based on a first in first served basis.

COVID 19

The New Zealand Government no longer requires you to be vaccinated or wear a mask at indoor events. We will not be enforcing mask wearing, however, we will have masks available should you choose to wear them. Hand sanitiser will be provided at the registration desk.
If you develop COVID symptoms, please stay home or in your hotel and contact NZOA Events Manager, Nikki Wright immediately: 027 2801131, nikki@nzoa.org.nz.

CPD Points

NZOA Members can claim 10 points per day of attendance. If you require a certificate of attendance and/or for a presentation of a paper, please contact Nikki post event.

General Information

Dietary Requirements

If you have indicated your dietary requirements when you registered, you will be catered for on a dedicated dietary table in the catering areas. You must have indicated you had dietary requirements when registering, or you cannot be catered for.

Food preferences are not considered dietary requirements and have not been catered for.

If you have any issues, please see Nikki or Prue.

Event Support

If you require assistance during the event, please ask Nikki or Prue on the registration desk for support.

Exhibition Hall

The main exhibition and catering areas are in the Courtney/Watson rooms on the ground floor of the Devon Hotel. Please follow the signs. All catering will be in the exhibition hall during the event.

Gala Dinner

Dress Code: Black Tie

Dinner will take place from 7:30pm (seated) in the Grand Hall at the Plymouth International Hotel.

Pre-dinner drinks and canapés will be available from 6:30pm at the Plymouth. The Theme is 'A Mid – Summer Night's Dream'.

The Plymouth International is a short 5-minute walk from the Devon Hotel. No transport is provided from the Devon to the Plymouth however, if you have any accessibility requirements, please contact Nikki as soon as possible.

Parking

Parking is available at the Devon Hotel at a rate of $30 per day. Please see reception to secure your car park. There is also off street parking available.

Registration

General Information

Please register and collect your name badges and lanyards from the registration desk, open from Sunday 20th of October from 12 – 5pm, opening again from 7:00am on Monday 21st of October.

Please note, the opening ceremony will commence at 8:00am sharp. If you are not seated in the main conference plenary room (Hobson Room) then you will not be permitted in until after the mihi whakatau has finished and the conference is officially open.

Sports Afternoon

If you wish to join the sporting activities on Sunday afternoon, please refer to page 51 for contact details and to register.

Welcome Function

The ASM welcome function will be held on Sunday the 20th of October in the trades room (Courtney/Watson) and foyer area. The adjacent garden will be open, weather permitting. The welcome function will commence at 6:00pm – 8:00pm.

Dress code is smart casual.

Wi-Fi

The Wi-Fi password is: bookdirect (all lowercase one word).

NZOA Staff Contact Details:

Nikki Wright
Conference & Events Manager
e. nikki@nzoa.org.nz
p. 027 280 1131

Prue Elwood
Education & Training Manager
e. prue@nzoa.org
p. 027 586 4336

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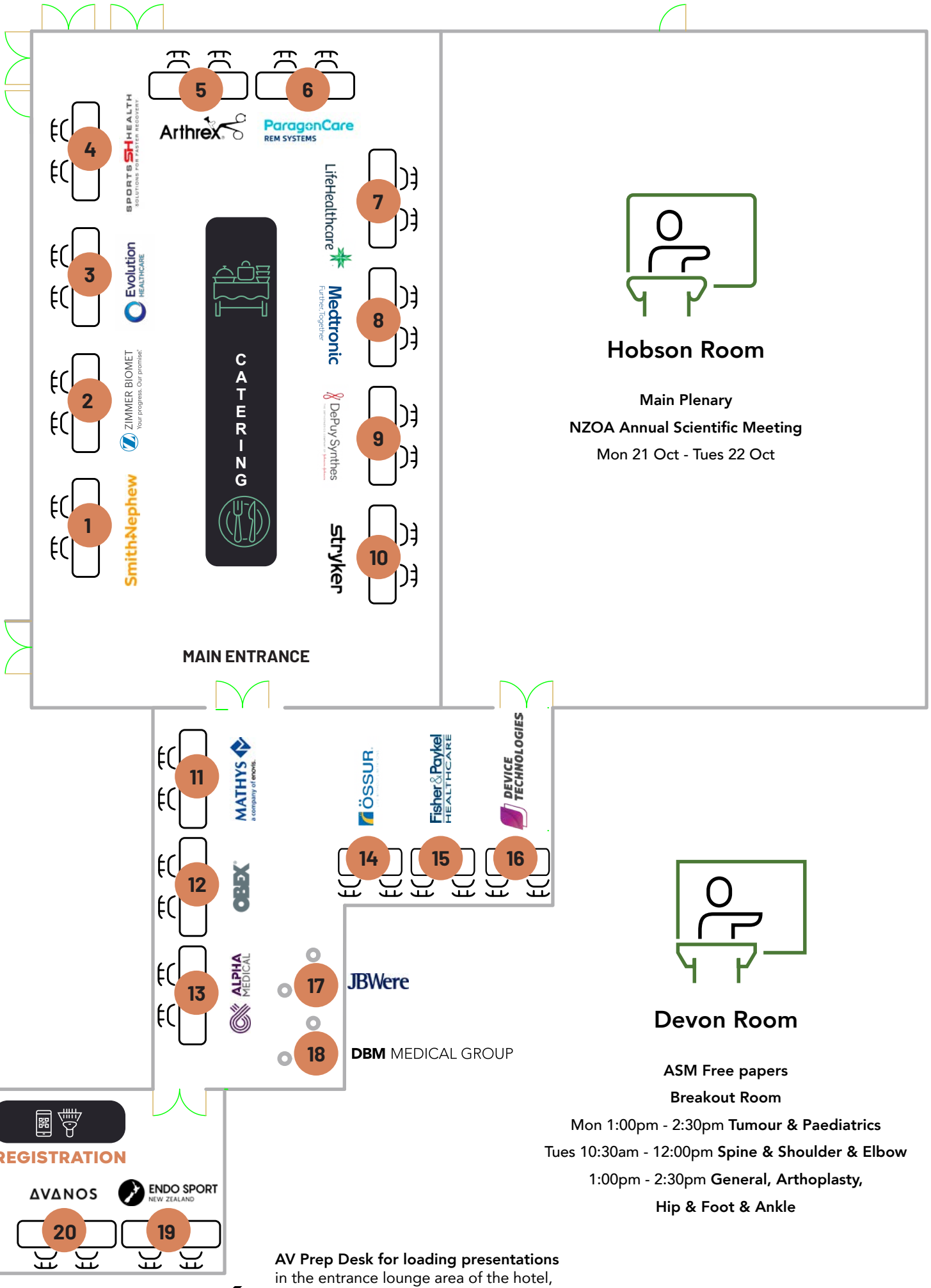

Hobson Room

Main Plenary

NZOA Annual Scientific Meeting

Mon 21 Oct - Tues 22 Oct

Devon Room

ASM Free papers

Breakout Room

Mon 1:00pm - 2:30pm **Tumour & Paediatrics**

Tues 10:30am - 12:00pm **Spine & Shoulder & Elbow**

1:00pm - 2:30pm **General, Arthoplasty, Hip & Foot & Ankle**

AV Prep Desk for loading presentations
in the entrance lounge area of the hotel, please follow the signage

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Sunday 20th October

12:00pm – 5:00pm	**Sunday Sports Afternoon** Golf, Biking, Tennis. Register with Nikki, HERE
5:30pm	**Specialty Orthopaedic Training Board Meeting** **Shining Peak Brewery**
7:00pm – 10:30pm	**Set 5 Trainee Dinner,** Shining Peak Brewery
6:00pm – 8:00pm	**NZOA ASM Welcome Function** The Devon Hotel, trades and catering area.

Monday 21th October

6:30am – 7:30am	**Industry Breakfasts** **Devon Room** - Smith & Nephew **Forum Room** - De Puy Synthes
7:00am – 8:00am	**Registrations Open**
8:00am –8:20am	**Opening Ceremony** - *Simon Hadlow,* **Hobson Room** **Nga rata koiwi** - *John Mutu Grigg & Ken Te Tau, NZOA Cultural Advisor,* **Mana Whenua**, *Tamati Neho, Maori Health & Equity and Equity Services Manager/ Poutoko Hauora, Taranaki Base Hospital*
8:20am – 8:30am	**Introduction to Carousel & CBE Symposium** *Simon Hadlow,* **Hobson Room**, *Charlie Saltzman*
8:40am – 8:45am	**South African President** *Len Marais*

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8:45am – 8:50am	**Australian President** *Scott Fletcher*
8:50am – 8:55am	**Canadian President** *Pierre Guy*
8:55am – 9:00am	**AOA President** *Alex Ghanayem*
9:00am – 9:05am	**AAOS President** *Kevin Bozic*
9:05am – 9:10am	**UK President** *Mark Bowditch*
9:10am – 9:15am	**NZOA Curriculum - Moving Forwards** *David Bartle*
9:15am – 9:25am	**Panel Discussion** *Tim Gregg, Dawson Muir, David Bartle with Carousel Presidents*
9:25am – 9:55am	**Robotics and AI** **Moderator:** *Emma Lacey, LIONZ* **Speaker:** *Michelle Dickinson*
9:55am – 10:00am	**Gold Sponsor Talk** stryker
10:00am – 10:30am	**MORNING TEA**
10:00am – 10:30am	**Wishbone Foundation Trust Meeting**, **Gallery Room**

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10:30am – 11:00am	**John Sullivan Memorial Lecture: Evolution of the UKA – Where Are We Now?** **Moderator:** *Tim Lynskey* **Speaker:** *Sebastien Lustig*
11:00am – 11:15am	**Navigation and Robotics in Spine Surgery** - **Moderator:** *Alastair Hadlow* **Speaker:** *Greg Poulter*
11:15am – 11:20am	**Discussion**
11:20am – 11:35am	**Navigation and Robotics in Knee Surgery** **Moderator:** *Neville Strick* **Speaker:** *Martin Roche*
11:35am – 11:40am	**Discussion**
11:40am – 11:55am	**Navigation and Robotics in Hip Surgery** **Moderator:** *Jacob Munro* **Speaker:** *Sebastien Lustig*
11:55am – 12:00am	**Discussion**
12:00am – 12:05am	**Gold Sponsor Talk** DePuy Synthes THE ORTHOPAEDICS COMPANY OF Johnson & Johnson
12:05pm – 12:55pm	**Lunch**
	NZOA Trust Meeting, **Gallery Room**
1:00pm – 2:30pm	**Free Papers** **CATEGORY: KNEE / SPORTS**, **Hobson Room** **Moderator:** *Michael Rosenfeldt*

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1:00pm – 1:10pm	**ACL all inside** **Comparison of All-Inside Technique and Conventional Technique in Anterior Cruciate Ligament Reconstruction: A Systematic Review,** *Jia Ying Lim*
1:10pm – 1:20pm	**ACL graft rupture indicators** **Prognostic Indicators of Graft Rupture After Anterior Cruciate Ligament Reconstruction: A Systematic Review and Meta-Analysis**, *Jia Ying Lim*
1:20pm – 1:40pm	**ACL PT vs HS high volume surgeons** **Patellar Tendon Versus Hamstring Tendon Autograft in ACL Reconstruction – Does Surgeon Matter?** **And Hamstring Tendon Autograft Should Be Avoided in High-Risk Patients Undergoing ACL Reconstruction** *(combined papers), *Richard Rahardja*
1:40pm – 1:50pm	**Robotic TKA improves outcomes** **Robotic-Assisted Total Knee Arthroplasty is Associated with Improved Surgical and Post-Operative Outcomes: A Large Single-Centre Study**, *Mei Lin Tay*
1:50pm – 2:00pm	**UKA preop inflammation** **Associations of Pre-Operative Markers of Inflammation and Post-Operative Outcomes for Unicompartmental Knee Arthroplasty**, *Mei Lin Tay*
2:00pm– 2:10pm	**UKR prev arthroscopy** **Previous Arthroscopy Does not Decrease Survivorship or Functional Outcomes for Unicompartmental Knee Arthroplasty Patients**, *Anneke Prankerd-Gough*

2:10pm – 2:20pm	**UKA uncemented** **Effects of Age and Fixation on Survivorship of Mobile-Bearing Unicompartmental Knee Arthroplasty**, *Arielle Bok*
2:20pm – 2:30pm	**Tibia first ligament guided TKA** **Tibia First Ligament Guided Technique is Superior to Mechanical, Kinematic, and Functional Alignment Strategies in Creating a Well-Balanced TKA**, *Mark Clatworthy*
1:00pm – 2:30pm	**Free Papers** **CATEGORY: PEDIATRICS & TUMOUR, Devon Room** **Moderator:** *Andy Graydon*

1:00pm – 1:10pm	**NZ mets guideline** **The Introduction of a New Zealand National Guideline for the Management of Metastatic Bone Disease,** *Caitlin Bodian*
1:10pm – 1:20pm	**Seroma sarcoma treatment** **Predictors of Seroma Formation in Extremity Soft Tissue Sarcoma Treatment**, *Cameron Tuckey*
1:20pm – 1:30pm	**Femur cartilaginous tumour** **Central Cartilaginous Tumours of the Femur – A New Zealand Perspective**, *Rose Binney (was Fraser Prendergast)*
1:30pm – 1:40pm	**Taranaki DDH screening** **DDH – A Regional Clinical Screening Programme**, *Ben Waller*

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1:40pm – 1:50pm	**Wellington DDH experience** **The Wellington Regional Hospital Developmental Dysplasia of the Hip Screening Experience**, *Samuel MacGill*
1:50pm – 2:00pm	**Covid and MSK infection** **Epidemiology of Childhood Bone and Joint Disease During the COVID-19 Pandemic in New Zealand**, *Sarah Hunter*
2:00pm – 2:10pm	**Delay to Diagnosis infection** **Delay to Diagnosis in Childhood Bone and Joint Infection**, *Sarah Hunter*
2:10pm – 2:20pm	**Bacterial genotype for infection** **Paediatric Acute Haematogenous Osteomyelitis: Identification of Bacterial Genes and Phenotype That Predispose to Adverse Health Outcomes**, *Reece Joseph*
2:20pm – 2:30pm	**Cost of infection** **Hospitalisation Cost for Paediatric Osteomyelitis and Septic Arthritis in New Zealand**, *Sarah Hunter*
2:30pm – 3:00pm	**Afternoon Tea** **NZ Hip Fracture Registry Trust Meeting**, **Gallery Room**
3:00pm – 3:15pm	**Tips and Tricks/Pitfalls – Navigation and Robotic Spine Surgery – Preoperative and Intraoperative Considerations** **Moderator:** *Anand Segar* **Speaker:** *Greg Poulter*
3:15pm – 3:20pm	**Discussion**

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3:20pm – 3:35pm	**Tips and Tricks/Pitfalls – Navigation and Robotic Hip Surgery – Preoperative and Intraoperative Considerations** **Moderator:** *John Pennington* **Speaker:** *Sebastien Lustig*
3:35pm – 3:40pm	**Discussion**
3:40pm – 3:55pm	**Tips and Tricks/Pitfalls – Navigation and Robotic Total Knee Arthroplasty Surgery – Preoperative and Intraoperative** **Moderator:** *Ritwik Kejriwal* **Speaker:** *Martin Roche*
3:55pm – 4:00pm	**Discussion**
4:00pm – 4:15pm	**Tips and Tricks/Pitfalls – Navigation and Robotic Unicompartmental knee arthroplasty – Pre-operative and Intra-operative considerations** **Moderator:** *Rod Maxwell* **Speaker:** *Sebastien Lustig*
4:15pm – 4:20pm	**Discussion**
4:20pm – 4:25pm	**Gold Sponsor Talk** SmithNephew
4:25pm – 6:00pm	**NZOA AGM, Hobson Room**
6:30pm – 11:00pm	**NZOA ASM Gala Dinner,** **The Plymouth International Hotel** **Dress:** Black Tie

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Tuesday 22 October 2024

6:30am – 7:30am	**Industry Breakfasts** **Devon Room** ZIMMER BIOMET Your progress. Our promise.® **Forum Room** stryker
7:00am – 8:00am	**Sub Specialties Society Meeting**, **Gallery Room**
7:00am – 8:00am	**Registrations Open**
8:00am – 8:10am	**Hong Kong Ambassador:** **Functional Impact of Joint Line Obliquity and Left-Right Symmetry in Patients with Oxford Unicompartmental Knee Arthroplasty (OUKA)** **Moderator:** *Francis Ting* **Speaker:** *Gloria Lam*
8:10am – 8:20am	**Trans Tasman Travelling Fellow:** **Are arthritic knees really contracted?** **Speaker:** *John Roe*
8:20am – 8:30am	**Invited Guest Speaker:** **Oxford UKR: A Detailed Look at Long-Term Outcomes** **Speaker:** *Tim Lynskey*
8:30am – 8:35am	**Why I Use O-Arm** **Moderator:** *Greg Poulter* **Speaker:** *Richard Cowley*
8:35am – 8:40am	**Why I Sometimes Use O-Arm** **Speaker:** *Joe Baker*

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8:40am – 8:45am	**Discussion** **Panel:** *David Ardern and Chris Hoffman*
8:45am – 8:50am	**Why I Use Velys** **Moderator:** *Paul Smith* **Speaker:** *Mark Clatworthy*
8:50am – 8:55am	**Why I Use Rosa**, *Paul Monk*
8:55am – 9:00am	**Why I Use Mako**, *Simon Young*
9:00am – 9:05am	**Why I Use CORI**, *John Roe*
9:05am – 9:10am	**Why I Use No Nav/Robotics**, *Kevin Karpik*
9:10am – 9:15am	**Discussion** **Panel:** *Martin Roche and Seb Lustig*
9:15am – 9:25am	**Navigation in Acetabular and Tibial Platau Fractures** **Moderator:** *Kevin Karpik* **Speaker:** *Pierre Guy*
9:25am – 9:30am	**Discussion**
9:30am – 9:40am	**Navigation and Robotics in Shoulder Arthroplasty** **Moderator:** *Mike Caughey* **Speaker:** *Marc Hirner*
9:40am – 9:50am	**Cost/Benefit of Robotics**, *Mark Hirner*
9:50am – 9:55am	**Discussion**
9:55am – 10:00am	**Gold Sponsor Talk** ZIMMER BIOMET Moving You Forward.

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10:00am – 10:25am	**Morning Tea**
	NZOA Joint Registry Meeting, **Devon Room**
10:30am – 12:00pm	**Free Papers** **CATEGORY: ARTHROPLASTY, Hobson Room** **Moderator:** *Neville Strick*
10:30am – 10:40am	**THA Cross Linked vs Conventional Poly** **Cross-linked Versus Conventional Polyethylene in Total Hip Arthroplasty: 20-year Results of a Randomised, Double Blinded Prospective Trial**, *Agnes Chu*
10:40am – 10:50am	**THA for Septic + OA** **Septic Arthritis Combined with Osteoarthritis of The Hip in the Elderly: A Management Conundrum and Growing Problem in New Zealand?** *Pierre Pechon*
10:50am – 11:00am	**THA Anterior Cement vs Uncemented** **Cemented versus Uncemented Femoral Stem Fixation in Primary Anterior Approach Total Hip Replacement: Comparative Analysis of Functional and Pain Outcomes**, *Karen Toh*
11:00am – 11:10am	**CPAK / Early Outcomes** **The Impact of Change in mLDFA on Short-Term Post-Operative Outcome Following TKR & The Influence of CPAK Classification Changes on Early Postoperative Outcomes After TKA Combined Papers**, *Faseeh Zaidi*
11:10am – 11:20am	**Novel Technique TKR Kinematic** **A Novel Technique for Kinematic Knee Replacement Using Robotic Technology**, *Jay Jefferies*

11:20am – 11:30am	**IO Diclofenac TKA** **Intraosseous Regional Diclofenac for Post-Op Pain Management in Total Knee Arthroplasty**, *Jian-Sen Ng*
11:30am – 11:40am	**TKA OKS Six Months** **Surgeon-level Outcome Monitoring in Total Knee Arthroplasty: Effect of Using Six-month Oxford Scores to Identify Potential Outliers**, *Morgan Lingard*
11:40am – 11:50am	**TKA Revision Based on Cement** **Revision Risk in Total Knee Joint Arthroplasty with Respect to the Type of Cement Used**, *Paul Erwin*
11:50am – 12:00pm	**Short Stay Arthroplasty** **Short Stay Arthroplasty in a Regional Setting: Is It Safe?**, *Harrison Beadel*
10:30am – 12:00pm	Free Papers **CATEGORY: SPINE & UPPER LIMB, Devon Room** **Moderator:** *Perry Turner*

10:30am – 10:40am	**Cervical Myelopathy Australasian Practice** **What is the State of Play of Diagnostic Practices for Cervical Myelopathy in Australasia?**, *Rohil Chauhan*
10:40am – 10:50am	**Degenerative Cervical Myelopathy Incidental** **Degenerative Cervical Myelopathy in Non-Cervical Patients Utilising Whole Spine Sagittal MRI: A Retrospective Audit**, *Rohil Chauhan*

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10:50am – 11:00am **PLIF Peek vs Titanium Cages**

Comparison of Clinical and Radiological Outcomes of L5/S1 Posterior Lumbar Interbody Fusion Using Poly Ether Ether Ketone (PEEK) versus Titanium Cages, *Salimi Hamidullah*

11:00am – 11:10am **Lumbar Decompression Spinopelvic**

The Effect of Minimally Invasive Lumbar Decompression Surgery on Sagittal Spinopelvic Alignment in Patients with Lumbar Spinal Stenosis: a 5-year Follow-up Study, *Salimi Hamidullah*

11:10am – 11:20am **AIS Routine MRI**

Is 'Routine' MRI Necessary in AIS?
A Retrospective analysis, *Hasanga Fernando*

11:20am – 11:30am **Impact Loading Endplate Fractures**

Impact Loading Increases Risk Of Endplate Fractures In Flexed Ovine Lumbar Motion Segments, *Vonne van Heeswijk*

11:30am – 11:40am **Humigard Spine Tissue Health**

Effect Of Humidified Warmed Air On The Surgical Incision During Spinal Surgery: An Animal Model of Tissue Health, *Joe Baker*

11:40am – 11:50am **Delta vs SMR**

A 10-Year Comparative Analysis of the Two Most Common Reverse Total Shoulder Arthroplasty Implants (Delta Xtend and SMR) in the New Zealand Joint Registry, *Scott Bolam*

11:50am – 12:00pm **Anterior shoulder stabilisation RTP**

Predicting Successful Return to Play Post Anterior Shoulder Stabilisation, *Rachel Basevi*

12:00pm – 1:00pm	**Lunch**
1:00pm – 2:30pm	**Free Papers** **CATEGORY: GENERAL, Devon Room** **Moderator:** *Dawson Muir*
1:00pm – 1:10pm	**Female Surgeons' Fertility** **Female Surgeons and Fertility**, *Alexandria Gibson*
1:10pm – 1:20pm	**Orthopaedic Training Methods** **Orthopods Prefer a Little Pain to Gain When They Train**, *Andrew Suchowersky*
1:20pm – 1:30pm	**Informed Consent** **What Matters Most to Patients During the Informed Consent Process?** *Andy Gov*
1:30pm – 1:40pm	**Urban vs Non-urban** **An Analysis of Factors in New Zealand Orthopaedic Surgeons Influencing the Decision to Practice in an Urban Versus Non-Urban Hospital.**, *Jane Nicholas*
1:40pm – 1:50pm	**Diabetic Foot Middlemore** **Diabetic Foot Infection and Amputation – Life and Limb at Middlemore Hospital**, *Arielle Bok*
1:50pm – 2:00pm	**Nec Fasc in BOP** **Clinical Audit of Necrotising Fasciitis Under Orthopaedic Services in the Bay of Plenty Region of New Zealand**, *Reuben He*

2:00pm – 2:10pm	**Arthroplasty Revision Reporting** **Surgeon-level Outcome Monitoring in Hip and Knee Arthroplasty: An Update**, *Morgan Lingard*
2:10pm – 2:20pm	**Periacetabular Osteotomy** **Computational Modelling of Cartilage Pressures in Planning for Periacetabular Osteotomy Surgery**, *Will Caughey*
2:20pm – 2:30pm	**Lead Gowns and Radiation** **What You Wear Matters: How Lead Gown Design Affects Radiation Exposure to the Orthopaedic Surgeon**, *Nick Jones*
1:00pm – 2:20pm	**Free Papers** **CATEGORY: TRAUMA, Hobson Room** **Moderator:** *Kevin Karpik*
1:00pm – 1:10pm	**Preop Anticoagulation NOF** **Anti-coagulation Does Not Increase Morbidity or Mortality in the Operative Management of Hip Fractures**, *Ben Waller*
1:10pm – 1:20pm	**Postop Mortality NOF Registry** **An Analysis of Post-operative Mortality in Hip Fractures Using the Australian and New Zealand Hip Fracture Registry**, *Naji Ghamri*
1:20pm – 1:30pm	**THA Periprosthetic Fractures** **Revision for Periprosthetic Femoral Fractures Following Primary Total Hip Arthroplasty with a Cemented Taper or Cementless Collared Stem**, *Sophie Wilton*
1:30pm – 1:40pm	**Time to Surgery Femur Fractures** **Time to Surgery and Outcomes in Distal Femoral Fractures**, *Jason Ryu*

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1:40pm – 1:50pm	**Tibia Fractures Waikato** **Epidemiology of Tibia Diaphyseal Factures at Waikato Hospital 2010 – 2022**, Cindy Ou
1:50pm – 2:00pm	**IM Reaming Pathology** **Histopathologic Analysis of Intramedullary Reaming Samples Obtained During Surgical Femur Fixation**, *Nicholas Buckley*
2:00pm – 2:10pm	**Screws Comparison** **Does a Screw from Bunnings Perform Better Than Standard Orthopaedic Screws?**, *Jack Hanlon*
2:10pm – 2:20pm	**NOFs in Samoa** **Neck of Femur Fractures Treatment Pathway in American Samoa,** *Naseri Aitoto Orthopacifix Pacific Island Ambassador, American Samoa*
2:30pm – 2:55pm	**Afternoon Tea**
3:00pm – 3:20pm	**AOA Joint Registry Update** **Moderator:** *Vaughan Poutawera* **Speaker:** *Paul Smith*
3:20pm – 3:35pm	**NZJR Update - Hip**, *Amir Sandiford*
3:35pm – 3:50pm	**NZJR Update - Knee**, *Simon Young*
3:50pm – 4:00pm	**ANZHFR Update**, *Mark Wright*
4:00pm – 4:05pm	**Closing Ceremony**, *Ken Te Tau*
6:30pm	**President's Dinner** **Okurukuru Vineyard** ***Invitation only**. Transport from 6:00pm from The Plymouth International & Devon Hotels

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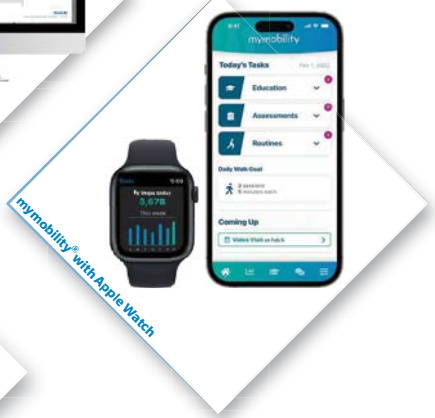

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*Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR). Hip, Knee & Shoulder Arthoplasty: 2020 Annual Report, Adelaide; AOA, 2020: 1-474. [Accessed from: https://aoanjrr.sahmri.com/annual-reports-2020]

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Company Representative
Zimmer Biomet Pty Ltd
Level 4, 12 Narabang Way
Belrose NSW 2085 Australia
Tel: +612.9483.5400

Company Representative
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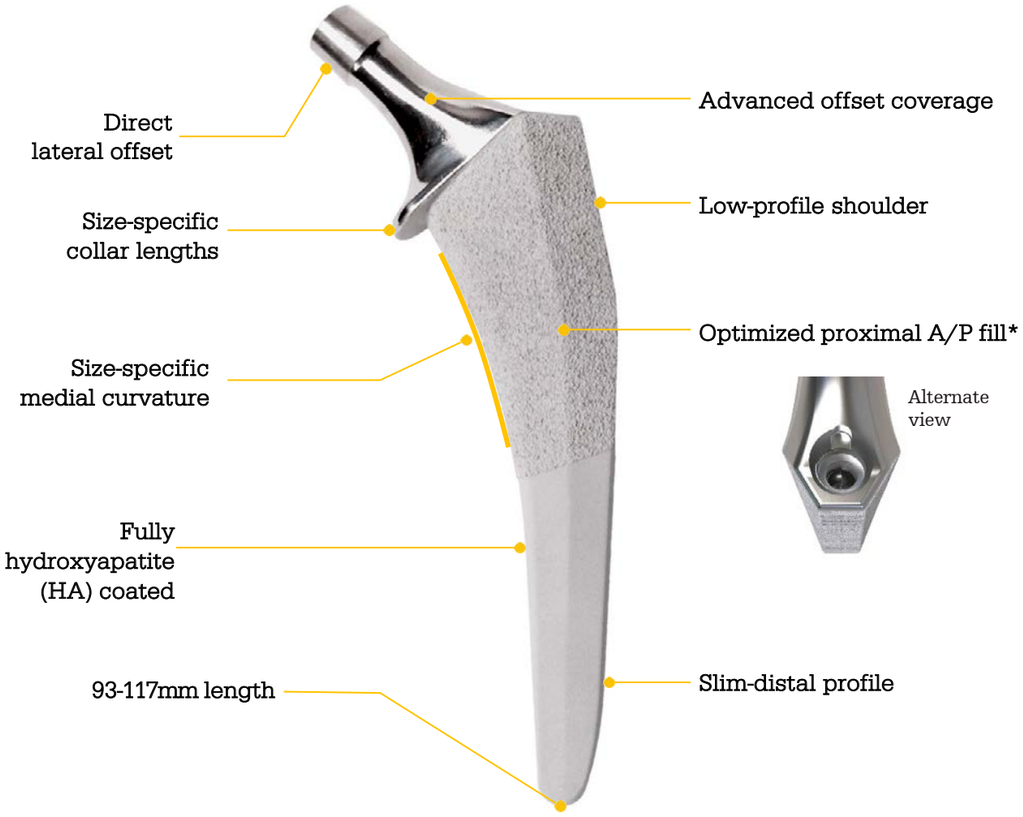

*Optimisation subject to particular design constraints

References:

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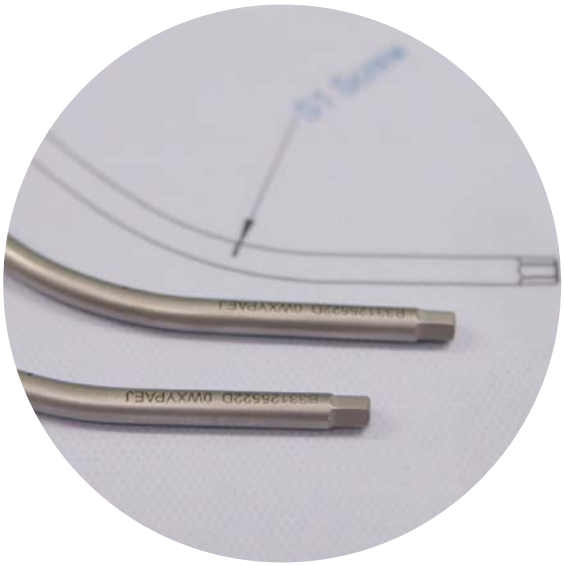

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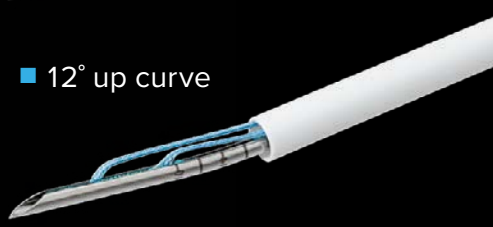

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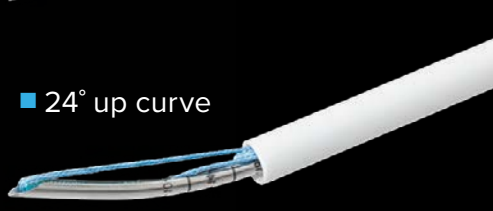

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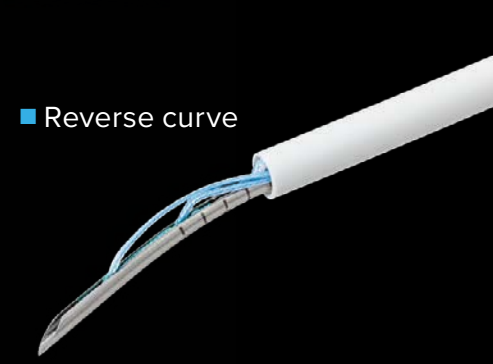

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Reference: 1. Bachmaier S, Krych AJ, Smith PA, et al. Primary fixation and cyclic performance of single-stitch all-inside and inside-out meniscal devices for repairing vertical longitudinal meniscal tears. *Am J Sports Med*. 2022;50(10):2705-2713. doi:10.1177/03635465221107086

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Speakers & Guests

Dr. Michelle Dickinson

Guest Speaker

Michelle is a passionate researcher and teacher with a love of science and engineering and has made it her life mission to make science and engineering fun and accessible for all through many different media platforms including authoring books and producing TV shows.

With a PhD in Biomedical and Materials Engineering Michelle has combined her interests to give her a unique insight into how nature and technology can learn from each other for scientific developments.

As co-founder of Nanogirl Labs Ltd and an honorary academic in Engineering at the University of Auckland, New Zealand, Michelle has always followed her dreams and never let traditional stereotypes scare her.

Awarded the 2020 Hi-Tech Inspiring Individual of the year, Michelle has also been awarded the Member of New Zealand Order of Merit and was winner of the Women of Influence award for science and innovation, Sir Peter Blake Leadership award. Prime Minister's Science Media Communication Prize and the New Zealand Association of Scientists Science Communicators Award.

Michelle thinks that science should be open, transparent and a topic of conversation over the dinner table, not just the lab bench. Her vision is to create positive role models in the world that our children can aspire to be like and ensuring that everyone has access to learning about science and how things work, no-matter what your age or education level.

Speakers & Guests

Prof. Sebastien Lustig

Guest Speaker

Prof. Sebastien Lustig began his practice in Lyon in 2006 at the Albert Trillat Center with his mentor, Prof. Philippe Neyret, specialising exclusively in the disorders of hip and knee joint.

He has a specific interest in research and completed his PhD in biomechanics in 2010, thanks to his research on Computer Assisted Surgery and Total Knee Arthroplasty.

He has had over 100 original research presentations, and over 80 invited presentations at national and international conferences. He has published over 150 studies in prestigious orthopaedic journals indexed on PubMed and 60 chapters in orthopaedic textbooks.

He is involved in four academic formations (bone and joint infection, arthroscopic surgery, knee surgery and sports medicine).

Prof. Lustig is actively involved in a number of international orthopaedic organisations, including committee appointments for ISAKOS (International Society for Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine, chair of Knee Arthroplasty Committee), ESSKA (European Society of Sports Traumatology, Knee surgery and Arthroscopy), EKS (European Knee Society, chair of Travelling Fellowship Committee) and EHS (European Hip Society). Thanks to these achievements, Prof. Lustig was named as Professor in Orthopaedic Surgery at the University of Lyon in 2014. He has been in charge of the orthopaedic programme in Lyon University since 2016.

Performing over 800 arthroplasties per year, Prof. Lustig's current practice is focused on hip and knee joint replacement. He has a special interest in rapid recovery, robotic assisted surgery, and revision surgery.

Speakers & Guests

Dr. Greg Poulter

Guest Speaker

Dr. Poulter graduated from Trinity University in San Antonio, Texas, receiving his bachelor's degree in biochemistry in 1995. In 2002, he graduated magna cum laude from MCP Hahnemann School of Medicine. Dr. Poulter completed an orthopaedic surgery residency at the University of Michigan in 2007 and an orthopedic spine fellowship from the University of California, San Francisco in 2008.

Previously, Dr. Poulter worked as a spine surgeon at Vail-Summit Orthopaedics in Vail, Colorado, where he was a founding member and chairman of the Vail-Summit Research and Education Foundation.

Dr. Poulter belongs to the American Academy of Orthopaedic Surgeons, the North American Spine Society and the Society of Minimally Invasive Spine Surgery.

Speakers & Guests

Dr. Martin Roche

Guest Speaker

Dr. Martin Roche is an international leader in robotic and sensor-assisted knee surgery. He specializes in knee arthroplasty – from partial to total knee replacements. He is focused on the integration of patient-specific data to produce the best results.

By utilizing objective, personalized data-driven surgery, he is evolving the art of knee surgery to a proven science.

Dr Roche is a native of Ireland, received his orthopaedic training at the University of Miami, and has been in practice since 1996 in South Florida. As Director of Arthroplasty at HSS Florida, he is committed to expanding exceptional care to our arthritic joint patients in Florida. His goal is to improve patient mobility and enable them to resume an active lifestyle.

NZOA Annual Scientific Meeting

20th – 22nd October
The Devon, New Plymouth

NZOA
New Zealand Orthopaedic Association

Speakers & Guests

Dr. Charlie Saltzman

Guest Speaker

Dr. Charles Saltzman is the LS Peery MD Presidential Endowed Professor of Orthopaedics at the University of Utah. Dr. Saltzman is focused on improving physical function of patients with limited mobility. He has helped develop new methods for treatment of ankle arthritis (ankle fusion & ankle replacement), midfoot arthritis, ankle & hindfoot arthroscopy and forefoot problems.

Dr. Saltzman centers his clinical practice on two primary areas of great need where he has deep expertise: 1) Adult ankle problems (sports injuries, torn tendons or ligaments, bone or cartilage injuries, arthritis) and 2) Complex foot and ankle problems of pre-adolescents to adults.

Dr. Saltzman serves the field of orthopaedics as Editor in Chief of the flagship scientific journals Foot & Ankle International and Foot & Ankle Orthopaedics. He is a co-Editor of the premier textbook "Mann's Surgery of Foot and Ankle", Past President of the American Orthopaedic Foot and Ankle Society, Past President of the International Federation of Foot and Ankle Societies, Past President of the Association of Bone and Joint Surgeons and Past Vice President of the American Board of Orthopaedic Surgery. Dr. Saltzman served as Chair of the University of Utah Department of Orthopaedics from 2005-2021.

Speakers & Guests

Prof. Paul Smith

Guest Speaker

Professor Paul Smith AM is one of Australia's most experienced and highly regarded hip and knee surgeons, having performed over 5000 hip and knee replacement procedures.

He is Professor of Orthopaedic Surgery at the Australian National University, Director of the Trauma and Orthopaedic Research Unit at the Canberra Hospital and the John Curtin School of Medical Research, and Orthopaedic Unit Director at the Canberra Hospital.

He is also Director of the Australian Orthopaedic Association National Joint Replacement Registry and former chair of the Australian Orthopaedic Association (ACT Branch) and The Royal Australasian College of Surgeons (ACT Branch).

NZOA Annual Scientific Meeting

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Speakers & Guests

Scott Fletcher

AOA President

Scott is in the presidential line of the Australian Orthopaedic Association (AOA) and takes the AOA presidential position in October 2024.

He has been practicing general orthopaedics in rural / regional Tasmanian over a 28 year period, but in the last ten years has been focused on hip and knee arthroplasty with a particular interest in knee alignment.

Scott has dual fellowships, being a fellow of the Royal Australian College of Medical Administrators (2017). This administrative qualification has allowed him to better understand the context of Orthopaedics in the broader health system.

He has been the President of the Australian Arthroplasty Society (ASA) and has had numerous leadership roles at local, state and national levels.

Scott's current focus is on "Connection". Connection means strengthening the AOA relationships with membership, with neighbouring organisations including NZ, Asia Pacific and the Carousel. It means partnering with the community we serve and with groups with influence. Connection also emphasises the importance of personal "well being" (connection with self).

Scott is a strong believer in research and the translation of that research down into improved clinical practice. He has a strong focus on building a strong, connected AOA Board and charting a direction that is driven by the membership.

His theme for the AOA ASM in 2025 in Hobart is "Connection".

Speakers & Guests

Dr. Michael Johnson

AOA Immediate Past President

Michael Johnson gained his fellowship of the Australasian College of Surgeons in 1986.

Between 1986-1989, he obtained further training in spinal surgery at Great Ormond Street Hospital for Sick Children and The Royal National Orthopaedic Hospital in London, UK. In addition, he completed further fellowships in Germany and the United States.

After returning to Melbourne in 1989, he limited his practice to spinal surgery working both in private practice. At different times, he has had public appointments at St Vincent's Hospital, Monash Medical Centre, Peter MacCallum Clinic and The Royal Children's Hospital.

Most recently he has been working at Epworth Hospital.

In addition, he is involved in a number of professional organizations. At present he is a member of the Federal Board of the AOA and is AOA Immediate Past President.

He has been on a number of government committees relating to the MBS review, Atlas of Healthcare variation and prosthesis reform.

He was on the Executive of the Spine Society of Australia and was SSA President between 2018 and 2020.

He is Principal Investigator and Steering Committee Chair of the Australian Spine Registry.

Speakers & Guests

Dr. Len Marais

President South African Orthopaedic Association

Len Marais undertook his undergraduate medical training at the University of the Free State in Bloemfontein, South Africa. He specialised in orthopaedic surgery at the University of Pretoria obtaining his FC Orth SA and MMed (Ortho) qualifications in 2007.

Following his training he pursued a career in orthopaedic oncology, musculoskeletal infections and limb reconstruction. In 2009 he joined the Department of Orthopaedics at Grey Hospital in Pietermaritzburg where he established the bone tumour, sepsis and reconstruction unit.

He completed his PhD on risk stratification and treatment strategy selection in chronic osteomyelitis in 2015. In 2017 he commenced serving as associate professor and academic head of department at the University of KwaZulu-Natal School of Clinical Medicine. He has published over 100 peer-reviewed papers in the field of bone infections, post traumatic limb reconstruction and orthopaedic oncology, and has contributed to more than 25 large collaborative research projects.

His special interest lies in fracture-related infections, and he is a member of the AO Foundation's Fracture-Related Infection Consensus Group. He has previously served as the Editor-in-Chief of the South African Orthopaedic Journal and is a member of the British Editorial Society of Bone & Joint Surgery and an editorial board member of The Bone & Joint Journal.

He represents South Africa as country delegate at the European Bone & Joint Infection society. He is currently serving as the president of the South African Orthopaedic Association (SAOA), is a member of the Council of Orthopaedic Surgeons of South Africa and the interim Dean and Head of School of the School of Clinical Medicine of the University of KwaZulu-Natal.

Speakers & Guests

Dr. Alex Ghanayem

President American Orthopaedic Association

Alexander J. Ghanayem, MD, FAOA serves as the 137th President of the American Orthopaedic Association. He is a spine fellowship trained orthopaedic surgeon who has spent his entire professional attending career at Loyola University Medical Center/Loyola University Chicago Stritch School of Medicine.

He was named the Dr. William H. Scholl Professor and Chair of Loyola's Department of Orthopaedic Surgery and Rehabilitation in 2016. In 2021, he also assumed the role of Loyola Medicine's Medical Group Chief Medical Officer leading an 850 multi-specialty physician and advanced practice provider group in providing care at a large tertiary academic and 2 community hospitals, as well as the training over 600 residents and fellows.

His clinical interest is in spine surgery focusing on degenerative and traumatic conditions involving the entire spine. His research interests are primarily in spine biomechanics as part of a team that has received nearly $8 million in funding during his career. In his CMO role, he focuses on strategic programmatic development, physician recruitment and retention, and compensation and clinical program financial modeling.

Speakers & Guests

Dr. Kevin Bozic

Past President American Academy of Orthopaedic Surgeons

Dr. Bozic is the inaugural Chair of Surgery and Perioperative Care at the Dell Medical School at UT Austin. He is an internationally recognized leader in orthopaedic surgery and value-based health care payment and delivery models.

His clinical practice is focused on the management of patients with hip and knee arthritis and painful hip and knee arthroplasties, and he has over 20 years of experience in adult reconstructive surgery focusing on simple and complex primary and revision hip and knee arthroplasty.

Dr. Bozic also has extensive research and policy experience in the field of value-based health care, focused on design, implementation and evaluation of value-based payment and delivery models. His research has been funded by the AHRQ, the National Institutes for Health, the Robert Wood Johnson Foundation, and the Orthopaedic Research and Education Foundation (OREF).

He is the immediate Past President of the American Academy of Orthopaedic Surgeons (AAOS).

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Speakers & Guests

Dr. Pierre Guy

President Canadian Orthopaedic Association

Dr. Pierre Guy is a Professor of surgery and clinician-scientist in the Department of Orthopaedics, at the University of British Columbia, where he is Academic Head of the Division of Orthopaedic Trauma. He heads the Clinical Department of Orthopedics at Vancouver General Hospital and UBC Hospital. His medical training and residency were completed at McGill University, followed by orthopaedic trauma fellowships in Hannover and Berlin, Germany and at UBC. Dr. Guy also holds a Master's in Business Administration (MBA) from the John Molson School of Business, Concordia University. He is the President of the Canadian Orthopedic Association.

He is a practicing Orthopedic Trauma Surgeon at BC's level 1 Trauma Centre, Vancouver General Hospital. He is an active member of the Orthopedic Trauma Association and a founding member of the Canadian Orthopedic Trauma Society.

Dr. Guy's research is focused on hip, pelvis and acetabulum fracture treatment, fracture prevention, and post injury function. He collaborates with Mechanical Engineers, Electrical Engineers and Materials Engineers to study hip and pelvis fractures and to develop novel technologies, including minimally invasive techniques and navigation. He also pursues clinical research trials and health services research, and aims to develop precision medicine tools. He collaborates with Government to realise Quality Improvement initiatives, currently developing province-level measures of quality of surgical care for each surgeon in British Columbia to receive.

Speakers & Guests

Dr. Mark Bowditch

President British Orthopaedic Association

Mark is a Consultant at East Suffolk North Essex NHS Trust - in the East of England 1hr from London/Cambridge

He is a Director of Surgery at ESNEFT, with a brand new 8 theatre 70 bed Essex Suffolk Elective Orthopaedic Centre in the Dame Clare Marx Building.

His specialist interest is knee surgery - sports and arthroplasty working NHS and private in Ipswich and London.

He was Cambridge & East of England Director of T&O training for 10yrs and then Head of the School of Surgery.

He was the T&O Specialty Advisor committee chair 2017-2020 and lead author of the UK & Ireland current T&O curriculum.

He has been with the BOA for 10yrs including 4 years on Executive and Treasurer. He leads the BOA/NJR elective care reviews.

Mark lives in rural Suffolk on a small hobby farm and enjoys running & cycling with his wife Lucy, who is full time Pilates teacher.

Speakers & Guests

Dr. Gloria Lam Yan Ting

Hong Kong Ambassador

Working as an associate consultant in one of the highest volume joint replacement centers in Hong Kong, I am specialized in primary, complex primary, revision knee and hip replacements. One of my subspecialty interests is minimally invasive Oxford unicompartmental knee arthroplasties (MIS-OUKA). I am fully certified for the Stryker Mako robotic system. And I am also experienced in using the S&N CORI system and Zimmer ROSA systems.

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Speakers & Guests

Dr. Naseri Aitaoto

Orthopacifix Ambassador

Naseri, as prefers to be called, is an orthopaedic doctor at the LBJ Tropical Medical Center, the only hospital in American Samoa. Having trained. under the Pacific Island Orthopedic Association (PIOA) program and successfully passed his fellowship exams in October 2023, Naseri has just completed a 21month post-graduate attachment as an orthopedic registrar at Tauranga Hospital, Bay of Plenty in New Zealand. He has recently returned home and rejoined the orthopedic department in American Samoa.

He started his career as a nurse for 12 years with a Bachelor of Science Degree in Nursing (BSN) from the University of Hawaii in 1997, before going into medical school in 2006. Naseri obtained his MBBS from the Fiji School of Medicine in 2011 and started orthopedic training with PIOA in 2016.

When not working, he enjoys farming, fishing, off-roading, working on old cars as a hobby, and always cherishes time with his family.

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Speakers & Guests

John Roe

Trans-Tasman Fellow

Dr John Roe is a fellowship trained knee surgeon based in the Wesley Orthopaedic & Sports Injury Clinic at The Wesley Hospital in Brisbane, Australia. As a former professional rugby player, playing at the international level, Dr Roe developed a keen interest in sports injury at the knee, lower limb trauma and the management of hip and knee arthritis. His fellowship allowed him to focus on all aspects of knee surgery including sports injury, meniscal repair, meniscal transplantation, primary and revision knee replacement and traumatic knee injury including fractures.

In his private practice he operates at The Wesley Hospital in Auchenflower in Brisbane while he maintains public appointments at the Royal Brisbane and Womens Hospital and STARS. Dr Roe also does a monthly clinic in Stanthorpe and Warwick for his rurally based patients. Along with many ongoing research interests, Dr Roe is a Senior Lecturer at the University of Queensland Medical School. He is also the Director of Orthopaedic Training at the Royal Brisbane and Womens Hospital.

Dr Roe was educated at the University of Queensland, and graduated with a Bachelor of Science in 1997. He went on to medical school, also at the University of Queensland and completed his Bachelor of Medicine and Bachelor of Surgery in 2006. He was awarded a Doctor of Philosophy from the Queensland University of Technology in 2012 for his work on the mechanical characteristics of a cemented hip replacement system. His orthopaedic training was completed throughout many centres in Queensland, including multiple years in the main tertiary referral centres of the Royal Brisbane and Womens Hospital and the Princess Alexandra Hospital.

He received his Fellowship in Orthopaedic Surgery with the Royal Australasian College of Surgeons in 2018 and was accepted as a Fellow of the Australia Orthopaedic Association in the same year. He completed the prestigious BOSMC Orthopaedic Fellowship focusing on sports orthopaedics and knee surgery under the mentorship of Dr Peter Myers.

Partner Programme

Sunday 20th October

From 12pm	**Sports afternoon** Golf, Biking or Tennis

Monday 21st October

10:30am	**Bus to Tawhiti Museum in Normanby**
4:00pm	**Bus to hotels**

Tuesday 22nd October

9:30am	**Bus to Pukeiti Gardens for a walk**
1:30pm	**Bus to Juno Gin for tour and tastings** (tour commencing 2pm)

To register, please contact Nikki Wright: Nikki@nzoa.org.nz

Sunday Sports

Biking

Please register your interest directly with Simon Hadlow

Phone:
021 535 327

Email:
simonhadlow@xtra.co.nz

Golf

Please register your interest directly with Tim Lynskey

Phone:
027 444 7121

Email:
t.lynskey@xtra.co.nz

Tennis

Please register your interest directly with Ritwik Kejriwal

Phone:
021 620 586

Email:
ritwikkejriwal@gmail.com

Sports awards will be announced and presented at the Gala Dinner on Monday evening

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NZOA Annual Scientific Meeting

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20th – 22nd October
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Abstracts

2024

NZOA
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Orthopaedic Association

Presenter: Jia Ying Lim

Time of Presentation: Monday 21st October | 1:00pm - 1:10pm

Type: Paper

Affiliations: Jia Ying Lim (National University Hospital, Singapore) Zachary Chu (Yong Loo Lin School of Medicine, Singapore), Noah Lim (Lee Kong Chian School of Medicine, Singapore), Juling Sia, Lee Kong Chian (School of Medicine, Singapore), and Ming Wang (National University Hospital, Singapore)

Authors: Jia Ying Lim, Zachary Chu, Noah Lim, Juling Sia, and Ming Wang

Topic: ACL all inside

Category: Knee

TITLE:

Comparison of All-Inside Technique and Conventional Technique in Anterior Cruciate Ligament Reconstruction: A Systematic Review

A Systematic Review

The all-inside technique (AIT) is a novel method for anterior cruciate ligament reconstruction (ACLR). The effectiveness of the AIT as an enhanced approach remains uncertain due to limited studies documenting its post-operative functional outcomes.

Our systematic review aims to compare the clinical outcomes, knee stability and re-rupture rates between the two techniques.

A systematic review was conducted according to the PRISMA guidelines of literature from three independent databases. Duplicates and studies not adhering to our inclusion criteria were excluded. Risk-of-bias assessment was conducted for all included studies before data extraction. A comparison of the post-operative improvement of clinical outcome scores, knee stability and re-rupture rates between the conventional and AIT groups was conducted using the RStudio software for statistical analysis.

Of 645 original studies, 86 were included, where 1434 patients underwent conventional ACLR and 564 underwent the AIT. There was a significantly better post-operative improvement of Lysholm knee and Tegner activity scores (TAS; $p < 0.05$) in the AIT group (35.30 [SD 5.19], 2.01 [SD 0.29] respectively) compared to the conventional group (15.98 [SD 2.36], 1.02 [SD 0.68 respectively]). There was no significant difference in post-operative positive pivot shift tests and graft rupture rates in both groups.

There is a statistically significant improvement in post-operative functional outcome of the AIT group compared to the conventional group based on the Lysholm knee score and TAS. There is no difference in knee stability and graft rupture rates. This shows that the AIT could provide better post-operative functional outcome. However, there is a notable scarcity of studies concerning the AIT, and the available data exhibits significant heterogeneity.

The AIT could be a superior technique to conventional ACLR. Future randomized controlled study is necessary to compare these two techniques.

Presenter: Jia Ying Lim

Time of Presentation: Monday 21st October | 1:10pm - 1:20pm

Type: Paper

Affiliations: Jia Ying Lim (National University Hospital, Singapore), Glen Liau (National University Hospital, Singapore), Nooriyah Moochala (Yong Loo Lin School of Medicine, Singapore), Dhruv Praveen (Lee Kong Chian School of Medicine, Singapore), Shaynna Ee (Lee Kong Chian School of Medicine, Singapore), and James Hui (National University Hospital, Singapore)

Authors: Jia Ying Lim, Glen Liau, Nooriyah Moochala, Dhruv Praveen, Shaynna Ee and James Hui

Topic: ACL graft rupture indicators

Category: Knee

TITLE:

Prognostic Indicators of Graft Rupture After Anterior Cruciate Ligament Reconstruction: A Systematic Review and Meta-Analysis

Introduction

About 1 in 9 patients undergoing anterior cruciate ligament reconstruction (ACLR) experience graft rupture. Conflicting isolated results of risk factors of graft rupture are often reported. This highlights the need for a comprehensive meta-analysis. Our study aims to identify and quantify the risk factors for graft rupture after a tibial tunneled arthroscopic ACLR.

Methods:

A systematic review of randomized controlled trials (RCT) was conducted according to the PRISMA guidelines of literature. Only RCTs with a minimal sample size of 50 human subjects with ACL graft rupture were included. Risk-of-bias assessment was conducted before data extraction. Statistical analysis and meta-analysis with random effects model was performed using Review Manager Version 5.4.

Results:

Of 110 RCTs, 18 were included in our study. ACLR augmentation ($p < 0.001$) with both lateral extra-articular tenodesis (LET) and anterolateral stabilization techniques like anterolateral ligament reconstruction and anterolateral structural augmentation significantly decreased graft rupture. Furthermore, a lower posterior tibial slope (PTS) angle of 9.4 ± 2.0 degrees correlated with a decreased risk of graft rupture ($p < 0.05$). Graft selection and laterality of donor site did not have any significant correlation with graft rupture ($p > 0.05$).

Discussion:

ACLR augmentation with LET may reduce rotational laxity which functions by acting as a secondary stabilizer and deceasing ACL graft stress. Smaller PTS angle may decrease tension on the ACL, thus reducing the risk of graft rupture. The choice of graft and donor sites did not affect graft rupture.

Conclusion:

A targeted approach to patient monitoring can be taken with knowledge of risk factors of graft rupture. For example, patients with greater PTS angle may be selected for closer monitoring. ACLR augmentation can also be performed to reduce graft rupture risk.

Presenter: Richard Rahardja

Time of Presentation: Monday 21st October | 1:20pm - 1:30pm

Type: Paper

Affiliations: Department of Surgery, University of Auckland, Auckland, New Zealand

Authors: Richard Rahardja, Hamish Love, Mark G Clatworthy, Simon W Young

Topic: ACL LET NZ registry

Category: Knee

TITLE:

Predictors of Return to Sport After ACL Reconstruction: A New Zealand ACL Registry Study & Early Results of Combined ACL Reconstruction with a Lateral Extra-Articular Procedure from the New Zealand ACL Registry (*combined papers)

Introduction:

Return to sport is one of the most important outcomes after anterior cruciate ligament (ACL) reconstruction: A lack of large cohort data has resulted in significant variation in the reported rates of return to sport. This study aimed to present return to sport rates following ACL reconstruction in New Zealand.

Methods:

A questionnaire was sent to patients recorded in the New Zealand ACL Registry who underwent ACL reconstruction between 2017-2022 with a minimum follow-up of 2-years. Patients were asked whether they had returned to any level of sport following surgery. Patient and surgical data were extracted from the Registry. Univariate Chi-square test and multivariable binary logistic regression were performed to compute adjusted odds ratios (aOR).

Results:

2870 patients were analyzed, of which 68.6% reported that they had returned to sport following surgery (n = 1968), while 18.6% reported they had not returned (n = 535). 367 patients reported that returning to sport was not the goal of surgery. Excluding these patients improved the return to sport rate to 78.6%. A greater odds of return to sport was reported by male patients (aOR = 1.6, $p<0.001$), younger patients (aOR = 2.0, $p<0.001$ in age ≤20 years, aOR = 1.6, $p<0.001$ in age 21-30 years) and patients who underwent earlier surgery (aOR = 1.3, $p=0.005$). Return to sport was lower with a grade 3-4 chondral injury (aOR = 0.7, $p=0.03$) and in patients with a medial meniscal tear that was resected rather than repaired (aOR = 0.7, $p=0.04$). When compared to the hamstring tendon autograft, a greater odds of return to sport was reported by patients with a patellar tendon autograft (aOR = 1.3, $p=0.03$).

Discussion/Conclusion:

Most patients returned to sport after ACL reconstruction. Gender, age, timing of surgery, concomitant injuries and graft type influenced return to sport rates.

Presenter: Richard Rahardja

Time of Presentation: Monday 21st October | 1:30pm - 1:40pm

Type: Paper

Affiliations: Department of Surgery, University of Auckland, Auckland, New Zealand

Authors: Richard Rahardja, Hamish Love, Mark G Clatworthy, Simon W Young

Topic: ACL PT vs HS high volume surgeons

Category: Knee

TITLE:

Patellar Tendon Versus Hamstring Tendon Autograft in ACL Reconstruction – Does Surgeon Matter? And Hamstring Tendon Autograft Should Be Avoided in High-Risk Patients Undergoing ACL Reconstruction

(*combined papers)

Introduction:

The New Zealand ACL Registry has reported the hamstring tendon autograft to have the highest revision rate. There is concern that a small group of surgeons disproportionately account for a larger number of cases in the registry and bias the comparison between graft types. This study aimed to address this bias by focusing on the outcomes of patients operated on by the highest volume surgeons who use both grafts.

Methods:

Prospective data recorded in the New Zealand ACL Registry were analyzed. The top 30 surgeons with the most procedures recorded in the Registry who recorded both BTB and hamstring autograft cases were included. The study period was April 2014 to March 2022 with a minimum 2-year follow-up. Only high-risk patients were analyzed using the following criteria: age 14-25 years, ACL rupture sustained during sport, surgery within 12 months, grade 2 pivot shift and a minimum preinjury Marx activity score of 8. Revision rates were compared via Chi-square test and multivariable Cox regression survival analysis to calculate hazard ratios (HR) adjusted for gender.

Results:

The top 30 highest volume surgeons accounted for 69.7% of cases in the Registry. 6 surgeons were excluded as they did not record both BTB and hamstring autograft cases. The remaining 24 surgeons performed 2,479 primary ACL reconstructions with an overall revision rate of 8.4% (n = 209). A 2.8 times higher risk of revision was found with the hamstring autograft (revision rate = 12.3%, adjusted HR = 2.8, $p<0.001$) when compared to the BTB autograft (revision rate = 4.2%). Only 3 out of 24 surgeons had a higher revision rate with their BTB cases when compared to their hamstring cases.

Discussion/Conclusion:

The majority of the highest volume ACL surgeons had a higher failure rate with their hamstring autograft cases when compared to their BTB cases.

Presenter: Mei Lin Tay

Time of Presentation: Monday 21st October | 1:40pm - 1:50pm

Type: Paper

Affiliations: Department of Orthopaedics, North Shore Hospital, Auckland, New Zealand, and Department of Surgery, Faculty of Medical and Health Sciences, University of Auckland

Authors: Mei Lin Tay, Scott M Bolam, Kohei Kawaguchi, Simon W Young

Topic: Robotic TKA improves outcomes

Category: Knee / Arthroplasty

TITLE:

Robotic-Assisted Total Knee Arthroplasty is Associated with Improved Surgical and Post-Operative Outcomes: A Large Single-Centre Study

Introduction:

Total Knee Arthroplasty (TKA) is the gold standard treatment for end-stage knee osteoarthritis. The introduction of robotic-assisted TKA (RA-TKA) has improved accuracy and precision of bone cuts and ligament balancing. However, early reports of the impact of RA-TKA on other intraoperative and post-operative outcomes are conflicting. The aim of this study was to compare intraoperative and post-operative outcomes between RA-TKA and manual TKA.

Method:

A total of 904 consecutive TKA performed at North Shore Hospital between November 2019 and October 2023 were included. Patients matched for body mass index (BMI) and American Society of Anesthesiologists (ASA) class were grouped into RA-TKA (n=284) or manual TKA (n=620). Patient characteristics, intraoperative variables, and post-operative outcomes were recorded using clinical notes and radiographic review. Oxford Knee Scores (OKS) were collected at 6 months, 1 year and 2 years after surgery. Differences between categorical data were compared using Fisher's exact or Chi-squared tests, and differences between continuous variables were compared using t-tests.

Results:

Compared to manual TKA, RA-TKA had a shorter surgical time of 6 minutes (86.3 vs. 92.1 minutes, $p<0.001$), and RA-TKA patients had shorter mean length of stay (2.9 vs 3.5 days, <0.001). Fewer RA-TKA patients underwent subsequent manipulation under anaesthetic (MUA) compared to manual TKA patients (3% vs. 7%, $p=0.04$). There were no differences in proportions of inpatient complications (4% vs. 5%, $p=0.51$), presentations to ED within 90 days (9% vs. 8%, $p=0.50$), or revisions (1% vs. 1%, $p=0.44$) between RA-TKA and manual TKA. RA-TKA patients reported higher post-operative OKS at 6 months (38.9 vs. 36.9, $p<0.001$), 1 year (40.9 vs. 39.1, $p<0.01$), and 2 years (41.2 vs. 39.6, $p<0.01$).

Discussion & Conclusion:

In this cohort of patients, RA-TKA demonstrated benefits of shorter surgical time, shorter length of stay, fewer MUAs and better early patient-reported outcomes compared with non-robotic procedures.

Presenter: Mei Lin Tay

Time of Presentation: Monday 21st October | 1:50pm - 2:00pm

Type: Paper

Affiliations: Mei Lin Tay (University of Auckland), Scott M Bolam (University of Auckland), A Paul Monk (Auckland City Hospital), Sue R McGlashan (University of Auckland), Brya G Matthews (University of Auckland), Simon W Young (University of Auckland)

Authors: Mei Lin Tay, Scott M Bolam, A Paul Monk, Sue R McGlashan, Brya G Matthews, Simon W Young

Topic: UKA preop inflammation

Category: Knee / Arthroplasty

TITLE:

Associations of Pre-Operative Markers of Inflammation and Post-Operative Outcomes for Unicompartmental Knee Arthroplasty

Introduction:

Osteoarthritis (OA) is associated with joint tissue inflammation. Residual inflammation after arthroplasty may influence outcomes, particularly for patients undergoing unicompartmental knee arthroplasty (UKA) who have larger areas of remaining native tissue. The aim of this study was to evaluate the effect of pre-operative markers of inflammation on post-operative medial UKA outcomes.

Methods:

Bloods, synovial fluid, tibial plateaus and synovium were collected from 37 medial UKA patients. Cytokine and chemokine concentrations in serum and synovial fluid (SF) were measured with multiplexed assays. Disease severity of cartilage and synovium was assessed using validated histological scores. Patient-reported outcomes were measured pre-operatively, and at six weeks, six months and 1 year using Oxford Knee Score (OKS), Forgotten Joint Score (FJS-12) and pain scores.

Results:

Lower histological synovial scores at surgery, indicating lower levels of synovitis, was correlated with larger improvements in pain at rest (r -0.41, $p=0.03$) and with mobilisation (r -0.37, $p=0.047$) at 6-week follow-up. Higher serum and SF IL-6 were correlated with higher OKS at early follow-up (serum: 6 weeks, r 0.39, $p=0.03$; 6 months, r 0.48, $p<0.01$; 1 year, r 0.24, $p=0.19$; SF: 6 weeks, r 0.35, $p=0.04$; 6 months r 0.16, $p=0.38$: 1-year, r 0.13, $p=0.49$). Higher SF VEGFA was correlated with lower pre-operative pain at rest (r -0.5, $p=0.007$), and better FJS-12 at 6-week (r 0.44, $p=0.02$), 6-month (r 0.61, $p<0.01$) and 1-year follow-up (r 0.63, $p=0.03$).

Discussion and conclusion:

Lower levels of synovitis and higher levels of IL-6 and VEGFA were associated with better post-operative patient-reported outcomes following UKA. These findings can guide further biomarker research for characterisation of OA disease phenotypes and optimisation of UKA patient selection.

Presenter: Anneke Prankerd-Gough

Time of Presentation: Monday 21st October | 2:00pm - 2:10pm

Type: Paper

Affiliations: [1.] North Shore Hospital, [2.] University of Auckland, [3.] Auckland City Hospital, [4.]

Authors: Anneke Prankerd-Gough [(3)], Mei Lin Tay [(1,2)], Scott M. Bolam [(2,3)], A. Paul Monk [(3,4)], Simon W. Young [(1,2)]

Topic: UKR prev arthroscopy

Category: Knee / Arthroplasty

TITLE:

Previous arthroscopy does not decrease survivorship or functional outcomes for unicompartmental knee arthroplasty patients

Introduction:

Arthroscopic procedures for osteoarthritis, in particular arthroscopic meniscectomy, have poorer long-term clinical outcomes compared to those managed non-operatively. Additionally, previous arthroscopy is associated with worse outcomes following subsequent total knee arthroplasty, however there is limited data on the impact on subsequent unicompartmental knee arthroplasty (UKA) outcomes. The aim of the study is to investigate whether patients who had arthroscopy prior to UKA have differences in survivorship or functional outcomes compared to those with no prior arthroscopy.

Methods:

All patients who received either a primary medial or lateral UKA at four large tertiary hospitals were included (n=2,272). Patient data (age, sex, ethnicity, body mass index, American Society of Anesthesiologists status and surgical data) was recorded following systematic review of all clinical notes and radiographs. Differences between survival curves were analysed using log-rank curves. Differences between categorical data was compared using Fisher's exact or Chi-squared tests, and differences between continuous variables were compared using t-tests.

Results:

There was no difference between the survival curves for UKA patients with previous arthroscopy compared to those with no previous arthroscopy (10 years: 91% UKA with previous arthroscopy vs. 92% no previous arthroscopy; 15 years: 78% previous arthroscopy vs. 86% no previous arthroscopy; $p = 0.50$). Oxford Knee Score was comparable between patients who had previous arthroscopy and those with no previous arthroscopy at 6 months (38.8 vs. 39.3, $p = 0.45$), 5 years (42.0 vs. 40.4, $p = 0.11$) and 10 years (40.8 vs. 40.2, $p = 0.71$).

Discussion/Conclusion:

In this large patient cohort with comprehensive review of clinical data and outcomes, we found prior arthroscopy did not affect survivorship or functional outcomes of UKA patients. Previous arthroscopy should not be considered a relative contraindication for potential UKA candidates.

Presenter: Arielle Bok

Time of Presentation: Monday 21st October | 2:10pm - 2:20pm

Type: Paper

Affiliations: [1]Department of Orthopaedics, North Shore Hospital, Auckland, NZ. [2]Department of Surgery, Faculty of Medical and Health Sciences, University of Auckland, Auckland, NZ. [3]Department of Orthopaedic Surgery and Musculoskeletal Medicine, University of Otago, Christchurch, NZ. [4]Auckland Bioengineering Institute, University of Auckland, Auckland, NZ. [5]Department of Orthopaedic Surgery, Auckland City Hospital, Auckland, NZ.

Authors: [1]Arielle Bok, Scott Bolam[1,2], Gary Hooper[3], Paul Monk[4,5], Mei Lin Tay[1,2], Simon Young[1,2]

Topic: UKA uncemented

Category: Knee / Arthroplasty

TITLE:

Effects of Age and Fixation on Survivorship of Mobile-Bearing Unicompartmental Knee Arthroplasty

Introduction:

Unicompartmental knee arthroplasty (UKA) is an effective treatment for patients with isolated unicompartmental osteoarthritis. As an increasing number of patients are undergoing UKA at a younger age, a better understanding of UKA survivorship across different age groups is required. The type of fixation is important to consider, as younger patients typically have higher levels of activity compared with older patients, who may have poorer-quality bone. This study therefore aimed to investigate the long-term effects of age and fixation on mobile-bearing UKA in a large cohort of patients.

Methods:

A total of 1401 primary medial mobile-bearing UKAs (Oxford UKA) from four large tertiary hospitals were included. The mean follow-up time was 7.2 ± 3.6 years (range 2-15.7 years). Clinical notes and radiographs were systematically reviewed to obtain patient and implant characteristics, revision-free survival and reasons for revision.

Patients were stratified into three age bands: [1] <60 years; [2] 60-69 years; and [3] ≥70 years. Implant survivorship was analysed using Kaplan-Meier analysis, and reasons for revision were tabulated and analysed as proportions of total revisions for each age group.

Results:

For the youngest patients (<60 years), 15-year survivorship was higher in the uncemented group compared to the cemented group (88.2% vs. 78.8%; p=0.02). For the cemented group, revision was most commonly performed for OA progression (5 cases; 41.7%) and aseptic loosening (4 cases; 33.3%), whereas for the uncemented group revision was most commonly performed for bearing dislocation (6 cases; 50%). There were no differences in 15-year survivorship for the older patients (60-69 years: 91.7% vs. 80.6%; p=0.09; ≥70: 91.6% vs. 91.6%, p=0.7).

Discussion and Conclusion:

Uncemented mobile-bearing UKA offered superior long-term survivorship over the cemented version for the youngest patients (<60 years), with fewer revisions for OA progression and aseptic loosening. Implant survivorship was higher for older patients (60 and above), with no differences among fixation types.

Presenter: Mark Clatworthy

Time of Presentation: Monday 21st October | 2:20pm - 2:30pm

Type: Paper

Affiliations: Ascot Hospital, Auckland

Authors: Guido Wierer

Topic: Tibia first ligament guided TKA

Category: Knee / Arthroplasty

TITLE:

Tibia First Ligament Guided Technique is Superior to Mechanical, Kinematic, and Functional Alignment Strategies in Creating a Well-Balanced TKA

Purpose:

This study assesses the ability of four different alignment and balancing techniques to create an optimally balanced TKA.

Methods:

We evaluated a prospective single-surgeon cohort of 400 consecutive patients undergoing primary cruciate-retaining TKA, using the VELYS image-free robotic-assisted system and its Accubalance software. Intraoperatively, a balance curve was generated. Before any bone cuts, the impact on the soft tissue envelope of mechanical (MA) and kinematic (KA) alignment was recorded. Functional alignment (FA) was then determined by starting with the KA plan and adjusting the tibial and femoral resection plan to balance the TKA with equal extension gaps, equal medial gaps in extension and flexion, and 2 mm more laxity laterally in flexion. Using this plan, the tibia was cut, the ACL, menisci, and osteophytes were resected. With a ligament tensor in place the knee was articulated to generate a new balance curve. Prior to cutting the femur, adjustments were made to the femoral plan in order to create an optimally balanced knee (+/- 2mm). This was the tibia first ligament guided (TFLG) final plan. Differences from the FA plan were recorded.

Results:

Only 17% of knees were balanced with MA, 38% with KA, 29% with FA, but 98.5% with TFLG ($P < .05$). KA showed significantly better balance than MA in all gap measurements ($P < .05$). TFLG TKA balance was achieved in 100%, 100%, 100%, and 98.5 % in extension, flexion, medial, and lateral gaps, respectively; whereas, FA achieved balance in only 80%, 69%, 56%, and 53% of the same gaps.

Conclusion:

Functional alignment failed to achieve better ligament balance than kinematic alignment, which showed poor but better balance than mechanical alignment. Optimal TKA balance is achieved 98.5% of the time when the tibia is cut first, and a ligament tensor is used to optimally balance the TKA.

Presenter: Caitlin Bodian

Time of Presentation: MONDAY 21st October | 1:00pm - 1:10pm

Type: Paper

Affiliations: Caitlin Bodian - Orthopaedic Registrar, Auckland Hospital. Andrew Johnston - Orthopaedic Oncologist, Auckland Hospital and North Island Sarcoma Service. Alpesh Patel - Orthopaedic Spine Surgeon, Middlemore Hospital Auckland

Authors: Caitlin Bodian, Andrew Johnston, Alpesh Patel

Topic: NZ mets guideline

Category: Tumour

TITLE:

The Introduction of a New Zealand National Guideline for the Management of Metastatic Bone Disease

Introduction:

Metastatic bone disease (MBD) is a broad condition and a common presentation to orthopaedic surgeons. It can pose significant clinical challenges, including pain, disability, and skeletal-related events, such as pathological fractures or spinal cord compression. Although MBD is not curable, life expectancy for patients may still be years due to advancements in medical therapy; thus, preserving quality of life is paramount. Successful orthopaedic management requires understanding the indications for surgery, the appropriate surgical options, when to refer complex cases and the promotion of patient-focused multidisciplinary care. Internationally, the use of MBD guidelines has been shown to improve patient outcomes and reduce healthcare costs. New Zealand does not presently have MBD guidelines, risking inconsistent care delivery. To address this, a New Zealand-specific guideline has been developed to standardise our management of MBD.

Methods:

Development involved a comprehensive review of current MBD evidence and international guidelines, followed by a New Zealand-based multidisciplinary review, including specialists in orthopaedic and spine surgery, medical and radiation oncology, radiology, and nursing care.

Results:

The guideline outlines concise recommendations for MBD management, including treatment algorithms for disease of the appendicular skeleton, spine, and pelvis. It also specifies criteria for tertiary service referral, clarifies regional referral pathways and underscores the significance of a multidisciplinary approach. The impact of these guidelines will be identified as they are implemented nationwide. Surveys will be sent out before and after publication to monitor its utility among orthopaedic surgeons. The guideline will also be updated to remain relevant for future clinical practice.

Conclusion:

MBD is a complex yet prevalent condition. This guideline has been developed to support clinicians in successfully managing patients with MBD with the goal of improving health outcomes.

Presenter: Cameron Tuckey

Time of Presentation: MONDAY 21st October | 1:10pm - 1:20pm

Type: Paper

Affiliations: Dr Cameron Tuckey (Christchurch City Hospital), Mr Henrik Bäcker (Auckland City Hospital), Dr Ramesh Arnachulum (Auckland City Hospital), Mr Andrew Johnston (Auckland City Hospital)

Authors: Dr Cameron Tuckey, Mr Henrik Bäcker, Dr Ramesh Arnachulum, Mr Andrew Johnston

Topic: Seroma sarcoma treatment

Category: Tumour

TITLE:

Predictors of Seroma Formation in Extremity Soft Tissue Sarcoma Treatment

Introduction:

External beam radiotherapy (EBRT) and limb-sparing surgery (LSS) are integral components of extremity soft tissue sarcoma (ESTS) management. LSS poses a significant surgical challenge and is prone to wound complications. Seromas pose a particular challenge, with implications for patient outcomes and recovery.

Objective:

This study investigates whether the volume of irradiated tissue, the Planned Treatment Volume (PTV), correlates with rates of seroma formation.

Methods:

A retrospective trial was conducted using our prospective database to investigate predictors of seroma formation in patients who underwent EBRT and LSS between 2017 and 2023. Database analysis identified 43 patients with ESTS. Gross Tumor Volume (GTV) and PTV were measured by a radiation oncologist using treatment planning software. Secondary variables included patient characteristics, comorbidities, and the use of muscular flaps. A correlation test assessed associations between GTV, PTV, and secondary variables with seroma formation rates over a 6-month postoperative period.

Results:

Increased age ($p = 0.013$) and a history of smoking ($p = 0.004$) were associated with higher postoperative seroma risk. No significant association was found for obesity or diabetes. Both PTV ($p = 0.018$) and GTV ($p = 0.024$) were associated with increased seroma rates. Patients with muscular flaps had significantly lower seroma rates compared to those without ($p = 0.04$).

Discussion:

Our study demonstrates a novel association between PTV and seroma rates, aligning with literature on PTV and wound complications. The correlation of age and smoking status with seroma rates is supported by existing studies. The reduction in seroma rates with muscular flaps highlights a potential strategy to improve surgical outcomes.

Conclusion:

This study identifies patients at high risk for postoperative seroma in LSS. The novel association between PTV and seroma rates may inform future management protocols. Our findings suggest muscular flaps may reduce seroma rates in this patient cohort.

Presenter: Rose Binney

Time of Presentation: MONDAY 21st October | 1:20pm - 1:30pm

Type: Paper

Affiliations: Fraser Prendergast - Auckland City, North Shore Hospital, Rose Binney - Auckland City Middlemore Hospital, Andrew Johnston - Auckland City Hospital, Michael Flint - Auckland City Hospital

Authors: Fraser Prendergast, Rose Binney, Andrew Johnston, Michael Flint

Topic: Femur cartilaginous tumour

Category: Tumour

TITLE:

Central Cartilaginous Tumours of the Femur – A New Zealand Perspective

Introduction:

Solitary central cartilage tumours of the femur encompass various histological subtypes, both benign and malignant, each with distinct clinical characteristics, treatment protocols and prognostic implications. The objective of this study is to determine the incidence of solitary cartilage tumours within New Zealand's population and to corroborate or dispute the findings by Davies, et. al. out of Birmingham, United Kingdom.

Methods:

This retrospective review reviewed patients with solitary cartilaginous tumours from New Zealand. Patients with solitary cartilaginous lesions confined to the femur with cross sectional imaging including an MRI or CT were included. Patients with an enchondromatous condition, final diagnosis of surface/clear cell chondrosarcoma or lack of CT/MRI were excluded. Patient demographics and tumour characteristics including length of lesion, location of the lesion in the femur, presence of endosteal scalloping, cortical breach and soft tissue involvement were evaluated.

Results:

This study identified 115 patients with solitary central cartilaginous tumours. 93 of these patients had benign lesions (enchondroma or ACT) and 22 had aggressive lesions (grade 2 and 3 chondrosarcoma and dedifferentiated chondrosarcoma). The ratio of benign (enchondroma/ACT) to aggressive (Grade 2/3/ dedifferentiated chondrosarcoma) in each region of the femur were as follows; proximal 2.3:1, midshaft 1.5:1 and distal 7.75:1 ($p=0.015$, fisher exact test). Endosteal scalloping was present in 56 of 93 benign (enchondroma/ACT) and 22 of 22 aggressive lesions ($p=0.002$). Cortical destruction was present in 13 of 93 benign lesions and 19 of 22 aggressive lesions ($p<0.001$). There was no statistical different in rates of aggressive lesion between Maori/Pacific Island and general population ($p=0.62$).

Conclusions:

This study suggests the location of chondroid lesion in the femur can help predict the grade. The use of location with advanced imaging features can help in the diagnosis of high-grade lesions. There was no evidence of ethnic disparity between tumour groups.

Presenter: Ben Waller

Time of Presentation: MONDAY 21st October | 1:30pm - 1:40pm

Type: Paper

Affiliations: Auckland

Authors: Simon Young, Matt D'Acry, Ben Waller

Topic: Taranaki DDH screening

Category: Paeds

TITLE:

Anti-Coagulation Does Not Increase Morbidity or Mortality in the Operative Management of Hip Fractures

Specific Aims:

To determine if pre-operative anticoagulation or antiplatelet therapy is an independent risk factor for morbidity and mortality in patients with acute hip fractures undergoing operative management.

Methods:

A retrospective analysis of patients who had undergone operative management of a hip fracture over a two-year period, from 01/01/16 to 31/12/17, at Auckland City and Middlemore Hospitals was performed. Inclusion criteria were: Aged over 50, proximal femur or hip fractures undergoing operative fixation or replacement.

Results:

1015 patients were included in the study, and broadly divided into 3 groups. No anticoagulation (53.7%), Antiplatelets (32.1%) and Anticoagulation (14.2%). Anticoagulated patients were significantly more likely to wait in excess of 24 hours for operative management ($p = <0.001$) compared to those who were not on any anticoagulation. Anticoagulated and non-anticoagulated groups were grouped into time to operation cohorts of <24 hours, 24-48 hours, 48-72 hours and >72 hours in attempt to control for the known increased mortality associated with delay to operative management. When controlling for time to operation, there was no significant difference in mortality at six weeks ($p = 0.878$) or twelve months ($p = 0.102$). Peri-operative transfusion rates and post-operative return to theatre in the two groups were also comparable with respect to time to theatre ($p = 0.830$ and $p = 0.661$ respectively).

Discussion:

This study disputes the validity of perioperative concern in the anticoagulated patient over expeditious operative management. There was no significant difference in mortality when comparing those receiving anticoagulant medications preoperatively and those who were not, with respect to time to theatre. Furthermore, presenting these patients to theatre within a 48 hour, or even 24 hour, window, does not increase their risk of intra-operative blood loss or perioperative complications as a result of their perceived increased bleeding risk.

Presenter: Samuel MacGill

Time of Presentation: MONDAY 21st October | 1:40pm - 1:50pm

Type: Paper

Affiliations: Samuel MacGill (Wellington Hospital), Koen de Ridder (Wellington Hospital), Tim Gregg (Wellington Hospital), Jean Murdoch (Wellington Hospital), Peter Larsen (University of Otago / Wellington Hospital)

Authors: Samuel MacGill, Koen de Ridder, Tim Gregg, Jean Murdoch, Peter Larsen

Topic: Wellington DDH experience

Category: Paeds

TITLE:

The Wellington Regional Hospital Developmental Dysplasia of the Hip Screening Experience

Introduction:

Wellington Regional Hospital undertakes a selective ultrasound screening pathway for patients referred with risk factors for developmental dysplasia of the hip (DDH). A static and dynamic hip ultrasound is performed at approximately six weeks of age, if this is normal we proceed to an AP pelvis radiograph at six months of age, and if this is normal, the patient is discharged. We have performed an audit assessing this pathway.

Method:

We reviewed the electronic records for all patients who attended the 'Baby Hip Check Clinic' while the current pathway was in place. We gathered data on demographics, risk factors, imaging results and treatments undergone.

Results:

Between April 2021 and February 2024, 452 patients completed our screening program. 397 patients had a normal ultrasound and proceeded to a radiograph. Of this cohort, the six month radiograph identified one patient who underwent an examination under anaesthesia and arthrogram, and another patient who underwent successful non operative treatment for DDH in a hip abduction orthosis. 55 patients had an abnormal ultrasound. Our ultrasound technique had a sensitivity of 0.95 (CI 0.42-1.0), specificity 0.94 (CI 0.84-1.0), PPV 0.44 (CI 0.25-0.62) and NPV 1 (CI 0.85-1).

Discussion:

It has been demonstrated that our six week ultrasound is valid as a single screening investigation, and that the costs of the six month radiograph outweigh the benefits. Our DDH screening pathway will be altered; so following a normal six week ultrasound, the patient will be discharged.

Conclusions:

Ultrasound screening can be very effective for DDH. However, there is wide variability between centres. We would caution others from applying our results to their centre, but rather encourage them to perform similar audits to assess the validity of their own screening programs.

Presenter: Sarah Hunter

Time of Presentation: MONDAY 21st October | 1:50pm - 2:00pm

Type: Paper

Affiliations: 1.University of Auckland Faculty of Medical and Health Sciences 2. Paediatric Orthopaedic Department, Starship Hospital 3.Department of Child and Youth Health, Starship Hospital

Authors: Dr Sarah Hunter, MBChB, MHSc [1], [2] Dr Elsie Brown, MBChB[2] Dr Haemish Crawford, MBChB, FRACS [1],[2] Professor Cameron Grant, MBChB, FRACP, PhD[1],[3]

Topic: Covid and msk infection

Category: Paeds

TITLE:

Epidemiology of Childhood Bone and Joint disease During the COVID-19 Pandemic in New Zealand

Introduction:

It is unknown whether social distancing impacts frequency of presentation and severity of childhood bone and joint infection (BJI). In New Zealand, the COVID-19 disease elimination strategy involved strict social isolation policies spanning March 2020-September 2022. Examination of this period may provide insight around risk factors for BJI.

Methods:

A retrospective review of all patients <16 years with presumed acute haematogenous osteomyelitis (AHO) or septic arthritis (SA) treated in the Auckland region was performed between 2018-2023. Frequency and severity of presentations has been examined before, during, and after periods of social restriction. Severe cases included those with intensive care admission, recurrent infection, or multiple surgeries. Pre-hospital experience, length of stay, and disease outcomes have also been assessed.

Results:

A total of 563 cases met inclusion criteria. Compared to the pre-pandemic period, monthly case averages reduced between April 2020 to September 2022 (10.1 vs 7.9 cases/month, p=0.008). Separating cases by causative microbiology shows a statistically significant drop in culture negative and Kingella kingae mediated BJI cases (4.2 vs 2.9 cases/month, p=0.006) but not for cases secondary to Staphylococcus aureus and Streptococcus pyogenes (4.2 vs. 3.9 cases/month, p=0.6). The frequency of severe disease reduced during this period (5.6 vs 4.1 cases/month, p=0.01) together with lower rates of recurrent infection (9% vs. 4%, p=0.03).

Conclusion:

The COVID-19 management strategy in New Zealand utilised strict social isolation, mask wearing, and hand hygiene measures to control disease spread between 2020-2022. These measures coincided with reduction in frequency and severity of presentations for childhood BJI.

Presenter: Sarah Hunter

Time of Presentation: MONDAY 21st October | 2:00pm - 2:10pm

Type: Paper

Affiliations: 1.University of Auckland Faculty of Medical and Health Sciences, 2.Paediatric Orthopaedic Department, Starship Hospital, 3.School of Population Health, University of Auckland, 4.Department of Child and Youth Health, Starship Hospital

Authors: Dr Sarah Hunter, MBChB, MHSc [1], [2] Dr Haemish Crawford, MBChB, FRACS [1],[2] Dr Vanessa Selak, MBChB, MPH, PhD [1],[3] Professor Cameron Grant, MBChB, FRACP, PhD[1],[4]

Topic: Delay to diagnosis infection

Category: Paeds

TITLE:

Delay to Diagnosis in Childhood Bone and Joint Infection

Introduction:

To determine the frequency of delayed diagnosis in acute childhood bone and joint infection (BJI) and examine the impact of delayed disease recognition on illness trajectory.

Methods:

A retrospective review was undertaken of patients <16 years with acute haematogenous osteomyelitis (AHO) or septic arthritis (SA) treated in the Auckland region from 2018-2023. Electronic case information was used to identify any alternative diagnosis given prior to identification of BJI (delayed disease recognition). Cases were grouped into the following subtypes: multifocal sepsis or shock, "isolated" AHO or SA, or disseminated local infection such as pyomyositis and subperiosteal abscess. Primary outcomes included length of stay (LOS) and hospitalisation cost.

Results:

A total 563 cases of childhood BJI were identified of whom 512 had clearly documented presenting complaint. A high proportion received an alternative initial diagnosis (43%). Alternatively diagnosed children were more likely to have attended primary or urgent care (82% vs 38%, p=0.00001) and have a recent viral illness (46% vs. 34%, p=0.008). Receiving alternative diagnosis was associated with greater delay to treatment (7.8 vs 4 days, p=<0.00001). Disseminated local infection was more likely in children with > 1 week of symptoms (34%, vs. 17%, p=0.002). Disseminated infection required more surgical intervention, longer LOS, and higher hospitalisation cost when compared to isolated AHO.

Conclusion:

Delayed recognition of Childhood AHO and SA is common and associated with delayed treatment. Symptoms present for >1 week are associated with disseminated infection, which, compared with isolated AHO, requires more surgery with increased hospitalisation cost.

Presenter: Reece Joseph

Time of Presentation: MONDAY 21st October | 2:10pm - 2:20pm

Type: Paper

Affiliations: 1. Department of Medicine, 2. Department of Molecular Medicine and Pathology, University of Auckland, Auckland, NZ

Authors: Reece Joseph[1], Karen Callon[1], Jian-ming Lin[1], Brya Matthews[2], Haemish Crawford[1], Simon Swift[2], Jillian Cornish[1]

Topic: Bacterial genotype for infection

Category: Paeds

TITLE:

Paediatric Acute Haematogenous Osteomyelitis: Identification of Bacterial Genes and Phenotype that Predispose to Adverse Health Outcomes.

Introduction:

Paediatric acute hematogenous osteomyelitis (PAHO) is a bacterial bone infection in children that is treatable with antibiotics. A subgroup of children, primarily Maori and Pacific Islander, will experience further complications such as multi-focal sepsis and need for intensive care support. Methicillin sensitive staphylococcus aureus (MSSA) is the primary pathogen, with little known about the virulence of specific strains and their influence on adverse outcomes.

Objectives:

To identify bacterial genes and phenotype in MSSA strains collected from children with PAHO that correlate with adverse outcomes.

Methods:

95 bacterial isolates, collected from children with PAHO treated at starship children's hospital, were genotyped, and analyzed for their planktonic and biofilm antibiotic sensitivity using the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) assay. The in-vitro data was compared with clinical outcomes categorized as complicated (MSSA infection with chronic or recurrent disease, treated with ≥8 weeks of antibiotics) vs uncomplicated (MSSA infection without relapse, ≤6.5 week course of antibiotics).

Results:

Preliminary analysis identified 85 as MSSA by genotype; 29 complicated (69% Maori or Pacific Islander), 47 uncomplicated (43% Maori or Pacific Islander), 9 required intensive care (89% Maori or Pacific Islander). 31 unique strains were identified; 7 complicated, 17 uncomplicated, 7 overlapped. Two phylogenetic tree clusters contained a predominant grouping of complicated strains. 100% of MSSA isolates were sensitive to flucloxacillin, however 33% of isolates demonstrated an MBC discordant with its MIC, effectively increasing the required concentration required to kill bacteria, reaching the threshold for antibiotic resistance.

Discussion/Conclusion:

This study demonstrates the practical application of bacterial genotyping and antibiotic sensitivity testing to yield clinically relevant information. Further advances in gene analysis technology may pave the future in guiding optimal clinical care in PAHO.

Presenter: Sarah Hunter

Time of Presentation: MONDAY 21st October | 2:20pm - 2:30pm

Type: Paper

Affiliations: Dr Sarah Hunter - University of Auckland, Dr Zanazir Alexander - Whangarei Hospital, Dr Haemish Crawford - University of Auckland, Dr Braden Te Ao - University of Auckland, Dr Vanessa Selak - University of Auckland, Dr John Mutu-Grigg - Auckland Orthopaedics Ltd, Professor Paula Lorgelly - University of Auckland, Professor Cameron Grant - University of Auckland,

Authors: Dr Sarah Hunter, MBChB, MHSc, Dr Zanazir Alexander, MBChB, Dr Haemish Crawford, MBChB, FRACS, Dr Braden Te Ao, PhD, MPH (Hons, Dr Vanessa Selak, MBChB, MPH, PhD, Dr John Mutu-Grigg, MBChB, FRACS, Professor Paula Lorgelly, PGCAP, PhD, BSc (Hons), Professor Cameron Grant, MBChB, FRACP, PhD

Topic: cost of infection

Category: Paeds

TITLE:

Hospitalisation Cost for Pediatric Osteomyelitis and Septic Arthritis in New Zealand

Introduction:

Hospitalization rates for pediatric bone and joint infection (BJI) in New Zealand (NZ) are among the highest globally. This study aims to quantify hospitalization costs of BJI in 2018-2019.

Methods:

National hospitalization data from the NZ Ministry of Health was used to describe costs associated with all pediatric hospitalizations coded for osteomyelitis or septic arthritis in those aged <16 years. Data included age, ethnic group, area level deprivation, diagnosis-related-group coding, admission length and cost-weight. Readmissions up to 24 months following the initial encounter were analysed for associated costs.

Results:

More than ten million dollars was spent on hospitalisation for paediatric bone and joint infection (BJI) between 2018-2019 (NZ$10,819,474). There were 409 primary BJI admissions in 2018 and 446 in 2019. A further NZ$1,196,640 was spent on related re-admission costs in the 24 months following diagnosis. Higher median hospitalization costs occurred for children residing in the most deprived versus least deprived neighbourhoods ($12,126 vs. $9,010, $p<0.01$). Indigenous (NZ Maori) compared with non-indigenous children had longer length of stay (8.4 vs. 6.3 days, $p=0.04$), more complex and severe illnesses (53% vs. 17%, $p<0.01$), and higher median hospitalization costs ($11,796 vs. $9,581, $p=0.03$).

Conclusions:

Direct pediatric BJI hospitalization costs in 2018-2019 were NZ$10,819,474 with 11% of costs due to re-admission. Direct hospitalization costs for pediatric BJI in NZ vary by deprivation and ethnic group. Illness complexity of pediatric BJI varies by ethnic group. Interventions are needed to reduce incidence and severity of these debilitating infections.

Presenter: Wing Yung Agnes Chu

Time of Presentation: Tuesday 22nd October | 10:30am- 10:40am

Type: Paper

Affiliations: Dr Agnes Chu, Wellington Hospital, Mr Peter Devane, Wellington Hospital, Prof Geoffrey Horne, Wellington Hospital, James Stanley, University of Otago

Authors: Dr Agnes Chu

Topic: THA cross linked vs conventional poly

Category: Arthoplasty

TITLE:

Cross-linked Versus Conventional Polyethylene in Total Hip Arthroplasty: 20-year Results of a Randomised, Double Blinded Prospective Trial

Introduction:

Highly cross-linked polyethylene (PE) has been in clinical use for 25 years. Our previous study has demonstrated reduced wear and greater implant survival at 10 years. We present further results of our original cohort at minimum 20 years.

Method:

122 patients were enrolled and randomised to conventional PE (Enduron, DePuy) and highly cross-linked PE (Marathon, DePuy) groups. All patients received an uncemented Duraloc metal shell with one screw, a 28mm cobalt-chromium femoral head and a cemented Charnley Elite femoral stem. Anteroposterior and lateral radiographs, alongside clinical scores were obtained at each follow-up points of 3 days, 6 weeks, 3 months, 6 months, 1, 2, 3, 4, 5, 10 and 20 years. PE wear was measured with PolyMig, a computer assisted method with accuracy of ± 0.09mm.

Results:

All 122 patients were accounted for at 20-year follow-up. 46 patients had died, 6 of which were revised prior to death. Of the 76 alive patients, 33 were revised, leaving 43 patients for analysis (15 Enduron, 28 Marathon). Radiographs were obtained for all but 2 patients with dementia. PE wear measurements were performed for 41 patients with radiographs (15 Enduron, 26 Marathon). Following the bedding-in period, Enduron liners had a wear rate of 0.182 mm/year, and Marathon liners had a wear rate of 0.028 mm/year. A total of 39 patients had revision surgery. Of these, 28 had conventional liners and 11 had cross-linked PE.

Discussion:

This is the longest-term randomised controlled trial on the topic.

Conclusions:

Highly cross-linked PE has significantly improved clinical and radiological outcomes at 20 years, compared with conventional PE in total hip arthroplasty.

Presenter: Zach Van Hout

Time of Presentation: Tuesday 22nd October | 10:40am - 10:50am

Type: Paper

Affiliations: Palmerston North Hospital

Authors: Pechon PHM, Van Hout Z, Tse T, Schneider P, Gray E.

Topic: THA for septic + OA

Category: Arthoplasty

TITLE:

Septic Arthritis Combined With Osteoarthritis of The Hip in The Elderly: A Management Conundrum and Growing Problem in New Zealand?

Introduction:

Six patients over 65yrs presented with severe hip osteoarthritis and septic arthritis. Septic arthritis requires washout and antibiotics for six weeks. Traditionally arthroplasty is contra-indicated in active infection. This creates a paradox: arthroplasty will cure pain, prevent morbidity associated with extended bed-rest by permitting mobilisation, but may necessitate a 2-stage revision with interim antibiotics.

Method:

Patients identified in our prospective database, over 1 year period, in a hospital serving 170'000 population.

Results:

Six patients aged 65 to 86; two female four male. Four presented acutely prior to arthroplasty, two were diagnosed intra-op due to visible pus in the joint. Mean length of stay 25.2 days (13-46).

Organisms and Management:

Patient 1: S.epidermidis. Patient 2: S.saccharolyticus, S.warneri and S.epidermidis; both patients 1 and 2 had 2-stage arthroplasty with interim 3 months antibiotics.

Patient 3: group B Streptococcus, 2 washouts and 6 weeks antibiotics then 1st of 2-stage arthroplasty. Patient 4: S.aureus, single washout and 6 weeks antibiotics. Patient 5: S.capitis, radical synovectomy and single stage arthroplasty, 1 week antibiotics. Patient 6: no organism identified likely due to long-term antibiotic treatment by another department prior to referral, 6 weeks antibiotics then 1st of 2-stage arthroplasty.

Conclusion:

These cases are complex, heterogeneous, expensive and no prospective data or guidance exists on best management. Single stage arthroplasty with radical synovectomy and antibiotics appears an attractive option but as we show 2 out of 4 cases required 2-stage revision. The authors hypothesise that the severe osteoarthritis with partial collapse of the joint, and the inflammation associated with it, may be a risk factor for acute haematogenous bacterial spread.

Presenter: Karen Toh

Time of Presentation: Tuesday 22nd October | 10:50am - 11:00am

Type: Paper

Affiliations: Karen Toh (Auckland City Hospital), Rob Elliott (North Shore Hospital)

Authors: Karen Toh, Rob Elliott

Topic: THA anterior cement vs uncemented

Category: Arthoplasty

TITLE:

Cemented versus Uncemented Femoral Stem Fixation in Primary Anterior Approach Total Hip Replacement: Comparative Analysis of Functional and Pain Outcomes

Introduction:

This study compares functional and pain outcomes of cemented and uncemented femoral fixation methods in primary anterior approach total hip replacement surgeries.

Methods:

A prospectively maintained database from April 2018 to August 2023 was used, including operative details, Oxford Hip Score (OHS), pain location/severity and complications. Short-term follow-up was <3 months, and long-term follow-up was >9 months. Missing data were supplemented with clinical records and patient contacts. Statistical analysis employed two-tailed Mann–Whitney U test for continuous variables and Chi-squared test for categorical variables.

Results:

181 anterior hip replacements were performed, with 138 cemented and 43 uncemented femoral stems. Median patient age was 67 years. Short-term follow-up included 146 patients, with 122 completing long-term follow-up. Median duration of follow-up was 6 weeks (short-term) and 32.3 months (long-term). Preoperative OHS were similar between cemented and uncemented groups (19.7 vs. 19.5, p=0.88). No difference in short-term (36.49 vs. 35.83, p=0.17) and long-term OHS (43.67 vs. 43, p=0.79) between cemented and uncemented groups. No statistically significant differences were found in groin, trochanteric, gluteal, or thigh pain severity. The cemented group was older (median age 70 years) and had higher American Society of Anesthesiologists (ASA) scores (p=0.0006). Surgical duration did not differ significantly (p=0.47). Chi-squared analysis revealed no significant association between femoral stem type and complication rates (__(1, N=181) = 0.224, p > 0.05).

Discussion:

Cemented and uncemented femoral stems show similar functional outcomes and pain levels in anterior hip replacements. This suggests fixation choice can be based on patient-specific factors without affecting clinical results. Despite older age and higher ASA scores in the cemented group, outcomes were comparable.

Conclusion:

Larger studies are needed to confirm these findings and explore subgroup differences.

Presenter: Faseeh Zaidi

Time of Presentation: Tuesday 22nd October | 11:00am - 11:10am

Type: Paper

Affiliations: Faseeh Zaidi (University of Auckland), Massoud Akbarshahi (University of Melbourne), Peter McEwen (Mater Private Hospital), Jacob Munro (University of Auckland), Josh Petterwood (Calvary Lenah Valley Hospital), Paul Monk (University of Auckland)

Authors: *1 Faseeh Zaidi (first author), Massoud Akbarshahi, Peter McEwen, Jacob Munro, Josh Petterwood, Paul Monk *2

Topic: CPAK / early outcomes

Category: Knee / Arthroplasty

TITLE:

The Impact of Change in mLDFA on Short-term Post-operative Outcome Following TKR & The Influence of CPAK Classification Changes on Early Postoperative Outcomes after TKA Combined Papers

Introduction:

Mechanical Lateral Distal Femoral Angle (mLDFA) is a key individual measure of coronal alignment in total knee replacement (TKR). Changes in mLDFA can impact the biomechanics of the knee however, the impact of changes in mLDFA on outcome of TKR procedures is poorly understood and safe boundaries of changes are yet to be defined. Therefore, we sought to investigate the impact of change in mLDFA on early outcome of patients following TKR.

Methods:

This was a retrospective multicentre cohort study of patients undergoing primary unilateral and bilateral robotic-assisted TKAs between January 2020 and March 2023. Two reviewers independently measured mLDFA angles using long-leg radiographs. Patients were grouped based on the magnitude of change in their mLDFA values from pre- to post-operative state (0<_mLDFA≤1, 1<_mLDFA≤2, 2<_mLDFA≤3, 3<_mLDFA<4, _mLDFA≥4). Validated functional outcomes were assessed using the Oxford Knee Score (OKS) at pre-operative baseline, 3 months, and 6 months postoperatively.

Results:

A total of 297 patients were included. The mLDFA changed by 1.96_ ± 1.76_ post-operatively; 0<_mLDFA≤1 (38%), 1<_mLDFA≤2 (22%), 2<_mLDFA≤3 (17%), 3<_mLDFA<4 (9%), _mLDFA≥4 (14%). There was no statistically significant difference between the pre-operative OKS values amongst the groups (P=0.116). The _mLDFA≥4 group demonstrated the least improvement in OKS after 3 months (7.26 ± 9.8) and 6 months (11.27 ± 7.0) OKS compared to all other groups. This reached statistical significance when compared to all other groups for change in 3-month OKS (p=0.001, p=0.004, p=0.029, p=0.033 respectively) and change in 6 month OKS for all groups except the 3<_mLDFA<4 group (p=0.027, p=0.014, p=0.021, p=0.071 respectively).

Discussion/Conclusion:

Changes in post-operative mLDFA 4 or more degrees compared to pre-op were associated with the least improvement in 3- and 6-months OKS. This suggests that changes beyond 4 degrees in post-operative mLDFA might negatively impact the short-term outcome of TKR. Future work should focus on investigating the causation of these observed differences in conjunction with other surgical and patient recovery parameters.

Presenter: Jay Jefferies

Time of Presentation: Tuesday 22nd October | 11:10am - 11:20am

Type: Paper

Affiliations: Dr Jay Jefferies - Whangarei Hospital, Dr Adam Payne - Whangarei Hospital, Mr Mike van Niekerk - Southern Cross Northland Surgical Centre, Mr Marc Hirner - Whangarei Hospital, Southern Cross Northland Surgical Centre

Authors: Dr Jay Jefferies, Dr Adam Payne, Mr Mike van Niekerk, Mr Marc Hirner

Topic: novel technique TKR kinematic

Category: Knee / Arthroplasty

TITLE:

A Novel Technique for Kinematic Knee Replacement Using Robotic Technology

Introduction:

The kinematic alignment in knee arthroplasty aims to restore constitutional alignment potentially improving patient outcomes. This presentation outlines a new technique developed to restore constitutional alignment. The posterior condyles rarely sustain any wear in an arthritic knee. With this method, they are utilized as the initial reference to plan the TKR. ROSA robotic planning software is used to plan the TKR, which is then implemented with robotic assistance.

Methods:

All surgery was performed using ROSA. No soft tissue release is performed but osteophytes are removed prior to digitisation. The resting HKA is determined, followed by the stress HKA, to assess the correctability of the knee. The medial and lateral soft laxity is recorded. The posterior condyles are evaluated for wear. It is planned to resect 9 mm from the medial and lateral condyles. The plan proceeds in flexion. The soft tissue laxity measurements are added to the posterior condyle measurements and then tibial resection is calculated with a minimal gap of 19.5mm. The extension gap is determined by calculating the tibial resection and the measured soft tissue laxity to achieve a minimal gap required medially and laterally. ROSA is utilized to set the jigs in the pre-determined resection positions. Post implantation, a resting intra operative HKA is measured.

Results:

44 knee replacements were performed in the series. Range of pre-operative HKA was 15 of varus to 9 degrees of valgus. Range of stress HKA was 1 degree of valgus to 4.5 of varus. The average correction of the HKA was 3 degrees. The joint line was changed on average 2.5mm. All knees resting HKAs were able to be restored within 2 degrees of the stress HKA intraoperatively.

Conclusion:

In conclusion this method has been able to demonstrate that using ROSA and the posterior condyles we are able to recreate the constitutional alignment.

Presenter: Jian-Sen Ng

Time of Presentation: Tuesday 22nd October | 11:20am - 11:30am

Type: Paper

Affiliations: Jian-Sen Ng (Auckland City Hospital), Mr Simon Young (North Shore Hospital), Dr Lance Nicholson (Southern Cross North Harbour), Mr Bill Farrington (North Shore Hospital), Bert Van der Werf (The University of Auckland)

Authors: Jian-Sen Ng, Mr Simon Young, Dr Lance Nicholson, Mr Bill Farrington, Bert Van der Werf

Topic: IO diclofenac TKA

Category: Knee / Arthroplasty

TITLE:

Intraosseous Regional Diclofenac for Post-Op Pain Management in Total Knee Arthroplasty

Introduction:

Postoperative pain management is an important component of primary total knee arthroplasty (TKA). Intraosseous regional administration (IORA) of antibiotics for prophylaxis in TKA is known to result in higher local tissue concentrations. We investigated using IORA Diclofenac to improve post-op pain management in TKA, compared to intravenous (IV) Diclofenac.

Methods:

Forty-six patients (twenty-three per group) undergoing primary TKA were enrolled in a double-blinded randomised controlled trial. The intervention group received 75mg IORA Diclofenac and IV normal saline placebo. The control group received 75mg IV Diclofenac and IO normal saline placebo. Both groups received standard protocol IORA Vancomycin. The primary outcome recorded was pain using a Visual Analogue Scale (VAS-P), measured out to 7 days post-operatively. Secondary outcomes included opioid use (morphine milligram equivalent - MME), quality of recovery (QoR-15 survey), impact of pain on walking and sleep (numerical rating scale - NRS), length of admission, patient satisfaction (NRS), the Knee Injury and Osteoarthritis Outcome Score for Joint Replacements (KOOS Jr), and Oxford Knee Score (OKS).

Results:

Postoperative VAS-P scores (mm,[95% CI]) were lower in the intervention group compared to the control group at one (21.2 [16.3,31.4] vs 40.2 [30.8,50.8]; p=0.007), twelve (18.2 [12.1,25.6] vs 36.5 [27.6,46.6]; , p=0.002), twenty-four hours (21.3 [14.6,29.2] vs 39.5 [30.2,50] ; p= 0.003), and postoperative day (POD) 1 (23.5 [17.8,30] vs 35.4 [28.3,43.3] ;p=0.01). The intervention group also demonstrated reduced postoperative opioid consumption from POD0 to POD3 ($p<0.01$), higher QoR-15 survey scores (p=0.04), reduced impact of pain on walking (p=0.001) and sleeping (p=0.003) on POD1, as well as higher KOOS JR scores (p=0.03) and improved patient satisfaction (p=0.04) at 2 weeks postoperatively.

Conclusion:

IORA Diclofenac demonstrates enhanced early postoperative pain relief, leading to reduced opioid consumption, alongside improved recovery post-anaesthesia, less impact on early walking and sleeping ability, better early knee functionality and patient satisfaction.

Presenter: Morgan Lingard

Time of Presentation: Tuesday 22nd October | 11:30am - 11:40am

Type: Paper

Affiliations: University of Otago, Christchurch

Authors: Morgan Lingard, Chris Frampton, Gary Hooper

Topic: TKA OKS six months

Category: Knee / Arthroplasty

TITLE:

Surgeon-level Outcome Monitoring in Total Knee Arthroplasty: Effect of Using Six Month Oxford Scores to Identify Potential Outliers

Introduction:

The New Zealand Joint Registry provides surgeon-level feedback on revision rate and Oxford scores for total knee arthroplasty (TKA). Potential outliers are identified using revision rate. Using patient reported outcome measures to identify outliers alongside revision rate has been suggested. This paper evaluates using Oxford scores to identify potential outliers.

Methods:

The association between mean Oxford score at six months and revision rate at two years was evaluated at the surgeon level using the Pearson correlation coefficient. Funnel plots for revision rate at two years and Oxford score at six months were constructed using procedures from 1st January 2015 to 31st December 2019. Surgeons with revision rates above the 95% control limit and mean Oxford scores below the 95% control limit were compared. Revision rate within ten years was then compared with mean six month Oxford score using procedures from 1st January 2002 to 31st December 2021.

Results:

At the surgeon-level, there was a weak but statistically significant association between mean Oxford score at six months and revision rate at two years (Pearson coefficient -0.173, $p = 0.011$) and within ten years (Pearson coefficient -0.230, $p = <0.001$). Nine of two hundred and sixteen surgeons were outliers using six month Oxford score compared with four for revision at two years. One was a potential outlier for both. Seventeen of two hundred and forty surgeons were outliers using six month Oxford score compared with twenty-one for revision within ten years. Four were potential outliers for both.

Conclusion:

Correlation between Oxford score at six months and revision rates is weaker at the surgeon-level compared to the patient level. Mean Oxford score identifies different potential outliers compared with revision rates with minimal overlap. This has implications for reporting surgeon-level outcomes, raising questions regarding the most appropriate measure of surgical performance following TKA.

Presenter: Paul Erwin

Time of Presentation: Tuesday 22nd October | 11:40am - 11:50am

Type: Paper

Affiliations: Middlemore Hospital

Authors: Paul Erwin, Mr Mark Wright, Mr Kong Koh, Chris Frampton

Topic: TKA revision based on cement

Category: Knee / Arthroplasty

TITLE:

Revision Risk in Total Knee Joint Arthroplasty with Respect to the Type of Cement Used

Introduction:

Total knee joint arthroplasty is a pain relieving and function restoring surgery with largely good outcomes. The overall ten-year survival rate in New Zealand is 95.6%. Occasionally patients require a revision surgery for various reasons, which come at a high societal and surgical cost. Prosthetic joint infection is one of the most significant causes for this. In 2022 there were 128 cases of revision knee surgery secondary to deep infection. Other causes include aseptic loosening, pain, periprosthetic fracture, and instability. Many factors may contribute to revision surgery; however, one variable that must be considered is the cement that is being used. A significant difference in this category could influence clinical decision making when choosing cement type for total knee joint replacements.

Materials and Methods:

This is a multi-centre retrospective study comparing the revision rates in patients receiving cemented total knee joint replacements with respect to the type of cement used. This study looked at 88,973 cemented knee joint replacements in New Zealand over the last 20 years. The primary outcome investigated was the risk for all-cause revision of total knee joint replacements with regards to the cement used. Secondary outcomes that were investigated included correlation to ethnicity, sex, age, ASA, and region, as well as cause for revision.

Results:

The results showed that for all-cause revision surgery CMW1 had the lowest rate/100-component-years (0.38). Palacos MV+G had the highest rate/100-component-years (0.74) for all-cause revision. CMW1 and CMW2 without antibiotics had lower all-cause revision rate/100-component-years (0.38, 0.42) when compared to their antibiotic counterpart (0.52, 0.52). Simplex with antibiotics had lower all-cause revision rate/100-component years (0.4) compared to its non-antibiotic counterpart (0.55). Deep infection and loose tibial components made up the largest cause for revision knee joint surgery. When looking at deep infection as the cause for revision, CMW1 had the highest rate (34.2%), which was worse than CMW1 with gentamicin (24.4%). CMW2 also had higher rates of deep infection as the cause for revision (23.9%) than its antibiotic counterpart, CMW2 with gentamicin (18%). Simplex, however, had the lowest rate of deep infection (15.3%) as the cause for revision. This was lower than its antibiotic counterpart (28.3%).

Conclusion:

Our study shows significant differences between commonly used cements in New Zealand with respect to all cause revision. When narrowing the scope to revision caused by infection, there also appears to be statistically significant differences between cement types. These results are independent of a variety of possible confounding factors including ethnicity, age, and ASA. This study indicates that CMW1 has the best outcomes in terms of all-cause revision, but Simplex has the lowest rate of infection related revision. As demonstrated by the high rate/100-component years, Palacos MV+G should be avoided. This study allows for a more tailored approach towards total knee joint arthroplasty in reducing the risk for revision surgery by guiding surgeons in their decision making for cement choice.

Presenter: Harrison Beadel

Time of Presentation: Tuesday 22nd October | 11:50am - 12:00pm

Type: Paper

Affiliations: Harrison Beadel, Amir Sandiford (Southland Hospital)

Authors: Harrison Beadel, Amir Sandiford

Topic: Short stay arthroplasty

Category: Arthoplasty

TITLE:

Short Stay Arthroplasty in a Regional Setting: is it Safe?

Background:

Increasing demand for elective joint arthroplasty (EJA) has led to the development of short stay arthroplasty (SSA) pathways that enable early discharge following surgery. International evidence suggests these can produce non-inferior outcomes while decreasing the overall costs associated with surgery. Our primary aim was to describe the clinical outcomes of short stay patients in Southland.

Methods:

Retrospective data was collected for all hip and knee arthroplasty patients treated by a single surgeon at a regional hospital in Southland, New Zealand, over a four year period. Short stay was defined as discharge within 24 hours of surgery. Outcomes included pre- and post-operative Oxford hip and knee scores and 30-day hospital readmissions, reoperations and complications.

Results:

39 (23%) of 168 patients were discharged within 24 hours of surgery.

On average, short stay patients were younger (65.7 vs 72.5 years, p <0.001), had a lower American Society of Anaesthesiologists (ASA) score (p 0.034) and were more likely to have undergone unicompartmental knee arthroplasty (p 0.001). Mean follow up was at 13.6 months. On average, short stay patients experienced a greater increase in Oxford score (30.5 vs 27.0, p 0.024). There were no significant differences in 30-day representation, reoperation or complication rates.

Discussion:

Nearly a quarter of patients were discharged within 24 hours of surgery. Readmission, reoperation and complication rates were similar to those reported in other studies. While short stay patients had a greater improvement in Oxford score, these differences are not likely to be clinically significant.

Conclusion:

EJA patients cleared by a multidisciplinary team can be safely discharged within 24 hours of surgery. Further research is needed to accurately predict which patients are suitable for SSA. We hope to introduce a dedicated SSA pathway at our hospital.

Presenter: Rohil Chauhan

Time of Presentation: Tuesday 22nd October | 10:30am- 10:40am

Type: Paper

Affiliations: [1]Auckland Spine Surgery Centre, [2]Auckland City Hospital, The University of Auckland, [3]Auckland University of Technology

Authors: Rohil Chauhan[1], Anand Segar[2], Steven White [3]

Topic: Cervical myelopathy australasian practice

Category: Spine

TITLE:

What is the State of Play of Diagnostic Practices for Cervical Myelopathy in Australasia?

Introduction:

The increasing prevalence of degenerative cervical myelopathy (DCM) with global aging poses diagnostic challenges due to symptom overlap with processes associated with normal aging and deconditioning. Delayed diagnosis leads to poor outcomes, highlighting the need for clear diagnostic criteria and early recognition. Understanding the diagnostic criteria employed by Australasian orthopaedic spinal surgeons and neurosurgeons would aid the development of consensus-based criteria for primary care, given the low awareness in this sector.

Methods:

A 13-question survey was piloted and disseminated to Australasian spine surgeons and neurosurgeons via member associations. Ethical approval was granted by AUTEC (23/351).

Results:

Sixty-two surgeons completed the survey (New Zealand 54.8%, Australia 45.2%), constituting a 10% response rate. The average post-fellowship experience was 16.31 years (SD=7.83), with an average monthly caseload of 2.75 DCM patients (SD=2.44). 46.5% of patients (SD=27.5) were considered surgical candidates upon initial consultation, indicating a notable clinical severity. Key symptoms reported as diagnostic of DCM included gait clumsiness (selected by 88.7%), hand dexterity decline (83.9%), hand clumsiness (74.2%), and hand numbness/paresthesia (54.8%). Key diagnostic signs included Hofmann sign (71.0%), hyper-reflexia (69.4%), clonus (66.1%) and inability to tandem gait (56.5%). CT and X-ray imaging were utilised by 67.7% and 64.5% of surgeons respectively, along with cervical spine MRI. Symptoms most influencing surgical urgency were hand dexterity decline (selected by 71.0%), hand clumsiness (58.1%), history of falls (46.8%), and autonomic dysfunction (40.3%). Key signs influencing surgical urgency were inability to tandem gait (59.7%), clonus (53.2%), hyper-reflexia (51.6%), and Hofmann sign (37.1%).

Discussion/Conclusion:

This study provides insight into the key DCM signs and symptoms, notably gait clumsiness, hand dexterity decline, Hofmann sign, and hyperreflexia, utilised by orthopaedic spine surgeons and neurosurgeons to identify DCM. The variability in diagnostic criteria highlights the need for further research to establish consensus-based criteria for early recognition in primary care.

Presenter: Rohil Chauhan

Time of Presentation: Tuesday 22nd October | 10:40am - 10:50am

Type: Paper

Affiliations: Rohil Chauhan: Auckland Spine Surgery Centre, Anand Segar: Auckland City Hospital, Steven White: Auckland University of Technology,

Authors: Rohil Chauhan, Anand Segar, Steven White

Topic: Degenerative cervical myelopathy incidental

Category: Spine

TITLE:

Degenerative Cervical Myelopathy in Non-Cervical Patients Utilising Whole Spine Sagittal MRI: A Retrospective Audit

Introduction:

Degenerative Cervical Myelopathy (DCM) has been incidentally found in 10-18% of patients assessed for non-cervical spinal conditions and hip fractures in tertiary care. However, the true prevalence of DCM is likely underreported. Whole spine sagittal MRI (WSSMRI) series has shown potential in identifying incidental spinal cord compression. This retrospective audit examines the prevalence of DCM in patients with non-cervical conditions at an orthopaedic spine centre using WSSMRI.

Methods:

A retrospective audit was conducted at a secondary care orthopaedic spine centre from January 2022 to December 2023. Patients over 45 years, referred for non-cervical spine-related issues, were included. Routine assessment for DCM signs and symptoms was performed alongside evaluation of their presenting condition. Provisional DCM diagnosis was based on one clinical sign and symptom, along with central cord compression and cerebrospinal fluid effacement on T2-weighted WSSMRI. Confirmatory diagnosis required a dedicated cervical spine MRI.

Results:

Out of 388 patients screened, 21 were provisionally diagnosed with DCM (prevalence of 5.41%), using the abovementioned criteria. Dedicated cervical spine MRI confirmed 14 DCM cases (prevalence of 3.6%), refuted 3 cases, and 4 patients were lost to follow-up. Among the 14 confirmed cases, 11 were scheduled for surgery, 7 had multi-level involvement (>1 involved level), and 6 had T2-cord signal hyperintensity. The mean age of the 14 patients was 62.8 years, with a majority being male (10/14).

Conclusion:

DCM is reported to have a prevalence of 5% in adults over 45 years. This study found a prevalence of 3.6% in patients with non-cervical conditions, suggesting the true community prevalence may be underreported. Routine screening of WSSMRI alongside clinical screening in this population may aid early identification of DCM, though further studies are needed to determine its diagnostic accuracy.

Presenter: Salimi Hamidullah

Time of Presentation: Tuesday 22nd October | 10:50am - 11:00am

Type: Paper

Affiliations: Osaka Metropolitan University Graduate School of Medicine,Department of Orthopaedic Surgery, Shimada Hospital, Japan

Authors: Hamidullah Salimi MD. PhD, Hidetomi Terai MD. PhD, Masato Uematsu MD, Koji Tamai, MD, PhD, Hiroshi Katsuda MD, Nagakazu Shimada MD, Hiroaki Nakamura MD. PhD

Topic: PLIF Peek vs Titanium cages

Category: Spine

TITLE:

Comparison of Clinical and Radiological Outcomes of L5/S1 Posterior Lumbar Interbody Fusion Using Poly Ether Ether Ketone (PEEK) Versus Titanium Cages

Objective:

The purpose of this study is to review fusion rate and radiographic parameters after posterior lumbar interbody fusion (PLIF) as a comparative analysis between titanium and polyetheretherketone (PEEK) cages.

Methods:

A retrospective study of 60 consecutive patients with an average age of 58.8 years ranging from (20-81) years, who underwent Posterior fusion for degenerative indications from January 2014 to December 2022 operated by spine surgeons. Plain standing radiographs and CT scans were obtained at 1-2 weeks, 8-12 weeks, and 12 months postoperatively, the primary outcome measures were the evaluation of fusion status based on the cage type (Titanium vs PEEK). Secondary outcomes were evaluation of radiological parameters such as LL, SS, PT, L5/S1 angle, and the clinical outcomes VAS and JOA scores which were compared based on the confounding factors such as age, sex, and type of cage used for fusion.

Results:

Totally 60 patients with an average age of 58.8 years (20 female/40 male) who underwent L5/S1 PLIF were included in this study. the average operation time was 136 min. the average preoperative L5/S1 angle in Titanium cage group increased from 4.6 degrees to 8.5 degrees while the average L5/S1 angle in PEEK group decreased from 7.8 degrees to 6.6 degrees which indicates a higher subsidence in PEEK cage than the Titanium. Also, LL, SS, and PT increased in the Titanium group. the fusion rate analysis of both groups revealed that the Titanium cage group had absolute union rate in both gender and all age groups, but the PEEK group showed lower union specially in female and was not correlated to age of the patients.

Conclusions:

Titanium cages had lower subsidence rates than PEEK cages in current study.

Presenter: Salimi Hamidullah

Time of Presentation: Tuesday 22nd October | 11:00am - 11:10am

Type: Paper

Affiliations: Osaka Metropolitan University Graduate School of Medicine, Shimada Hospital, Japan

Authors: Hamidullah Salimi, H. Toyoda, K. Yamada, H. Terai, M. Hoshino, A. Suzuki, S. Takahashi, K. Tamai, Yusuke Hori, Akito Yabu, Hiroaki Nakamura

Topic: lumbar decompression spinopelvic

Category: Spine

TITLE:

The Effect of Minimally Invasive Lumbar Decompression Surgery on Sagittal Spinopelvic Alignment in Patients with Lumbar Spinal Stenosis: a 5-year Follow-up Study.

Objective:

Several studies have examined the relationship between sagittal spinopelvic alignment and clinical outcomes after spinal surgery. However, the long-term reciprocal changes in sagittal spinopelvic alignment in patients with lumbar spinal stenosis after decompression surgery remain unclear. The aim of this study was to investigate radiographic changes in sagittal spinopelvic alignment and clinical outcomes at the 2-year and 5-year follow-ups after minimally invasive lumbar decompression surgery.

Methods:

The authors retrospectively studied the medical records of 110 patients who underwent bilateral decompression via a unilateral approach for lumbar spinal stenosis. Japanese Orthopaedic Association (JOA) and visual analog scale (VAS) scores for low-back pain (LBP), leg pain, leg numbness, and spinopelvic parameters were evaluated before surgery and at the 2-year and 5-year follow-ups. Sagittal malalignment was defined as a sagittal vertical axis (SVA) ≥ 50 mm.

Results:

Compared with baseline, lumbar lordosis significantly increased after decompression surgery at the 2-year (30.2° vs 38.5°, respectively; $p < 0.001$) and 5-year (30.2° vs 35.7°, respectively; $p < 0.001$) follow-ups. SVA significantly decreased at the 2-year follow-up compared with baseline (36.1 mm vs 51.5 mm, respectively; $p < 0.001$). However, there was no difference in SVA at the 5-year follow-up compared with baseline (50.6 mm vs 51.5 mm, respectively; $p = 0.812$). At the 5-year follow-up, 82.5% of patients with preoperative normal alignment maintained normal alignment, whereas 42.6% of patients with preoperative malalignment developed normal alignment. Preoperative sagittal malalignment was associated with the VAS score for LBP at baseline and 2-year and 5-year follow-ups and the JOA score at the 5-year follow-up. Postoperative sagittal malalignment was associated with the VAS score for LBP at the 2-year and 5-year follow-ups and the VAS score for leg pain at the 5-year follow-up. There was a trend toward deterioration in clinical outcomes in patients with persistent postural malalignment compared with other patients.

Conclusions:

After minimally invasive surgery, spinal sagittal malalignment can convert to normal alignment at both short-term and long-term follow-ups. Sagittal malalignment has a negative impact on the VAS score for LBP and a weakly negative impact on the JOA score after decompression surgery.

Presenter: Hasanga Fernando

Time of Presentation: Tuesday 22nd October | 11:10am - 11:20am

Type: Paper

Affiliations: Hasanga Fernando (Waikato Hospital, Hamilton); Euphemia Li (Waikato Hospital, Hamilton); Antony Field (Starship Hospital, Auckland); Haemish Crawford (Starship Hospital, Auckland); Hamish Deverall (Waikato Hospital, Hamilton); Joseph F. Baker (Waikato Hospital, Hamilton)

Authors: Hasanga Fernando, Euphemia Li, Antony Field, Haemish Crawford, Hamish Deverall, Joseph F. Baker

Topic: AIS routine MRI

Category: Spine

TITLE:

Is 'Routine' MRI Necessary in AIS? A Retrospective Analysis

Introduction:

Literature remains divided on the use of Magnetic Resonance Imaging (MRI) in Adolescent Idiopathic Scoliosis (AIS) to screen for neural axis abnormality (NAA). Aim of this study is to evaluate factors that may predict the presence of NAA in patients with AIS.

Methods:

282 patients selected with presumed AIS, who have undergone pre-operative MRI to exclude a NAA between 2010 to 2020. Clinical and radiographic records of these patients reviewed in multiple centres. Spinopelvic parameters measured on pre-operative and post-operative radiographs; these include Cobb angles, thoracic kyphosis, lumbar lordosis, sacral slope, pelvic tilt and pelvic incidence. Further clinical data gathered on curve characteristics, symptomatic back pain and abnormal preoperative neurological examinations.

Results:

A median age of 14 noted in this cohort of patients with an age range of 11 to 18. In this cohort 49 were males (17%). 217 (77%) were of European ethnicity and 37 (13%) Maori/Pacifika. 23 patients (8%) were noted to have NAA and 5 of these patients, required neurosurgical intervention. Among the NAA group, 4 were diagnosed with Chiari malformations, 7 with syringomyelia and 4 with both. Furthermore, presence of NAA did not result in any less curve reduction with surgery. No statistically significant association found between the presence of NAA and any of the variables investigated in this study.

Discussion:

Mixed findings are noted on literature regarding the utility of pre-operative MRI in AIS patients. Many such studies found associations between the incidence of NAA and variables such as male sex, ethnicity, curve characteristics and neurological findings. No similar correlations were noted in this study.

Conclusion:

Routine pre-operative MRI is justifiable since nearly 10% of the cohort had NAA and 5 patients required neurosurgical intervention.
This frequency of anomalies is not insignificant.

Presenter: Vonne van Heeswijk

Time of Presentation: Tuesday 22nd October | 11:20am - 11:30am

Type: Paper

Affiliations: V.M. van Heeswijk: The University of Auckland, Auckland; P.A. Robertson: Auckland City Hospital, Auckland; A. Thambyah: The University of Auckland, Auckland; N.D. Broom: The University of Auckland, Auckland

Authors: V.M. van Heeswijk, P.A. Robertson, A. Thambyah, N.D. Broom

Topic: Impact loading endplate fractures

Category: Spine

TITLE:

Impact Loading Increases Risk Of Endplate Fractures In Flexed Ovine Lumbar Motion Segments

Introduction:

Compressing healthy ovine lumbar motion segments in 10° flexion at 40 mm/min induced herniations in 58% of the tested samples whereas a higher compressive rate of 400 mm/min resulted in 83% of segments failing by herniation. Since many spine-related accidents involve impact loading, this new study investigates whether impact loading might further increase the likelihood of herniation in flexed ovine lumbar motion segments.

Method:

Fully hydrated ovine lumbar motion segments (n=23) were creep loaded at ~300 N for 1 hour, then in a custom-built impact rig flexed 7° and impacted by dropping a mass of 4.3 kg from a height of 0.8 m. Following chemical processing, each sample was externally assessed for herniations and then bisected sagittally to examine macroscopically the exposed bisected surfaces.

Results:

Externally visible herniations occurred in 8 of the samples and most were observed in the lateral aspects as nuclear extrusions. One of the herniated samples also contained a fractured endplate with nucleus migrating into the vertebral bone. In all remaining non-herniated 15 segments endplate fractures were observed.

Discussion and Conclusion:

This study indicates that impact loading of flexed ovine lumbar motion segments is more likely to induce endplate fractures. Herniations seem more likely to occur with a larger flexion angle and lower rates of compressive loading of 400 mm/min and 40 mm/min. A more recent study of flexed ovine lumbar motion segments compressed to failure at 40 mm/min showed that the lateral annulus was the primary site for internal disruption and herniation initiation. That most externally visible herniations in this new impact study were observed in the lateral regions indicates that the lateral disc periphery can also be involved in the herniation mechanism under impact loading conditions.

Presenter: Joe Baker

Time of Presentation: Tuesday 22nd October | 11:30am - 11:40am

Type: Paper

Affiliations: Waikato Hospital, Auckland, Epworth Richmond, Melbourne

Authors: Joseph Baker, John Cunningham, Dharshini Sreenivasan, Callum Spence

Topic: Humigard spine tissue health

Category: Spine

TITLE:

Effect Of Humidified Warmed Air On The Surgical Incision During Spinal Surgery: An Animal Model of Tissue Health

Introduction:

Tissue exposed to theatre air during surgery is susceptible to cooling and moisture loss. The resulting local hypothermia and desiccation is associated with delayed wound healing and surgical site infections (SSI). This study aimed to investigate HumiGard™ a device that maintains homeostatic conditions of the incision site during orthopaedic surgery through delivery of hydrated and warmed air (100% relative humidity and 37°C). We hypothesise that HumiGard will improve surgical wound healing.

Method:

Under general anaesthesia, a single 16cm posterior midline lumbar incision was made on 12 pigs (6 control, 6 HumiGard) exposing the spinal processes and laminae. The incision sites were exposed to a theatre environment with downflow for 3-hours before closure. Muscle biopsies for histology were taken at wound closure and after a 14-day recovery. Skin biopsies of the wound were taken on Day-14. Biopsies were given histopathology and fibrosis scores (between 0-3, 0-no damage, 3-greatest damage) by a pathologist. Skin from the wound was also tensile tested on Day-14.

Results:

In the exposed skeletal muscle, the average histopathology scores for the HumiGard and control groups were 1.8 and 2.5, respectively ($p=0.15$). Average fibrosis scores were 1.8 (HumiGard) and 2.4 (control), $p=0.2$. The average histopathology scores for skin from the incision site for the HumiGard and control groups were 0.8 and 2.6, respectively ($p<0.01$). Average fibrosis scores were 1.0 (HumiGard) and 1.5 (control), $p=0.04$. The HumiGard treated wounds had an average tensile strength of 0.47MPa and the control animals 0.41MPa ($p=0.6$).

Discussion:

The reduction in intraoperative tissue damage in both the exposed internal tissue and skin, indicates HumiGard has the potential to improve how a surgical wound heals and reduce SSI.

Conclusion:

HumiGard creates an optimal environment for exposed tissue, maintaining physiological conditions, which is important for wound healing and may complement existing infection prophylaxis measures.

Presenter: Scott Bolam

Time of Presentation: Tuesday 22nd October | 11:40am - 11:50am

Type: Paper

Affiliations: Middlemore Hospital, Auckland. A. Stoneham - Northshore Hospital, Auckland. M.L. Tay - Northshore Hospital, Auckland. C. Frampton - University of Otago, Christchurch. B Coleman - Middlemore Hospital, Auckland. A. Dalgleish - Auckland City Hospital, Auckland.

Authors: S.M. Bolam[1,2], A. Stoneham[1], M.L. Tay[2], C. Frampton[3], P.C. Poon1, R. Gao1, B. Coleman[4], A. Dalgleish[5]

Topic: Delta vs SMR

Category: Shoulder / Elbow

TITLE:

A 10-Year Comparative Analysis of the Two Most Common Reverse Total Shoulder Arthroplasty Implants (Delta Xtend and SMR) in the New Zealand Joint Registry

Introduction:

The majority (75%) of reverse total shoulder arthroplasty (RTSA) captured in the New Zealand Joint Registry (NZJR) use either SMR (Lima-LTO, Italy) or Delta Xtend (DePuy Synthes, USA). This registry-based study aimed to compare implant survivorship and revision reasons between the two most frequently used RTSA prostheses.

Methods:

Using NZJR data collected between 1999 and 2021, we identified 5891 patients who underwent RTSA using SMR cementless (62.8%) or Delta Xtend (37.2%) prostheses. Delta Xtend was sub-divided into cementless (31.4%) and cemented humeral stem (5.8%) sub-groups for analysis. Revision-free implant survival and functional outcomes (Oxford Shoulder Score) were adjusted by age, ASA grade, indication, sex, and surgeon experience for comparisons between groups.

Results:

The Delta Xtend cemented had a significantly higher adjusted revision risk compared to both the Delta Xtend cementless and the SMR cementless (Hazard Ratio [HR]=2.04, p=0.011; and HR=2.59, p<0.001, respectively). There was no significant difference between the Delta Xtend cementless and SMR cementless groups (HR=1.28, p=0.129). The Delta Xtend cemented group was significantly (p≤0.01) older, co-morbid (ASA 3-4), female and indicated for fracture compared to other groups. The most common reason for revision was aseptic loosening and infection for Delta Xtend cemented and cementless, and aseptic loosening alone for SMR cementless. Average OSS scores were significantly lower in Delta Xtend cemented compared to Delta Xtend cementless and SMR cementless at 6 months (30.8, 35.9 vs. 35.6, respectively, p<0.01) and 5 years (37.4, 40.7 vs. 39.5, respectively, p<0.01).

Discussion and Conclusion:

Overall, Delta Xtend cemented had the highest risk of revision compared to other groups, while there was no difference between the Delta Xtend cementless and SMR cementless. As the incidence of RTSA continues to rise, a better understanding of the long-term risks and complications is necessary to determine the best choice of implant.

Presenter: Rachel Basevi

Time of Presentation: Tuesday 22nd October | 11:50am - 12:00pm

Type: Paper

Affiliations: Rachel Basevi (Te Whatu Ora Taranaki), Ritwik Kejriwal (Te Whatu Ora Taranaki), Nico Magni (AUT), Gisela Sole (University of Otago), Margie Olds (The Shoulder Clinic)

Authors: Rachel Basevi, Ritwik Kejriwal, Nico Magni, Gisela Sole, Margie Olds

Topic: Anterior shoulder stabilisation RTP

Category: Shoulder/ Elbow

TITLE:

Predicting Successful Return to Play Post Anterior Shoulder Stabilisation

Background:

There is currently a lack of assessment tools with established predictive validity to inform return to play readiness following shoulder stabilisation surgery for anterior instability for competitive athletes. The shoulder arm return to sports test (SARTS) is a novel physical performance test battery with excellent inter-rater and intra-rater reliability and has normative data established in New Zealand rugby players. Our aim was to establish the predictive validity of SARTS, for post-operative instability episodes after anterior stabilization surgery to better inform return to play decision-making and therefore decrease rates of reinjury.

Methods:

We carried out a prospective multi-centre trial in New Zealand with surgeries carried out in Taranaki, Auckland, Wellington, and Waikato. Physiotherapy based SARTS testing was performed at 6 months post shoulder stabilisation and the main outcomes of recurrent instability, positive apprehension test, and return to play assessed at 12- and 24-months post operatively.

Results:

Preliminary data shows the ball abduction external rotation (BABER) component of SARTS testing approaching significance with regards to a successful return to play (p-value = 0.069). Participants with apprehension at 6 months post op also demonstrated a statistical difference or approached significance in side hold, BABER and line hops testing components of SARTS.

Discussion and Conclusions:

Early data shows evidence of statistical significance of SARTS testing at 6 months post operatively when predicting both ongoing apprehension and return to play at 12 months post anterior shoulder stabilization.

Presenter: Alexandria Gibson

Time of Presentation: Tuesday 22nd October | 1:00pm - 1:10pm

Type: Paper

Affiliations: Alexandria Gibson (Tauranga Hospital), Jillian Lee (Waikato Hospital), Joe Baker (Waikato Hospital), Chris Frampton

Authors: Alexandria Gibson, Jillian Lee, Joe Baker, Chris Frampton

Topic: Female surgeons fertility

Category: General

TITLE:

Female Surgeons and Fertility

Introduction:

Over the past two decades the number of females in the medical work force has continued to increase. While females remain under-represented in surgery, there is an increasing number of female orthopaedic trainees and surgeons in New Zealand. International literature suggests female doctors, especially surgeons, have an increased rate of pregnancy loss and complications, however no similar study had been performed in New Zealand.

Method:

We complied an electronic, anonymous, and voluntary survey with the assistance of an obstetrician with a sub-specialist fertility training. The survey was sent through specialty and GP colleges, and through female medical support groups

Results:

A total of 1023 doctors participated in the survey. 52% of female doctors report delaying having child for work related reasons. Those who worked in surgery were more likely to delay having a child for work reasons (53.4%) compared with those in general practice (33.3%). 56.1% of respondents describe experiencing infertility, and 23.8% required assistance to conceive. Women in surgical specialties were more likely to require IVF than those in general practice or medical subspecialties. 36.8% of all participants describe experiencing pregnancy loss, compared to 15.3% of the general population. 65% of respondents reported complications during pregnancy and 64% of respondents experienced complications with labour and delivery. The rate of post-natal depression in our participants was 23.5%, compared to the national average of 8-13%. 34.2% of respondents with children think that their job has impacted on their ability to complete a family, and 23.7% feel as though having children has impacted their ability to work in private practice.

Conclusions:

By highlighting these concerns, we hope that female surgeons are able to make informed decisions with regards to their fertility, and are supported with these decisions by their colleagues, departments and hospital management.

Presenter: Andrew Suchowersky

Time of Presentation: Tuesday 22nd October | 1:10pm - 1:20pm

Type: Paper

Affiliations: Taranaki Base Hospital, New Plymouth

Authors: A.M Suchowersky, R. Kejriwal

Topic: orthopaedic training methods

Category: General

TITLE:

Orthopods Prefer a Little Pain to Gain WhenThey Train

Introduction:

Effective teaching for surgical trainees is a subject of debate and continued evolution. Where traditional hardship has been discouraged following a greater awareness of trainee wellness, complete removal of some necessary discomfort for effective training may be unrealistic and should be regarded with caution. Next to positive and negative reinforcement, the literature is sparse with evaluation of a middle ground that may provide a combination of uneasiness to generate mental stimulus and encouragement to promote trainee self-worth. This study aimed to source the opinion of the orthopaedic consultant and trainee bodies within New Zealand regarding such a middle ground and its effectiveness in teaching methodology.

Methods:

The NZOA body were provided with an operative scenario that encountered a complication and then four variants of teaching approach that ranged from negative reinforcement through to pure positivity. Respondents where then surveyed as to the effectiveness of each variant as a teaching method, which would make them feel better as a registrar and their general feeling about the state of orthopaedic training in New Zealand.

Results:

Data indicate that 57% of respondents felt a hybrid method of reinforcement provided the most mental strengthening for training. Further analyses demonstrated that 67% of respondents felt this method provided most effective training and 61% felt would make them feel better as registrars.

Discussion:

How best to teach in the medical profession continues to be source of discussion. These data indicate that a large proportion of those trained and undergoing training in New Zealand appreciate a hybrid form of reinforcement and find it the most effective method of training.

Conclusion:

Teachers of surgery can feel reassured that a large proportion of trainees understand a certain amount of necessary discomfort when it comes to being taught and find it effective.

Presenter: Andy Gov

Time of Presentation: Tuesday 22nd October | 1:20pm - 1:30pm

Type: Paper

Affiliations: Scott Bolam (North Shore Hospital), Mark Wright (Auckland City Hospital)

Authors: Scott Bolam, Mark Wright

Topic: Informed consent

Category: General

TITLE:

What Matters Most to Patients During the Informed Consent Process?

Introduction:

Informed consent is an ethical and legal obligation for healthcare professionals prior to providing any treatment. It is integral in patient-centred care and complaints may arise when the process is inadequate. The purpose of this is study is to identify what patients perceived to be important during the informed consent process.

Methods:

Single centre study retrospectively recruiting adult patients with distal radius fractures managed surgically between July 2022 and December 2022. Medical records were reviewed for documentation of risks discussed during the informed consent process. Mixed questionnaire assessing patient perceived understanding, satisfaction and criticism was administered via telephone. Data was analysed using SPSS.

Results:

25 patient interviews were conducted. Mean overall patient satisfaction with the informed consent process was rated 8.68 out of 10 (SD 1.18). Overall patient satisfaction was significantly associated with patient perception of the amount of time spent with them during the informed consent process ($P < 0.005$) but not significantly associated with patient perceived surgical outcome or complications. Only 40% of patients had criticism for the informed consent process which included comments most commonly relating to time. Only 10 (40%) patients had adequately documented discussions of risks of surgery. However, having adequate documentation of risks was not significantly associated with overall satisfaction or patient perception of how well informed they felt about risks.

Conclusion:

This study showed that patient perception of the amount of time spent with them during the informed consent process was the most significant factor relating to overall satisfaction. Interestingly, good documentation of the risks discussed did not significantly correlate with how well-informed patients felt nor to overall satisfaction. Despite this, documentation remains crucial as complications are not uncommon and can potentially result in serious complaints and medicolegal disputes.

Presenter: Jane Nicholas

Time of Presentation: Tuesday 22nd October | 1:30pm - 1:40pm

Type: Paper

Affiliations: Wellington Hospital

Authors: Jane Nicholas

Topic: urban vs non-urban

Category: General

TITLE:

An Analysis of Factors in New Zealand Orthopaedic Surgeons Influencing the Decision to Practice in an Urban Versus Non-Urban Hospital.

Introduction:

The inequitable distribution of healthcare professionals within countries across urban and non-urban centres has been identified as a key barrier to health equity. Although systematic reviews have shown limited evidence demonstrating the effectiveness of interventions aimed at addressing the inequitable distribution of health professionals a number of admission policies have subsequently been introduced. A difference in factors affecting location of practice may exist between urban and non-urban practicing orthopaedic surgeons in New Zealand. The aim of this research is to identify these factors which may influence decision regarding targeted selection policies for the New Zealand Orthopaedic Association.

Method:

All orthopaedic surgeons in New Zealand in 2024 were asked to complete a 29 item questionnaire evaluating factors thought to affect choice of practicing location. Each participant was invited to anonymously submit their responses along with age, sex and ethnicity to the researchers database. All 141 participants who completed the questionnaire were included in the study.

Results:

Results have shown that surgeons currently practicing in non-urban centres are only 10% more likely to have been born in a non-urban centre though are more than two times more likely to have graduated overseas (28.6% versus 13.9%). Place of birth, location of primary school and high school, birthplace of partner and intent to practice rurally at medical school entrance had no statistically significant difference on location of practice for New Zealand orthopaedic surgeons.

Discussion and Conclusion:

Our result reflected our hypothesis that a number of factors shown in existing systematic reviews to influence urban versus non-urban workforce are not significantly influencing the place of work for New Zealand orthopaedic surgeons. Interventions that have been implemented to address the non-urban workforce are possibly yet to have influence with only two out of 141 participants having applied to medical school via rural admissions scheme. Our data has shown a significant lack of exposure to non-urban hospital medicine 32% having no exposure by the end of SET training.

Presenter: Arielle Bok

Time of Presentation: Tuesday 22nd October | 1:40pm - 1:50pm

Type: Paper

Affiliations: Arielle Bok - North Shore Hospital, Auckland. Chris Frampton - The University of Otago, Christchurch. Marinus Stowers - Middlemore Hospital, Suren Senthi - Middlemore Hospital, Auckland.

Authors: Arielle Bok, Chris Frampton, Marinus Stowers, Suren Senthi

Topic: Diabetic foot Middlemore

Category: Foot/Ankle

TITLE:

Diabetic Foot Infection and Amputation – Life and Limb at Middlemore Hospital

Aim:

Diabetic foot infections requiring amputation are one of the most common presentations under orthopaedic surgery. The best level of amputation for patients presenting with foot infections is frequently debated. This study looks at the overall outcomes and survival at the routine levels of lower limb amputations for diabetic foot infection with the aim to guide management for our future patients.

Methods:

This is a 10 year (2012-2021) retrospective review of patients aged >16 years presenting to Middlemore Hospital with diabetic foot infections who underwent amputations of their lower limb at various standard amputation levels; amputation above knee (AKA), below knee amputation (BKA), midfoot amputations (trans-metatarsal, chopart and lisfranc amputations) and forefoot amputations (toes and metatarsals). Clinical records were reviewed to determine the level of amputation, number of procedures required and overall survival post operatively. Baseline comorbidities were collected. Patient survivorship was analyzed using Kaplan-Meir analysis and Cox regression models.

Results:

Within the study period, 442 patients were included. By the study's end, 55% (n=236) had passed away. Patients were divided into groups based on the highest level of amputation that they received: AKA (n=50), BKA (n=113), midfoot amputation (n=37) and forefoot amputation (n=232). Higher levels of amputation were associated with higher average return to theatre for repeat procedures (eg. debridements). Mortality rates were significantly higher for those with AKA's than for those with any other type of amputation. Survival probability at 1 year and 5 years was highest in those with midfoot amputations, followed by those with forefoot amputations.

Conclusion:

It is evident that there is a significant mortality associated with diabetic foot infections which require amputations. It is clinically relevant that patients who have foot preserving procedures have a better likelihood of survival as well as fewer total number of operations. Treatment that aims to salvage rather than aggressive amputation should be considered in management of patients with diabetic foot complications to best serve this vulnerable population.

Presenter: Reuben He

Time of Presentation: Tuesday 22nd October | 1:50pm - 2:00pm

Type: Paper

Affiliations: Reuben He - The University of Auckland, Mr Aaron Cook - Tauranga Hospital

Authors: Reuben He, Mr Aaron Cook

Topic: Nec fasc in BOP

Category: General

TITLE:

Clinical Audit of Necrotising Fasciitis Under Orthopaedic Services in the Bay of Plenty Region of New Zealand

Introduction:

Necrotising fasciitis is a serious bacterial infection of the soft tissue and fascial layers beneath the skin. Infection often occurs through a port of entry in the skin and can spread rapidly, with potentially life-threatening consequences. This study was prompted by anecdotal cases of necrotising fasciitis in Tauranga Hospital. The aim of this study was to audit presentations of necrotising fasciitis under orthopaedic services in the Bay of Plenty region over a 2-year period.

Methods:

All cases of necrotising fasciitis diagnosed in Tauranga and Whakatāne hospitals from 1 April 2021 to 31 March 2023 were identified and obtained using ICD-10 coding data. Descriptive analysis was used to report incidence rates of necrotising fasciitis. The literature was searched to identify global trends in necrotising fasciitis and explanations for trends were explored.

Results:

Five cases of necrotising fasciitis were identified over the study period. All cases were diagnosed during the final 5 months of the study period, suggesting a sharp increase in incidence. Many body sites were implicated, with some cases of multifocal infection. Implicated sites included the ankle and foot (n=3), upper arm (n=2), lower leg (n=2), pelvis and thigh (n=l), and forearm (n=1). There was no clear association between age, gender, ethnicity, and location of inhabitancy with rates of necrotising fasciitis.

Discussion:

Current literature portrays a globally increasing incidence of necrotising fasciitis. Despite ongoing uncertainty about causes of this change in incidence, increasing awareness, bacterial virulence, and increasing prevalence of comorbid conditions have been speculated as possible drivers of necrotising fasciitis rates.

Conclusion:

Necrotising fasciitis is an orthopaedic emergency. Our results showed a sharp increase in its incidence under orthopaedic services in the Bay of Plenty region, which is consistent with wider literature and a cause for concern. Further research is warranted to identify causes and prevention strategies for necrotising fasciitis.

Presenter: Morgan Lingard

Time of Presentation: Tuesday 22nd October | 2:00pm - 2:10pm

Type: Paper

Affiliations: University of Otago, Christchurch

Authors: Morgan Lingard, Chris Frampton, Gary Hooper

Topic: Arthroplasty revision reporting

Category: Arthoplasty

TITLE:

Surgeon-Level Outcome Monitoring in Hip and Knee Arthroplasty: An Update

Introduction:

The New Zealand Joint Registry disseminates surgeon-level reports annually and revision rates are used to identify surgeons with potential outlier performance. Historically, these included all procedures and reported unadjusted all-time revision rate, presented using funnel plots. We aimed to validate aspects of this method and identify potential improvements.

Method:

Aspects of the existing method were validated and potential improvements identified through comparison with other registries and review of the literature. Feasibility and impact on surgeons identified as outliers was systematically evaluated for potential improvements.

Results:

Reporting revision rates using funnel plots and data held in a high quality registry was supported. Three potential improvements were identified: reporting shorter timeframes to better reflect current practice, risk adjustment to facilitate fair comparisons between surgeons and including patient reported outcome measures to provide a more comprehensive understanding of surgeons' results. Revision at two years was identified as a feasible shorter timeframe, resulting in significant differences in potential outliers identified. Risk adjustment models were developed for hip and knee arthroplasty using covariates collected by the registry, these were poor-fitting and risk-adjustment was not pursued further. Funnel plots for mean six month Oxford score were developed and used to identify potential outliers. There were significant differences in surgeons identified as potential outliers using mean six month Oxford score compared with revision rate.

Discussion and Conclusions:

The findings of this paper support the continued use of revision rates to assess surgeon-level outcomes. Reporting revision rate at two years and mean six month Oxford score are two potential improvements which are feasible and would result in significant differences in identified potential outliers. We suggest using these measures alongside a longer-term revision rate when evaluating surgeon performance. The audit and peer review process for surgeons identified as potential outliers remains essential for assessing whether outcomes are truly suboptimal.

Presenter: William Caughey

Time of Presentation: Tuesday 22nd October | 2:10pm - 2:20pm

Type: Paper

Affiliations: Jacob Munro, Auckland City Hospital. Paul Monk, Auckland City Hospital. Matthew Boyle, Starship Hospital. Nynke Rooks, Auckland Bioengineering Institute. Alex Carleton, Auckland Bioengineering Institute. Thor Besier, Auckland Bioengineering Institute

Authors: William Caughey, Jacob Munro, Paul Monk, Matthew Boyle, Nynke Rooks, Alex Carleton and Thor Besier

Topic: Periacetabular osteotomy

Category: Hip

TITLE:

Computational Modelling of Cartilage Pressures in Planning for Periacetabular Osteotomy Surgery

Introduction:

Hip dysplasia is characterised by inadequate acetabular coverage of the femoral head, leading to pain, activity restriction and early osteoarthritis predominantly afflicting young patients. Periacetabular osteotomy (PAO) surgery reorientates the acetabulum with a goal of increasing femoral head coverage to increase contact area and stability, and reduce contact pressure. Though high success rates in this surgery are reported, many patients go on to develop osteoarthritis. This study aims to develop a workflow to determine the ideal patient-specific position of PAO correction.

Method:

We conducted a finite element analysis of a dysplastic hip joint to determine the influence of acetabulum orientation on cartilage contact pressure. CT scans were segmented to capture the patient specific bony anatomy and volumetric cartilage elements were generated and assigned linear elastic material properties. Contact forces from instrumented prostheses (Orthoload) were applied to represent loading during heel-strike, mid-stance, and toe-off of walking gait. Cartilage contact pressures were obtained across a range of flexion-extension and ab-adduction osteotomies.

Results:

We demonstrated reduction in cartilage contact pressure with acetabular fragment adduction, and further reduction again with fragment extension. Optimal osteotomy position for these geometries was found to be 25° acetabular adduction, and 15° of extension. Maximum contact pressures decreased by 41%, 18% and 35% in positions of heel strike, midstance and toe off with concurrent increase in cartilage contact area of 94%, 114% and 89%, respectively.

Discussion and Conclusions:

Using CT-based simulation of PAO surgery, we were able to investigate the change in contact pressure across of range of acetabular orientations. This could then be used to define the ideal combination to reduce cartilage pressure, increasing femoral head coverage and reducing predicted cartilage contact pressures in different phases of the gait cycle. This study lays the foundation and illustrates the application of pre-operative planning using patient-specific simulation of PAO.

Presenter: Nick Jones

Time of Presentation: Tuesday 22nd October | 2:20pm - 2:30pm

Type: Paper

Affiliations: Hutt Hospital

Authors:

Topic: Lead gowns and radiation

Category: General

TITLE:

What You Wear Matters: How Lead Gown Design Affects Radiation Exposure to the Orthopaedic Surgeon.

Specific Aims and Objectives:

Orthopaedic surgery increasingly relies on the use of intraoperative fluoroscopy to guide fracture reduction and implant placement. The inherent risk of fluoroscopy is radiation exposure and the damaging effects it has on biologic tissues. The latency between exposure and effect, and limited epidemiologic data make it difficult to determine a safe level of radiation exposure. Protection is primarily afforded by lead gowns worn by members of the theatre team. Within our department there exists a variety of lead gowns designs which led us to theorise that the protection afforded may also vary. There were three gown designs; a traditional 'skirt and vest', an over the shoulders 'tunic' style and a backless option with partial splits so a flap is created between the legs named the 'spartan'. We sought to quantify radiation exposure to the surgeon whilst wearing each of these styles during standing and seated procedures.

Methods:

An electronic dosimeter was utilised to record radiation levels at five areas on the surgeon; eye, axilla, waist, groin and knee for each gown design in a simulated seated distal radius volar plating and standing antegrade femoral intramedullary nailing. Image intensifier was operated by radiographers utilising the standard trauma protocols for our centre. All recordings were performed in an operating theatre in a standard configuration, using anthropomorphic phantom limbs and real implants. Data was then analysed using single factor ANOVA and post hoc analysis using Bonferroni correction and two sample student t tests with an alpha value set at 0.05.

Results:

There exists significant variation between gown designs in both seated and standing positions when measuring at the waist and groin. During seated procedures, the skirt and vest design led to significantly higher doses to the waist and groin when compared to designs that allowed lead to fall between the legs such as the tunic or spartan. Conversely, when standing there were significantly higher doses to the groin when wearing the spartan design compared to the other gown styles. The skirt and waist design allowed significantly higher doses at the waist than other gown styles when standing. There was no difference in exposure to the surgeon's eyes and knees between gown designs as these remain unprotected by all three styles.

Conclusion:

Seated procedures should prioritise gown designs that allow lead to fall between the legs and protect the surgeon's groin. Standing procedures must balance surgeon mobility with protection, as any gaps between lead will cause higher doses of radiation exposure. Although it is recommended that lead covers below the knee, no gown design did so in our centre. Despite significant differences between gown designs the overall doses recorded fell within currently accepted levels. However, the cumulative effect of these small variations would create significant differences over the working life of a surgeon. Where possible gown designs should be standardised, tailored to the individual and the position/ procedure. Radiation safety training should be evolved to include these considerations for those working with fluoroscopy in theatre.

Presenter: Ben Waller

Time of Presentation: Tuesday 22nd October | 1:00pm - 1:10pm

Type: Paper

Affiliations: Auckland

Authors: Simon Young, Matt D'Arcy, Ben Waller

Topic: Preop anticoagulation nof

Category: Trauma

TITLE:

Anti-Coagulation does Not Increase Morbidity or Mortality in the Operative Management of Hip Fractures

Specific Aims:

To determine if pre-operative anticoagulation or antiplatelet therapy is an independent risk factor for morbidity and mortality in patients with acute hip fractures undergoing operative management.

Methods:

A retrospective analysis of patients who had undergone operative management of a hip fracture over a two-year period, from 01/01/16 to 31/12/17, at Auckland City and Middlemore Hospitals was performed. Inclusion criteria were: Aged over 50, proximal femur or hip fractures undergoing operative fixation or replacement.

Results:

1015 patients were included in the study, and broadly divided into 3 groups. No anticoagulation (53.7%), Antiplatelets (32.1%) and Anticoagulation (14.2%). Anticoagulated patients were significantly more likely to wait in excess of 24 hours for operative management ($p = <0.001$) compared to those who were not on any anticoagulation. Anticoagulated and non-anticoagulated groups were grouped into time to operation cohorts of <24 hours, 24-48 hours, 48-72 hours and >72 hours in attempt to control for the known increased mortality associated with delay to operative management. When controlling for time to operation, there was no significant difference in mortality at six weeks ($p = 0.878$) or twelve months ($p = 0.102$). Peri-operative transfusion rates and post-operative return to theatre in the two groups were also comparable with respect to time to theatre ($p = 0.830$ and $p = 0.661$ respectively).

Discussion and Conclusions:

This study disputes the validity of perioperative concern in the anticoagulated patient over expeditious operative management. There was no significant difference in mortality when comparing those receiving anticoagulant medications preoperatively and those who were not, with respect to time to theatre. Furthermore, presenting these patients to theatre within a 48 hour, or even 24 hour, window, does not increase their risk of intra-operative blood loss or perioperative complications as a result of their perceived increased bleeding risk.

Presenter: Naji Ghamri

Time of Presentation: Tuesday 22nd October | 1:10pm - 1:20pm

Type: Paper

Affiliations: Chuan Kong Koh FRACS Ortho and Trauma Auckland City Hospital,

Naji Ghamri MBChB Auckland City Hospital,
Mark Wright FRACS Ortho and Trauma Auckland City Hospital

Authors: Chuan Kong Koh, Naji Ghamri, Mark Wright

Topic: Postop mortality NOF registry

Category: Trauma

TITLE:

An Analysis of Post-operative Mortality in Hip Fractures Using the Australian and New Zealand Hip Fracture Registry

Introduction:

Hip fractures are associated with a high risk of death. A comprehensive understanding of risk factors contributing to post-op death following hip fracture treatment will provide valuable information to govern clinical practice. Using data from the New Zealand branch of ANZHFR from 2016-2021, we asked (1) What is the mortality incidence for hip fractures adjusted for age? and (2) What are the relevant risk factors for post-operative mortality following hip fractures?

Methods:

A retrospective cohort of patients admitted into all New Zealand hospitals from 2016 to 2021 with a minimum follow-up of 1 year was reviewed through data from ANZHFR. Statistical analysis was conducted using R (GNU project). Mortality incidence is reported in Kaplan Meier curve and risk factors were calculated using cox hazard ratio and chi-square test with p-value < 0.05 deemed significant.

Results:

A total of 15188 patients were recorded to have hip fractures with an average age of 84. The age-unadjusted overall mortality rate is 10% at three months and 28% at one year. 15% of patients within the age range of 80-90 die within three months, and 35% within a year from the time of admission. Significant risk factors for mortality were (1) age > 65, (2) patients who lived in care facilities before admission, (3) ASA > 3, (4) male, (5) pre-op inability to walk independently, (6) absent of bone protection treatment, and (7) discharge destination to care facility. Surgery within 36 and 48 hours is not a significant risk factor when adjusted to age 80-90 and ASA 3. Weekend admission, weekend surgery and after-hour surgery (later than 3.30 pm) are not associated with higher mortality at 30 days.

Conclusion / Clinical Significance:

Patients presenting with hip fractures are older, more comorbid and frail. Patients who are independent in their daily activities pre-admission and remain independent post-operatively have less mortality risk. Once adjusted to age and ASA, operation delay and operation after hours do not affect 30-day mortality risk.

Presenter: Sophie Wilton

Time of Presentation: Tuesday 22nd October | 1:20pm - 1:30pm

Type: Paper

Affiliations: Sophie Wilton - Whanganui hospital. Andrew Thompson - Whanganui hospital, Simon Dempsey - Whanganui hospital.

Authors: Sophie Wilton, Andrew Thompson, Simon Dempsey

Topic: THA periprosthetic fractures

Category: Arthoplasty

TITLE:

Revision for Periprosthetic Femoral Fractures Following Primary Total Hip Arthroplasty with a Cemented Taper or Cementless Collared Stem

Introduction:

The aim of this study was to compare the re-operation rates for periprosthetic femoral fractures (PPF) that occur with the most commonly used cemented taper stem (Exeter), and the most commonly used cementless collared stem (Corail) used for total hip arthroplasty (THA) in the New Zealand Joint Registry (NZJR). Although comparisons have previously been made between all cemented and cementless THAs, this study aims to compare the two most common stems used in New Zealand.

Methods:

We performed a retrospective review of all PPF requiring revision surgery in New Zealand between January 1999 and December 2023. All revision arthroplasty cases performed for fracture were captured through the NZJR.

Results:

A total of 84,941 THAs were implanted. 63,496 cemented Exeter femoral components and 21,445 cementless collared Corail components were implanted. Overall 477 patients (0.073/100 component years) required revision arthroplasty for PPF. Of these, 60 revisions for PPF occurred within the first 90 days post op, and 417 occurred after 90 days. There was no statistically significant difference in revision rate for PPF between cemented Exeter, and cementless collared Corail (0.61% (388/63,495) vs 0.41% (89/21,446); p = 0.303) femoral stems.

Discussion:

We compared the revision rate for femoral PPF in the most commonly used cemented (Exeter) and cementless collared (Corail) stems, to minimize the bias of other less well performing implants in both the cemented and cementless collared stem categories. This NZJR data indicates that overall rates of revision arthroplasty for PPF are not statistically different between the two cohorts, but does not account for patient factors, such as age, BMI, or ASA.

Conclusion:

The overall rate of revision arthroplasty for PPF does not differ between cemented Exeter, and cementless collared Corail femoral stems in the NZJR.

Presenter: Jason Ryu

Time of Presentation: Tuesday 22nd October | 1:30pm - 1:40pm

Type: Paper

Affiliations: Jason Ryu - Middlemore Hospital, Auckland. Neil Stewart - Middlemore Hospital, Auckland. Juma Rahman - Middlemore Hospital, Auckland. Jarome Bentley - Middlemore Hospital, Auckland

Authors: Jason Ryu, Neil Stewart, Juma Rahman, Jarome Bentley

Topic: Time to surgery femur fractures

Category: Trauma

TITLE:

Time to Surgery and Outcomes in Distal Femoral Fractures

Introduction:

Distal femoral fractures (DFFs), like neck of femur fractures (NOFs), are associated with significant morbidity and mortality. While NOFs are typically managed with surgery within 48 hours to minimize complications and mortality, the literature behind a similar treatment timeframe for DFFs show variable results.

Method:

This retrospective study examined patients aged 60 and above with DFFs admitted to Middlemore Hospital from 2013 to 2022. Both native and periprosthetic DFFs were included. Patients were stratified based on time to surgery (TTS) into two groups: less than 48 hours and more than 48 hours. Thirty-day and one-year mortality rates were analysed, along with post-operative complication rates. Logistic regression was used to explore relationships between TTS, other risk factors, and outcomes, with statistical significance set at $p < 0.1$.

Results:

A total of 100 eligible patients were identified, with a median TTS of 43.4 hours. Sixty-one patients underwent surgery within 48 hours ($p = 0.03$). Thirty-day and one-year mortality rates were 7% and 26%, respectively ($p < 0.0001$). There was no statistically significant difference in mortality rates based on TTS ($p > 0.1$), but an association with higher complication rates with longer TTS was observed ($p = 0.1$).

Discussion:

Although TTS for DFFs generally aligned with the 48-hour benchmark recommended for NOFs, our findings did not show a significant association between TTS and mortality. However, longer TTS was correlated with increased complication rates, suggesting a potential benefit of early surgery in reducing post-operative complications through earlier rehabilitation initiation.

Conclusion:

This study underscores the importance of optimising care pathways for DFF patients. While TTS did not significantly affect mortality outcomes, expedited surgery may mitigate complications, supporting the development of protocols aimed at timely intervention for DFFs to improve overall patient outcomes.

Presenter: Cindy Ou

Time of Presentation: Tuesday 22nd October | 1:40pm - 1:50pm

Type: Paper

Affiliations: [1.]Cindy Ou, Orthopaedic Registrar, Department of Orthopaedics, Waikato Hospital. [2.]Joe Baker, Department of Orthopaedics, Waikato Hospital, Hamilton. Associate Professor in Surgery, Faculty of Medical and Health Sciences, University of Auckland

Authors: Cindy Ou, Joe Baker

Topic: tibia fractures Waikato

Category: Trauma

TITLE:

Epidemiology of Tibia Diaphyseal Factures at Waikato Hospital 2010 – 2022

Introduction:

Tibia fractures are common long bone fractures and prone to becoming open due to their limited soft tissue envelope. Its treatment can become complex. The aim of this study is to examine the epidemiology and characteristics of tibia fractures that have been treated in a major Level I trauma centre in New Zealand.

Methods:

Surgically treated tibia fractures from 2010 to 2022 were identified by screening intra-operative images in Picture Archiving and Communication System (PACS). Patients 18years and older with tibia diaphyseal fractures definitively treated at this institution were included. Electronic records were examined to identify demographic details and outcomes of interest: unplanned return to operating theatre indicative of major adverse outcomes such as but not limited to flap failure, non-union, amputation.

Results:

799 individual fractures were identified in 784 individuals. The mean age was 42.69. 28.8% were female. 19.4% were not domicile/tourists. Of all tibia fractures, 31.4% were open; 11.6% were Grade III. Rate of compartment syndrome was 3.9%. 2.5% of fractures resulted in amputation and 4.9% required flaps. Average time to flap coverage is 6.54 days. 1-year mortality rate related to the injurious event is 0.89%. 105 of total tibia fractures resulted in unplanned return to theatre resulting in a major complication rate of 13.1%.

Discussion/Conclusion:

This is the largest New Zealand study to date based on clinician-collected data examining the epidemiology and trends of tibia fractures in a single region. Despite improved infrastructure in the region and COVID lock downs, there is no obvious decline in the number and severity of tibial shaft fractures being treated. The significant percentage of injuries treated in individuals who are out of domicile may reflect a further need to improve infrastructure. ACC and hospital funding need to reflect the significant resources and expertise required to manage complex tibia fractures and its complications.

Presenter: Nicholas Buckley

Time of Presentation: Tuesday 22nd October | 1:50pm - 2:00pm

Type: Paper

Affiliations: Waikato Hospital (for all)

Authors: Dr Leo Chong, Mr Anthony Maher, Dr Nicholas Buckley, Dr Joseph Baker

Topic: IM reaming pathology

Category: Tumour

TITLE:

Histopathologic Analysis of Intramedullary Reaming Samples Obtained Suring Aurgical Femur Fixation

Introduction:

Histopathologic analysis of intramedullary samples obtained from operative instruments is often performed to establish or confirm diagnosis of underlying pathological lesions. However, the performance and utility of intramedullary reaming sampling remains controversial. In this study, we aimed to assess the performance and utility of intramedullary reaming sampling as well as to estimate risk of malignancy according to clinical presentation.

Methods:

A 13-year retrospective review of histopathological results paired with clinical records was performed. Inclusion criteria were proximal and midshaft femur intramedullary samples obtained during interventions for pathological femur lesions and fractures in all age groups. Exclusion criteria were suspected primary bone tumour, distal femur metaphyseal samples, whole femoral head samples, targeted biopsy, open biopsy, periprosthetic samples and infection workup. Reaming sampling results were assessed against reference standard defined as 'multidisciplinary histopathological/ clinical diagnosis with follow-up'. Indications were categorized and malignancy rates for each sampling indication assessed.

Results:

185 samples in 181 patients were included. Sample adequacy was 100%. Overall intramedullary femur reaming sampling demonstrated false negative rate of 14.6%, sensitivity 85.4%, specificity 100%, PPV 100%, NPV 86.4% and accuracy 92.4%. Sampling indications were (1) visible pathological lesion, (2) history of malignancy, and (3) atypical clinical/ radiographical features. Risk of malignancy were: 100% in aggressive-appearing lesions, 0% in benign-appearing lesions, 78.7% in high-risk malignancy background, 6.5% in low-risk malignancy background, 0% in atypical features excluding distant suspicious lesions. Despite no visible femur lesions, 5.6% malignancy were detected with intramedullary reaming sampling which further increases to 13.6% in those with high-risk malignancy background.

Conclusion:

Histopathologic analysis of intramedullary femur reamings was found to have false negative rate of 14.6%. However, considering its high accuracy and sampling adequacy, logistical benefits, and usefulness in detecting occult pathological fractures, it remains an invaluable tool to the orthopaedic surgeon.

Presenter: Jack Hanlon

Time of Presentation: Tuesday 22nd October | 2:00pm - 2:10pm

Type: Paper

Affiliations: North Shore Hospital, Middlemore Hospital, Taranaki Base Hospital

Authors: Jack Hanlon

Topic: Screws comparison

Category: Trauma

TITLE:

Does a Screw from Bunnings Perform Better than Standard Orthopaedic screws

Introduction:

Bone screws are the most frequently used orthopaedic implant. A screw is designed to convert torque into axial load. Slippage at the interface between driver and recess is one of the most commonly observed challenges in orthopaedic applications, this is not often a problem when inserting the screw but upon removal of metalware. The aim of this study was to assess the torque required to failure of bone screw head recess in both common orthopaedic screws and household screw heads and assess which screw recess/ drive interface is least likely to slip.

Methods:

The screws were obtained from DePuy Synthes, Stryker and the local hardware store, the screws used had a diameter of 3.5mm with differing recesses, torx (T15 and T10), hexagonal drive (2.5mm), square drive, pozidriv, phillips and flat head. We tested titanium in torx and hex and stainless steel in all of the drives. A custom-made jig was constructed to allow the screw to be held steady, while controlled anticlockwise torsional force was applied to the screw. The maximum torque applied to the screw prior to failure of the recess or drive was measured on an electronic torque meter. To reduce operator error, a total of five tests on each screw were applied by two different investigators. The mean torque required and standard deviation from the mean was calculated. Statistical analysis was completed using paired two tailed T tests with a 95% confidence interval.

Results:

(Fig 1.) Stainless steel performed better than titanium for the same screw head (hex vs torx) ($p<0.05$). From the commonly used orthopaedic screws we found no statistical significance when comparing titanium hex 2.5mm (4.0 ± 0.35 Nm) vs T10 torx (3.5 ± 0.47Nm) ($p=0.12$), and stainless-steel hex 2.5mm (6.4 ± 0.66 Nm) vs T10 torx (5.6 ± 0.17 Nm) ($p=0.05$). The best performing orthopaedic screw, of the 3.5mm screws tested, was the T15 torx stainless screw (7.2Nm ± 0.31) this was not statistically significant when compared to the second best (stainless-steel hex 2.5mm) ($P=0.39$). We found that the Pozidriv could hold the most amount of torque prior to recess failure, the best out of the 3.5mm screws tested (8.0 ± 1.02Nm) ($p<0.05$).

Discussion:

There are multiple factors that contribute to recess failure including the type of metal used and characteristics of the screw head. In our study the highest torque was observed in the stainless steel pozidriv screw heads. Although, the best orthopaedic screw tested was the stainless T15 torx.

NZOA Annual Scientific Meeting

CONFERENCE

20th – 22nd October
The Devon, New Plymouth

Posters

2024

NZOA
New Zealand
Orthopaedic Association

Name: Kealey-Rei Sanford

Hospital: Whangarei Hospital

Type: Poster

Affiliations: All Authors - Whangarei Hospital, Whangarei

Authors: Kealey-Rei Sanford, Adam Payne, Scott McLaughlin

Category: General

TITLE:

Publication Trends in the Uses of Artificial Intelligence in Orthopaedic Surgery

Introduction:

The uses of Artificial Intelligence (AI) into orthopaedic surgery has garnered increasing interest over recent years. This study aims to identify and analyse publication trends in AI applications within orthopaedics by examining original research articles demonstrating their uses.

Method:

A search was conducted using the PubMed MeSH terms "Artificial Intelligence" and "Orthopaedics," which resulted in 215 articles published between 1986 and 2024. These articles were screened for applicability, excluding 87 unrelated articles. Additionally, 92 editorials and review papers were identified and excluded. The final analysis included 36 original articles published between 2017 and 2024, which were categorised based on their specific applications of AI in orthopaedics.

Results:

The analysis identified seven primary subcategories of AI application within orthopaedics: administration and management (10 articles), outcome prediction (10 articles), education and training (8 articles), imaging interpretation and diagnosis (5 articles), intraoperative assistance (1 article), follow up assistance (1 article), and surgical planning (1 article). A notable increase in research activity was observed, with 23 of the 36 (63.9%) included articles published in 2023 or the first half of 2024.

Discussion:

These findings highlight a significant and increasing interest in the potential applications of AI within orthopaedics, evidenced by the substantial number of editorials and reviews on the topic. However, there remains a limited body of original research demonstrating practical uses of AI in clinical settings. The majority of AI applications in orthopaedics are focused on administrative management and outcome prediction, with fewer studies addressing intraoperative assistance, follow-up assistance, and surgical planning.

Conclusion:

This study underscores the growing interest in AI applications in orthopaedic surgery. Despite this interest, there is limited original research articles that demonstrate practical, clinical applications of AI.

Name: Kealey-Rei Sanford

Hospital: Whangarei Hospital

Type: Poster

Affiliations: Whangarei Hospital, Whangarei

Authors: Kealey-Rei Sanford, Adam Payne, Scott McLaughlin

Category: Hip

TITLE:

Trends in Acute Neck of Femur Fractures over 10 Years at Whangarei Hospital

Background:

Acute neck of femur (NOF) fractures are a significant health issue, particularly in elderly populations. This study evaluates the demographics, hospital length of stay, survival outcomes, and incidence variations by ethnicity and time for patients undergoing acute operative management for NOF fractures in Te Tai Tokerau, Northland, New Zealand.

Methods:

We conducted a retrospective analysis of 1649 patients who underwent acute NOF fracture surgery between January 1, 2013, and March 20, 2024. Data on demographics, hospital stay, survival outcomes, and incidence by ethnicity and time were collected and analysed.

Results:

Of the 1649 cases, 1054 were female. The mean length of hospital stay was 9.9 days. The mean age of patients ranged from 79.4 to 81.4 years, with an overall mean survival time of approximately 1066 days. NZ European patients comprised the majority (1218 cases), followed by Other European (259 cases) and NZ Maori (150 cases). NZ Maori patients had a lower mean age (73.4 years) compared to NZ European patients (81.2 years). Analysis showed significant differences in mean age by ethnicity ($p < 0.001$), but no significant differences in mean survival time ($p = 0.199$) or mean length of stay ($p = 0.953$) by ethnicity. Seasonal variations in case numbers were observed, but the differences were not statistically significant ($p = 0.915$).

Conclusions:

This study highlights significant ethnic disparities in NOF fracture outcomes. NZ Maori patients were younger at the time of fracture. Addressing these disparities is crucial for equitable healthcare access and outcomes.

Name: Kealey-Rei Sanford

Hospital: Whangarei Hospital

Type: Poster

Affiliations: Whangarei Hospital, Whangarei

Authors: Kealey-Rei Sanford, Adam Payne, Scott McLaughlin

Category: General

TITLE:

A Brief Analysis of Whangarei Acute Orthopaedic Operations

Introduction:

This study investigated the trends in acute orthopaedic operations performed at Whangarei Hospital between October 2021 to February 2023.

Methods:

A retrospective study was performed of acute operating over an 18 months period. Data was analysed to evaluate the monthly number of operations, mean waiting time, and compliance with pre-assigned waiting times. A total of 1,877 operations were included in the analysis.

Results:

The monthly number of acute operations ranged from 56 to 136. The compliance rate with pre-assigned waiting times varied between 0.495 and 0.697, with an average rate of approximately 0.59. The mean waiting time for operations fluctuated significantly, peaking at 108 hours in December 2021 and maintaining a more stable range of 25.6 to 50.5 hours for most of the rest of this period.

Conclusion:

The analysis indicates a high variability in waiting times and compliance rates. These insights provide a foundation for targeted interventions aimed at optimising resource allocation, reducing waiting times, and improving overall patient care outcomes.

Name: Morgan Short

Hospital: Auckland City Hospital

Type: Poster

Affiliations: Auckland City Hospital, Christchurch Hospital, Starship Hospital

Authors: Morgan Short Josh Kempthorne, Joanna Connor Mark Winstanley, Andrew Johnston

Category: Tumour

TITLE:

Ewing Sarcoma: A Retrospective Review of Incidence and Risk Factors Affecting New Zealand Maori

Background:

Ewing sarcoma is a rare type of cancer that primarily affects bone or soft tissue, predominantly occurring in children and young adults. The incidence and prevalence of Ewing Sarcoma has been observed to differ among various populations. Among clinicians there is a high index of suspicion that New Zealand Maori people are disproportionately affected by Ewing Sarcoma.

Purpose:

To assess the incidence of Ewing Sarcoma in New Zealand Maori compared to the general population in New Zealand.

Methods:

Information was collected from data of the North Island Bone and Soft Tissue Tumour Registry, the South Island Tumour group and from Starship Hospital. Data included patient demographics including age, ethnicity, locality, site of the primary tumour, presence of metastasis, treatment received and outcomes such as 5-year survival rates.

The key analysis points included calculation of the incidence rate of Ewing Sarcoma in the Maori population, expressed as cases per 100,000 person-years.

Results:

There were 79 cases of Ewing Sarcoma identified between 1959 and 2002. The incidence rate of Ewing Sarcoma in New Zealand Maori was 0.15/100,000 person-years, compared to 0.03/100,000 person-years in non-Maori. The rate ratio between the two groups is 4.46 (95% CI 2.67-7.45, $p < 0.001$).

Conclusions:

The rate of Ewing Sarcoma is significantly higher in New Zealand Maori compared to the rest of New Zealand's population. Knowledge that Maori people are at a higher risk of developing Ewing sarcoma may help facilitate early diagnosis and improve clinical outcomes. It also provides a rationale for further studies researching risk factors for Ewing sarcoma in New Zealand Maori.

Name: Adam Payne

Hospital: Whangarei Hospital

Type: Poster

Affiliations: Adam Payne - Whangarei Hospital, Scott McLaughlin - Whangarei Hospital

Authors: Adam Payne, Scott McLaughlin

Category: General

TITLE:

Barriers to Fracture Clinic Attendance in a Regional Hospital

Introduction:

Clinic non-attendance is a burden on the healthcare system. The reasons for non-attendance are multi-factorial. This study aims to assess patterns in non attendance in a regional centre.

Method:

A questionnaire assessed age, sex, ethnicity and questions about transport to clinic, appointment notification, financial barriers and personal constraints. These were given to all patients over 6 consecutive fracture clinics in Whangārei Hospital. Those who did not attend were contacted and asked the questionnaire over the phone.

Results:

Of 120 patients the nonattendance rate was 15.8% with a response rate of 67.5% (n=81). Mean age 40.2, mean transport time to clinic 42.5minutes. 39.5% of respondents identified petrol as a cost to getting to clinic, 43.2% had to take time off work , 49.4% were unaware of ACC reimbursement and 17.2% were unaware as to how to reschedule an appointment. No statistical significance between those less that 30 minutes and more than 30 minutes of travel time. On average Maori had a greater time to travel (57 minutes) compared to non-Maori (36.71) (p-value = 0.091). Maori were less likely to attend clinic (p-value 0.01735). Using chi-squared testing Maori were more likely to reports cost barriers to attending clinic, constraints for needing to reschedule and less likely to know how to reschedule an appointment or be aware of ACC reimbursement.

Discussion:

Financial issues continue to be a barrier to accessing health care, with petrol costs being a lead contributor. Distance to clinic was not an issue. Maori were less likely to attend clinic visits due to financial or personal constraints.

Conclusions:

Whangārei has a large rural population that faces problems with access to health for multiple reasons including financial and personal constraints. Maori are overrepresented in these areas. Further studies to look at informing patients of ACC reimbursements may ease non attendance rates.

Name: Brad Atkinson

Hospital: Whangarei Hospital

Type: Poster

Affiliations: B Atkinson, Whangarei Hospital. L Bradley, Whangarei Hospital

Authors: B Atkinson, L Bradley

Category: Paediatrics

TITLE:

Demographics of SUFE in a Region of High Maori Density and Deprivation

Introduction:

The Northland population is 37.4% Maori, a group who have the highest reported incidence of SUFE. A retrospective review was performed of demographics of SUFE patients treated in Whangarei Hospital across a 10-year period.

Methods:

The hospital's database was queried for procedures performed for SUFE between 1st March 2014 and 29th February 2024 (inclusive). Demographic information was recorded from the medical records. NZ Deprivation Index was retrieved for the patient's address at presentation to hospital.

Results:

93 SUFE occurred in 73 patients. Mean age at first surgery was 11.6 years. Average NZDEP score was 8.38. Of 93 SUFE cases, 88 occurred in Maori. 24 hips underwent Modified-Dunn procedures, 66 pinning-in-situ (PIS) and 3 closed reduction + screw fixation. 10 patients (20 hips) presented with bilateral slips. Seven patients underwent prophylactic PIS in the contralateral hip. Contralateral SUFE occurred in 10 of 51 eligible hips resulting in overall 33% bilaterality (20 of 61 patients without prophylactic pinning and >12 months follow-up). 14,091 Maori children resided within Northland in the age groups of 5-9 years and 10-14 years in the 2018 Census. There was an incidence of 58.9 cases of SUFE per 100,000 Maori children aged 5-14.

Discussion:

The incidence of SUFE in Maori children in this cohort is consistent with previous reports of 41.2 to 80 per 100,000. SUFE occurred most often in Maori children with a high burden of socioeconomic deprivation which is known to impact access to surgery and follow-up.

Conclusion:

SUFE is a relatively common presentation in the Northland region of New Zealand due to the large Maori population. Further investigation into the characteristics and outcomes of this cohort are planned.

Name: Adam Payne

Hospital: Whangarei Hospital

Type: Poster

Affiliations: Adam Payne - Whangarei Hospital, Scott McLaughlin - Whangarei Hospital

Authors: Adam Payne, Scott McLaughlin

Category: Trauma

TITLE:

Opioid Prescribing at Discharge after Orthopaedic Trauma Admission

Introduction:

Opioid prescribing after trauma is a growing concern due to its association with dependency and misuse. Orthopaedic trauma is associated with high rates of opioid prescribing. The aim of this study is to assess patterns in opiate prescribing on discharge.

Method:

This retrospective observational study analysed opioid prescription patterns at discharge following trauma admissions under the Orthopaedic Service in the Bay of Plenty, Aotearoa New Zealand. Data was collected from 350 opioid naïve patients aged 18-64 years admitted between April 21, 2017, and December 31, 2017.

Results:

The study found a high rate of opioid prescribing, with 75.1% of patients receiving opioids at discharge. The mean Morphine Milligram Equivalents (MMEs) prescribed at discharge was 222, with a median of 180 MMEs. Blunt injuries were significantly associated with higher opioid prescription rates ($p = 0.023$). While the Injury Severity Score (ISS) categories suggested a trend towards increased opioid prescribing with greater severity, this did not reach statistical significance ($p = 0.078$). Long-term opioid use was notable, with 36% of patients prescribed opioids at discharge receiving repeat prescriptions at 3 months, decreasing to 13.7% at 6 months, and 7.2% at 12 months. Logistic regression analysis identified age, male gender, and ISS as significant predictors of ongoing opioid use at 6 months.

Discussion:

In the acute setting opioid prescribing can be necessary, with this study showing similar rates to other reported rates, however the long term harm comes from inappropriate continued prescribing. Actively considering the demographics susceptible to long term use could aid to reduce this.

Conclusions:

The findings highlight the importance of interventions to manage opioid prescribing and reduce the risk of long-term opioid dependency among trauma patients.

Name: Fraser Prendergast

Hospital: North Shore Hospital

Type: Poster

Affiliations: Dr Fraser Prendergast - registrar, North Shore Hospital, Will Bowman - medical student, Dunedin, Mr Fraser Harrold - orthopaedic surgeon, Dunedin, Prof David Gwynne-Jones - orthopaedic surgeon, Dunedin

Authors: Fraser Prendergast, Will Bowman, Mr Fraser Harrold, Prof David Gwynne-Jones

Category: Arthroplasty

TITLE:

Impact of Waiting for Hip and Knee Arthroplasty in Dunedin, New Zealand

Introduction:

Since the Covid pandemic of 2019 and due to increasing demands on the waiting lists, patients in New Zealand are waiting longer for hip and knee replacements. This will have a negative effect on both physical and mental wellbeing of these patients. The aim of this study is to evaluate whether increasing wait times for hip and knee arthroplasty in Dunedin are associated with increased patient and carer stress, declined functional improvements and increased costs post operatively.

Method:

Retrospectively reviewing the InterRAI database and New Zealand Joint Registry, 85 patients from Dunedin Hospital had complete InterRAI assessments both pre and post operatively. 52 outcome measures (mental and physical health, pain and functional needs) we compared between short (<6 months) and long (>6 months) waiting times for primary joints.

Results:

Patients in our cohort had a mean age of 79. 48 patients waiting <6 months, 37 patients >6 months. There were no statistically significant differences in pain outcomes, mental health issues, career needs or physical disability between short and long wait groups.

Discussion:

After reviewing InterRAI database for patients on the arthroplasty waiting list in Dunedin, we found no significant physical/function differences in those patients who waited longer for arthroplasty surgery. This contrasts with some studies which revealed worse outcomes in pain, opiate use and mental health after longer waits for arthroplasty. The Dunedin cohort tended to be older which raises the possibility of baseline frailty in our older population.

Conclusions:

This study identified a lack of functional and physical harm in patients who waiting longer than 6 months in Dunedin for their arthroplasty surgery. By standardising the InterRAI database around arthroplasty, we hope to gain more accurate data to identify more accurate health assessment in these patients.

Name: Samuel Reddish

Hospital: North Shore Hospital

Type: Poster

Affiliations: S Reddish - North Shore Hospital; Auckland; M Zhu - North Shore Hospital, Auckland; R Sharp - North Shore Hospital, Auckland; M Seow - North Shore Hospital, Auckland

Authors: S Reddish, M Zhu, R Sharp, M Seow

Category: Hip

TITLE:

Risk Factors for Mortality and Morbidity Following Periprosthetic Fracture of the Femur

Background:

Periprosthetic femoral fractures are a debilitating injury, affecting vulnerable patients and conferring high mortality and morbidity. With an aging population, the number of at-risk joint replacements and associated fractures is increasing. Limited data exists locally on demographics, fracture patterns and outcomes for these patients. Our study aimed to collate this data and identify risk-factors for adverse outcomes.

Methods:

All periprosthetic femur fractures at North Shore Hospital between 1st July 2022 and 1st May 2024 were reviewed retrospectively via electronic records, identifying demographics and management received (femoral block, operation type, time-to-theatre, time-in-theatre). Primary outcomes were death at 1-year and increased level of residential care. Secondary outcome was length-of-stay. Univariate analysis was performed and variables with $p<0.10$ were carried into multivariate analysis (binary logistic regression). Subgroup analysis was undertaken for Vancouver B fractures.

Results:

118 patients were included. Patients were predominately female (54%), NZ European (78%) and most common fracture type was Vancouver B (46%). Median time-to-theatre was 47.7 hours and median operative time was 2.78 hours. 86% of patients received operations (49% revisions). 50% of patients received regional blockade pre-operatively. 1-year mortality was 19%, and 25% returned to increased level-of-care. Median length-of-stay was 17-days. ASA 3/4 was predictive of death at 1-year and loss in residential status ($p=0.028$, $p=0.050$). Patients allowed to weight bear post op trended towards a shorter length of stay ($p=0.056$). In Vancouver B fractures, increasing time-to-theatre was associated with reduced death at 1-year($p=0.042$). Revision was associated with increased survival at 1-year($p=.040$).

Discussion/Conclusion:

Patient demographics are the biggest determinant in outcomes. Time-to-theatre for periprosthetic fractures is often protracted due to specialist requirement, highlighting need for regional blocks and nerve catheters preop. In Vancouver B fractures, revision was associated with increased one year survival. While this likely due to unidentified bias in patient selection, it highlights that in appropriate patients, revision is appropriate.

Name: Mahendra Mayank

Hospital: King George Medical University

Type: Poster

Affiliations: King George Medical University, India.

Authors: Dr Mayank Mahendra

Category: Trauma

TITLE:

CYR61—A Predictive Marker for Impaired Healing in Diaphyseal Tibial Fractures

Background:

Angiogenesis is necessary for fracture repair, and a lack of blood flow is likely to result in poor healing. The purpose of this study was to examine the correlation between the result of a simple tibial fracture and serial assessment of CYR61 expressions during the early phase of healing.

Methods:

The analysis included 107 adult fracture patients and 97 healthy controls. Peripheral blood samples were obtained from controls (all at once) and fractured patients on the 4th, 7th, 10th, 15th, 20th, and 28th days post-fracture to measure CYR61 mRNA and protein expression, respectively, using qRT-PCR and Western blotting. Clinico-radiological follow-ups were performed at the 6th, 10th, 16th, 20th, and 24th weeks post-fracture, and RUST scores were used to analyse fracture healing progression and final outcomes.

Results:

By considering controls as Group I (n = 97), as per the clinico-radiological status at 24th week, fracture patients were divided into two groups: Group II (normal healing, n = 91) and Group III (impaired healing, n = 16). Both CYR61 mRNA and protein expressions were lower (baseline) in Group I than in Groups II and III; however, a significant difference was observed only with the Group II. In both groups, expressions of CYR61 mRNA as well as protein gradually upregulated from the baseline to a peak and then declined. Both, the CYR61 mRNA as well as protein expressions were significantly higher at all follow-ups in Group II than in Group III. Mean RUST scores between Group II and Group III showed a significant statistical difference at each follow-up. Significant correlation was found between the CYR61 expressions and the RUST score (fracture healing progression).

Conclusions:

We conclude that CYR61 expression can be used to predict the prognosis of simple diaphyseal tibial fractures early in the healing process.

Name: Ruikang (Ricco) Guo

Hospital: North Shore Hospital

Type: Poster

Affiliations: Department of Orthopaedics, North Shore Hospital

Authors: Ruikang Guo, Mark Zhu, Mei Lin Tay, Katy Kim, Simon Young

Category: Knee

TITLE:

Microorganisms Profile in First Episode Knee PJIs – A 20-year Longitudinal Study

Introduction:

Understanding the causative microorganisms and initiating early appropriate empirical antibiotics is imperative in the management of periprosthetic joint infections (PJI). This study aimed to identify patterns of microorganism and antibiotic resistance profile in early and late PJIs following total knee arthroplasty, and analyse changes in profile over the last two decades. This information is crucial for guiding empiric antibiotic selection.

Methods:

PJI data from three tertiary centres from 2000-2023 were identified and reviewed. First episode of PJIs were classified using the Auckland classification into early (<1 year since primary) and late (>1 year since primary) PJIs. For each case, the causative organism(s) and antibiotic sensitivity were recorded and analysed.

Results:

539 PJI cases with 606 cultures were included. Early PJIs were significantly more likely to involve resistant microorganisms (OR 2.85, CI 1.71 – 4.76, P<0.05) and be polymicrobial (OR 8.714, CI 3.95 – 19.22, P<0.05). The predominant organisms for both early and late PJIs were Staphylococci Aureus, with gram-negative microorganisms contributing to 20% of cases in both early and late PJIs. Flucloxacillin monotherapy provided sufficient coverage for 54% of early PJI cases and 74% of late PJI cases. In comparison, Vancomycin monotherapy provided sufficient coverage of 82% in both early and late PJI cases. The number of resistant cases remained unchanged across the 23 year period, involving approximately 1 in 6 PJIs (P>0.05).

Conclusion:

Despite significant usage of empiric antibiotics for PJIs, the primary causative microorganisms have remained the same with no notable increase in resistance cases over the past two decades. In early PJIs, Vancomycin with the consideration of Gram-negative agent should be considered as the choice of empirical antibiotic, given the high proportion of polymicrobial and resistant cases.

Name: Arielle Bok

Hospital: North Shore Hospital

Type: Poster

Affiliations: Arielle Bok - Northshore Hospital Department of Orthopaedics, The University of Auckland; Victor Kong - Department of Surgery, University of KwaZulu Natal, Durban, South Africa; Jonathan Ko Department of Surgery, University of Auckland, Auckland, New Zealand; Damian Clarke - Grey's Hospital University of KwaZulu Natal and University of the Witwatersrand

Authors: Arielle Bok, Victor Kong, Jonathan Ko, Damian Clarke

Category: Trauma

TITLE:

Extremity Fasciotomy is Required for a Diverse Range of Pathologies in the Developing World Setting – A South African Experience

Background:

A broad range of injuries in our setting can lead to an ACS of the extremity. Clinicians need to be aware of the condition and actively exclude it. This study aims to determine the cause, spectrum and outcomes of acute fasciotomy for compartment syndrome in a developing world setting.

Objective:

Our retrospective project serves as an overview of the Pietermaritzburg Metropolitan Trauma Service (PMTS) experience of acute fasciotomy.

Methods:

Patients who had undergone a fasciotomy at our Grey's Hospital, Pietermaritzburg, South Africa between December 2012 and September 2020 were identified for retrospective review. Patients transferred from another center who had already had fasciotomy were not included. Pertinent patient characteristics, mechanism of injury, imaging usage, operative management was documented.

Results:

During the eight-year period under review, a total of 97 patients required fasciotomy. The mean age was 27.96 years. Of these patients 87.63% (85/97) were male and 12.37% (12/97) were female. There were 57 penetrating injuries, 23 snake-bite related injuries, 17 blunt trauma related injuries resulting in compartment syndrome and acute fasciotomy. Of these, 51.55% of injuries involved the lower limb and 47.42% involved the upper limb, with 1.03% involving an injury to both upper and lower limbs. The average hospital stay was 12 days. The mortality was 3.09%.

Conclusion:

This study has highlighted those in our cohort who most commonly undergo fasciotomy with the 5 major risk factors being male, penetrating injury, arterial injury, signs of compartment syndrome and snake bites to the upper limb, particularly the hand. A wide range of injuries that can lead to compartment syndrome. Delay in recognition and treatment contributes to significant morbidity.

Name: Faseeh Zaidi

Hospital: Middlemore Hospital

Type: Poster

Affiliations: Faseeh Zaidi (University of Auckland, Massoud Akbarshahi (University of Melbourne), Peter McEwen (Mater Private Hospital), Jacob Munro (University of Auckland), Josh Petterwood (Calvary Lenah Valley Hospital), Paul Monk (University of Auckland)

Authors: Faseeh Zaidi (first author), Massoud Akbarshahi, Peter McEwen, Jacob Munro, Josh Petterwood, Paul Monk

Category: Knee

TITLE:

The Impact of Change in mLDFA on Short-Term Post-Operative Outcome Following TKR

Introduction:

Mechanical Lateral Distal Femoral Angle (mLDFA) is a key individual measure of coronal alignment in total knee replacement (TKR). Changes in mLDFA can impact the biomechanics of the knee however, the impact of changes in mLDFA on outcome of TKR procedures is poorly understood and safe boundaries of changes are yet to be defined. Therefore, we sought to investigate the impact of change in mLDFA on early outcome of patients following TKR.

Methods:

This was a retrospective multicentre cohort study of patients undergoing primary unilateral and bilateral robotic-assisted TKAs between January 2020 and March 2023. Two reviewers independently measured mLDFA angles using long-leg radiographs. Patients were grouped based on the magnitude of change in their mLDFA values from pre- to post-operative state (0<_mLDFA≤1, 1<_mLDFA≤2, 2<_mLDFA≤3, 3<_mLDFA<4, _mLDFA≥4). Validated functional outcomes were assessed using the Oxford Knee Score (OKS) at pre-operative baseline, 3 months, and 6 months postoperatively.

Results:

A total of 297 patients were included. The mLDFA changed by 1.96_ ± 1.76_ post-operatively; 0<_mLDFA≤1 (38%), 1<_mLDFA≤2 (22%), 2<_mLDFA≤3 (17%), 3<_mLDFA<4 (9%), _mLDFA≥4 (14%). There was no statistically significant difference between the pre-operative OKS values amongst the groups (P=0.116). The _mLDFA≥4 group demonstrated the least improvement in OKS after 3 months (7.26 ± 9.8) and 6 months (11.27 ± 7.0) OKS compared to all other groups. This reached statistical significance when compared to all other groups for change in 3-month OKS (p=0.001, p=0.004, p=0.029, p=0.033 respectively) and change in 6 month OKS for all groups except the 3<_mLDFA<4 group (p=0.027, p=0.014, p=0.021, p=0.071 respectively).

Discussion/Conclusion:

Changes in post-operative mLDFA 4 or more degrees compared to pre-op were associated with the least improvement in 3- and 6-months OKS. This suggests that changes beyond 4 degrees in post-operative mLDFA might negatively impact the short-term outcome of TKR. Future work should focus on investigating the causation of these observed differences in conjunction with other surgical and patient recovery parameters.

Name: Leo Chong

Hospital: Waikato Hospital

Type: Poster

Affiliations: Waikato Hospital

Authors: Dr Leo Chong, Dr Mark Zhu, Dr Joseph Baker

Category: Spine

TITLE:

Quality Assessment of Degenerative Cervical Myelopathy Information on the Internet

Background:

Patient education is a key element of spinal surgery informed consent. Patients frequently access health information online, yet this information is unregulated and of variable quality. We aimed to assess the quality of information available on Degenerative Cervical Myelopathy (DCM) websites with a focus on identifying high-quality information websites.

Methods:

We performed a Google search using keywords pertaining to DCM. The top 50 websites returned were classified based on their publication source, intended audience and country of origin. The quality of these websites was assessed using both DISCERN instrument and JAMA benchmark criteria. We also utilised a novel Myelopathy Information Scoring Tool (MIST) to assess the comprehensiveness, accuracy and detail of online DCM information.

Results:

Mean DISCERN score was 39.9 out of 80. Only one-quarter of these websites were rated 'good' or 'excellent' using DISCERN, the remaining were rated 'very poor', 'poor' and 'fair'. Mean JAMA benchmark score was 1.6 out of 4, with 23 out of 50 websites scoring 0. Evaluation using MIST found mean score of 25.6 out of 50. Using 30 points as satisfactory MIST cut-off, 72% of DCM websites were deemed critically deficient and unsatisfactory for comprehensive patient education. Both DISCERN and MIST indicated poorest information pertained to surgical risks and complications, as well as treatment outcomes. Websites such as Orthoinfo.aaos.org and Myelopathy.org provided reliable, trustworthy, and comprehensive patient education.

Conclusions:

Information available on almost three-quarters of DCM websites was of poor quality, with information regarding complications and treatment outcomes most deficient. Clinicians should be aware of quality sites that patient may be directed to, to augment patient education and surgical counselling.

Name: Richard Rahardja

Hospital: North Shore Hospital

Type: Poster

Affiliations: Department of Surgery, University of Auckland, Auckland, New Zealand

Authors: Richard Rahardja, Hamish Love, Mark G. Clatworthy, Simon W. Young

Category: Knee

TITLE:

Patellar Tendon Versus Hamstring Tendon Autograft in ACL Reconstruction – Does Surgeon Matter?

Introduction:

The New Zealand ACL Registry has reported the hamstring tendon autograft to have the highest revision rate. There is concern that a small group of surgeons disproportionately account for a larger number of cases in the registry and bias the comparison between graft types. This study aimed to address this bias by focusing on the outcomes of patients operated on by the highest volume surgeons who use both grafts.

Methods:

Prospective data recorded in the New Zealand ACL Registry were analyzed. The top 30 surgeons with the most procedures recorded in the Registry who recorded both BTB and hamstring autograft cases were included. The study period was April 2014 to March 2022 with a minimum 2-year follow-up. Only high-risk patients were analyzed using the following criteria: age 14-25 years, ACL rupture sustained during sport, surgery within 12 months, grade 2 pivot shift and a minimum preinjury Marx activity score of 8.

Revision rates were compared via Chi-square test and multivariable Cox regression survival analysis to calculate hazard ratios (HR) adjusted for gender.

Results:

The top 30 highest volume surgeons accounted for 69.7% of cases in the Registry. 6 surgeons were excluded as they did not record both BTB and hamstring autograft cases. The remaining 24 surgeons performed 2,479 primary ACL reconstructions with an overall revision rate of 8.4% (n = 209). A 2.8 times higher risk of revision was found with the hamstring autograft (revision rate = 12.3%, adjusted HR = 2.8, $p<0.001$) when compared to the BTB autograft (revision rate = 4.2%). Only 3 out of 24 surgeons had a higher revision rate with their BTB cases when compared to their hamstring cases.

Discussion/Conclusion:

The majority of the highest volume ACL surgeons had a higher failure rate with their hamstring autograft cases when compared to their BTB cases.

Name: Richard Rahardja

Hospital: North Shore Hospital

Type: Poster

Affiliations: Department of Surgery, University of Auckland, Auckland, New Zealand

Authors: Richard Rahardja, Mei Lin Tay, Hamish Love, Mark G. Clatworthy, Simon W. Young

Category: Knee

TITLE:

High Rate of Patient Satisfaction Following ACL Reconstruction in New Zealand

Introduction:

Reconstruction of the anterior cruciate ligament (ACL) is the preferred management of rupture in active patients. Reinjury may occur in up to 20% of active patients and may result in dissatisfaction. Current literature on satisfaction rates following ACL reconstruction is limited to small cohort studies. This study aimed to identify the rate of satisfaction of patients recorded in the New Zealand ACL Registry.

Methods:

A patient questionnaire was sent to patients recorded in the New Zealand ACL Registry who underwent ACL reconstruction between 2017-2022, with a minimum follow-up of 2 years. Patients were asked how satisfied they were with the outcome of their ACL reconstruction as either 'very satisfied', 'somewhat satisfied', 'neutral', 'somewhat dissatisfied' or 'dissatisfied'. Patient demographic and intraoperative surgical data were extracted from the Registry. This also included whether patients had undergone any revision ACL reconstruction. Satisfaction rates were calculated and compared via Chi-square test.

Results:

A total of 2853 patients were analyzed. 87.2% of patients were either 'very' or 'somewhat satisfied' with their surgery (n = 2489), 7.5% were 'neutral' (n = 214) and 5.3% were 'very' or 'somewhat' dissatisfied (n = 150). 81% of patients who underwent revision ACL reconstruction reported satisfaction compared with 87% of patients who have not required revision (p = 0.08). Satisfaction rates were not influenced by patient age, gender, timing of surgery, history of previous knee surgery, graft type, concomitant meniscal or chondral injuries.

Discussion/Conclusion:

This study found a high rate of patient satisfaction with ACL reconstruction. Only 5% of patients were dissatisfied with the outcome of their surgery.

Name: Sarah Hunter

Hospital: Starship Children's Hospital

Type: Poster

Affiliations: [1] University of Auckland Faculty of Medical and Health Sciences [2] Paediatric Orthopaedic Department, Starship Hospital [3] Department of Child and Youth Health, Starship Hospital

Authors: Dr Sarah Hunter, MBChB, MHSc [1], [2] Dr Elsie Brown, MBChB2
Dr Haemish Crawford, MBChB, FRACS [1],[2]
Professor Cameron Grant, MBChB, FRACP, PhD[1],[3]

Category: Paediatrics

TITLE:

Optimal Timing for Advanced Imaging in Childhood Bone and Joint Infection

Introduction:

Advanced imaging in the management of childhood bone and joint infection (BJI) has the potential to improve disease outcomes. Knowledge about the optimal timing for MRI in relation to both surgically and non-surgically managed BJI is limited. This study examines the impact of MRI timing on number of surgeries, length of stay (LOS), hospitalisation cost, and disease recurrence in childhood BJI.

Methods:

This is a retrospective review of patients <16 years with acute haematogenous osteomyelitis (AHO) or septic arthritis (SA) treated in the Auckland region from 2018-2023. Cases were included if they underwent MRI as part of diagnostic workup. Data collected described treatment, hours between admission and MRI, LOS, hospitalisation cost, and infection recurrence.

Results:

There were 563 cases of BJI, of which 390 met inclusion criteria. Cases were primarily AHO (85%). The percentage of cases having MRI increased over time from 54% (2018) to 80% (2023). Locally disseminated infection such as pyomyositis or adjacent septic arthritis occurred in 48%. Children with pre-operative (n=145) vs post-operative MRI (n=60) had a lower reoperation rate (33% vs. 77%, p=0.001) and shorter LOS (14.1 vs. 22.4 days, p=0.002). Hospitalisation costs appeared lower but did not differ statistically ($59,419 vs $159,353, p=0.12). In cases managed without surgery, LOS was reduced if MRI occurred within 48 hours of admission (7.3 vs. 10 days, p=0.03). Disease recurrence was not associated with MRI timing.

Conclusion:

In pediatric BJI, obtaining an MRI scan before surgery reduces re-operation rate. MRI within 48 hours of admission reduces LOS.

Name: Sarah Hunter

Hospital: Starship Children's Hospital

Type: Poster

Affiliations: [1]University of Auckland Faculty of Medical and Health Sciences [2]Paediatric Orthopaedic Department, Starship Hospital [3]School of Population Health and Health Economics, University of Auckland [4]Department of Child and Youth Health, Starship Hospital

Authors: Dr Sarah Hunter, MBChB, MHSc [1], [2] Dr Haemish Crawford, MBChB, FRACS [1],[2] Dr Braden Te Ao, PhD, MPH (Hons) [1],[3] Professor Cameron Grant, MBChB, FRACP, PhD[1],[4]

Category: Paediatrics

TITLE:

Methods to Reduce Cost of Treatment in Childhood Bone and Joint Infection

Introduction:

Childhood bone and joint infection (BJI) is a potentially severe disease with consequences for growth and development. Critically unwell children may require prolonged hospitalisation and multiple surgeries. Acknowledging rising healthcare costs and the financial impact of illness on caregivers, increased efforts are required to optimise treatment. This systematic review aims to characterise existing costs of hospital care and summarise strategies which reduce treatment expense.

Methods:

A systematic review of the literature was performed from 01/01/1980 to 31/1/2024. Data was extracted on hospitalisation costs for paediatric BJI by decade and global region. Results have been converted to cost per day in US dollars with purchase parity for 2023. Studies reporting innovations in clinical care to reduce length of stay (LOS) and simplify treatment were identified. Studies trialling shorter antibiotic treatment were only included if they specifically reported changes in LOS.

Results:

Twenty-three studies met inclusion criteria; of these, a daily hospitalisation cost could be derived from seven publications. Overall hospitalisation cost and inpatient charges rose steeply from the 1990s to the 2020s. In contrast, average LOS appears to have decreased. Cost per day was higher in the United States than in Europe, and higher for cases with confirmed methicillin-resistant Staphylococcus aureus (MRSA). Sixteen studies report innovations to optimise care. For studies where reduced LOS was achieved, early magnetic resonance imaging with immediate transfer to theatre when necessary and discharge on oral antibiotics were consistent features.

Conclusion:

Rising costs of hospital care and economic consequences for families can be mitigated by simplifying treatment for childhood BJI. Hospitals which adopt protocols for early advanced imaging and oral antibiotic switch may provide satisfactory clinical outcomes at lower cost.

Delegates

Name	Surname	Hospital	City
Naseri	Aitaoto	Orthopacifix Pacific Island Ambassador - American Samoa	Pago Pago
James	Aoina	Tauranga Hospital	Tauranga
David	Ardern	Tauranga Hospital	Tauranga
Brad	Atkinson	Whangarei Hospital	Whangarei
Joseph	Baker	University of Auckland	Auckland
Julian	Ballance	Nelson Hospital	Nelson
David	Bartle	Tauranga Hospital	Tauranga
Rachel	Basevi	Taranaki Base Hospital	New Plymouth
Gordon	Beadel	Christchurch Hospital	Christchurch
Harrison	Beadel	Southland Hospital	Invercargill
Stephen	Bentall	Royston Hospital	Hastings
Rose	Binney	Middlemore Hospital	Auckland
Chris	Birks	Dunedin Hospital	Dunedin
James	Blackett	Hastings Hospital	Haumoana
Caitlin	Bodian	Auckland City Hospital	Auckland
Arielle	Bok	Auckland City Hospital	Auckland
Scott	Bolam	Middlemore Hospital	Auckland
Mark	Bowditch	President British Orthopaedic Association	East Suffolk North Essex
Matt	Bowman	Middlemore Hospital	Auckland
Kevin	Bozic	President American Academy of Orthopaedic Surgeons	Texas
David	Brougham	Palmerston North Hospital	Palmerston North
Clayton	Brown	Auckland City Hospital	Auckland
Nic	Buckley	Waikato Hospital	Hamilton
Andrew	Campbell	Auckland City Hospital	Auckland
Alex	Carslaw	Hawkes Bay Hospital	Havelock North
Michael	Caughey	Michael Caughey Limited	Auckland

Delegates

Name	Surname	Hospital	City
Will	Caughey	Christchurch Hospital	Christchurch
Heidi	Chan	North Shore Hospital	Auckland
Vincent	Chan	Rotorua Hospital	Rotorua
Clayton	Chan	North Shore Hospital	Auckland
Rohil	Chauhan	Auckland Spine Surgery Centre	Auckland
Michael	Chin	Dunedin Hospital	Dunedin
Agnes	Chu	Wellington Hospital	Wellington
Mark	Clatworthy	Ascot Hospital	Auckland
Aaron	Cook	Bay Sports & Orthopaedics	Tauranga
Haemish	Crawford	Starship Hospital	Auckland
Alan	Crombie	Rotorua Hospital	Rotorua
Tony	Danesh-Clough	North Shore Hospital	Auckland
Matt	D'Arcy	Middlemore Hospital	Auckland
Koen	De Ridder	Capital & Coast Wellington	Porirua
Annabel	Dekker	Hawkes Bay Hospital	Hawkes Bay
Amy	Deller	Southern Cross Healthcare Ltd	New Plymouth
Simon	Dempsey	Whanganui Hospital	Whanganui
Peter	Devane	Wellington Hospital	Wellington
Hamish	Deverall	Waikato Hospital	Hamilton
Michelle	Dickinson	Keynote Speaker	Auckland
Liam	Dunbar	Dunedin Hospital	Dunedin
Karyn	Eggers	EA to NZOA CEO	Wellington
Prue	Elwood	NZOA Education & Training Manager	Wellington
Paul	Erwin	Auckland City Hospital	Auckland
Duncan	Ferguson	Auckland City Hospital	Auckland
Hasanga	Fernando	Waikato Hospital	Hamilton
Matt	Fisk	North Shore Hospital	Auckland
Scott	Fletcher	President Australian Orthopaedic Association	Hobart

Delegates

Name	Surname	Hospital	City
Michael	Flint	Auckland City Hospital	Auckland
Supi	Foliaki	Christchurch Hospital	Auckland
Russell	Fowler	Southland Hospital	Invercargill
Atua	Fuimaono Asafo	Whangarei Hospital	Manukau City
Ben	Funaki	Tauranga Hospital	Tauranga
Naji	Ghamri	Northshore Hospital	Auckland
Alexander	Ghanayem	President American Orthopaedic Association	Chicago
Alexandria	Gibson	Tauranga Hospital	Papamoa Beach
Scott	Gilbert	Dunedin Hospital	Dunedin
Darina	Gilroy	Wellington Hospital	Wellington
Chynna	Gleeson	Hutt Hospital	Wellington
Rodney	Gordon	Middlemore Hospital	Auckland
Andy	Gov	Auckland City Hospital	Auckland
Tim	Gregg	Wellington Hospital	Wellington
Ruikang	Guo	North Shore Hospital	Auckland
Vik	Gupta	Christchurch Hospital	Christchurch
Pierre	Guy	President Canadian Orthopaedic Association	Vancouver
David	Gwynne-Jones	Dunedin Hospital	Dunedin
Alastair	Hadlow	Auckland City Hospital	Auckland
Simon	Hadlow	NZOA President, Taranaki Base Hospital	New Plymouth
Jack	Hanlon	Taranaki Base Hospital	New Plymouth
Mike	Hanlon	Auckland Hospital	Auckland
Fraser	Harrold	Dunedin Hospital	Dunedin
Reuben	He	The University of Auckland	Auckland
Marc	Hirner	Southern Cross Northland Surgical Center	Whangarei
Chris	Hoffman	NZOA 2nd President Elect, Wellington Hospital	Wellington
Thin	Hong	Hong Orthopaedic Ltd	Hamilton
Gary	Hooper	University Of Otago Christchurch	Christchurch

Delegates

Name	Surname	Hospital	City
Wayne	Hughes	NZOA Trust (Independent Trustee)	Auckland
Sarah	Hunter	Starship Childrens' Hospital	Auckland
Tom	Inglis	Christchurch Hospital	Christchurch
Phillip	Insull	North Shore Hospital	Auckland
Michael	Johnson	President Australian Orthopaedic Association	Melbourne
Andy	Johnston	North Island Sarcoma Service	Auckland
Nick	Jones	Hutt Hospital	Lower Hutt
Reece	Joseph	The University of Auckland	Kumeu
Prakash	Kana	Southland Hospital	Auckland
Kevin	Karpik	Middlemore Hospital	Auckland
Kohei	Kawaguchi	North Shore Hospital	Auckland
Richard	Keddell	Grace Orthopaedic Centre	Tauranga
Ritwik	Kejriwal	Convenor, Taranaki Base Hospital	New Plymouth
Mohammadali	Khademi	Palmerston North Hospital	Palmerston North
Grant	Kiddle	Wellington Orthopaedic & Sports Surgeons	Wellington
Gina	Kioa	Southland Hospital	Invercargill
Kongposh	Koul	Waikato Hospital	Hamilton
Gloria	Lam	Hong Kong Ambassador	Hong Kong
Jessica	Leary	Rotorua Hospital	Rotorua
Hamish	Leslie	Hutt Hospital	Wellington
Charlie	Lewis	Convenor, Taranaki Base Hospital	New Plymouth
Jia Ying	Lim	National University Hospital	Singapore
Morgan	Lingard	Christchurch Hospital	Christchurch
Dan	Liyanage	Hawke's Bay Hospital	Hastings
Carrie	Lobb	Waikato Hospital	Hamilton
Rachel	Looms	Southern Cross Healthcare Ltd	New Plymouth
Sebastien	Lustig	International Guest Speaker	Lyon
Tim	Lynskey	Taranaki Base Hospital	New Plymouth

Delegates

Name	Surname	Hospital	City
Sam	Macgill	Wellington Hospital	Wellington
Mark Anthony	Madarang	Registered Nurse First Surgical Assist	New Plymouth
Teriana	Maheno	Tauranga Hospital	Tauranga
Simon	Manners	Middlemore Hospital	Auckland
Len	Marais	President South African Orthopaedic Association	Durban
Rhett	Mason	Christchurch Hospital	Christchurch
Rod	Maxwell	Leinster Orthopaedic Centre	Christchurch
Anna	McDonald	Southland Hospital	Invercargill
John	McKie	Christchurch Hospital	Christchurch
Dean	Mistry	Mercy Hospital	Auckland
Khalid	Mohammed	NZOA First President Elect, Christchurch Hospital	Christchurch
Jacob	Munro	Auckland City Hospital	Auckland
Jian-Sen	Ng	Middlemore Hospital	Auckland
Jane	Nicholas	Hutt Hospital	Wellington
Mary	Nugent	Rotorua Hospital	Rotorua
Stephen	Parkinson	Christchurch Hospital	Christchurch
Alpesh	Patel	Middlemore Hospital	Auckland
Adam	Payne	Whangarei Hospital	Whangarei
Pierre	Pechon	Palmerston North Hospital	Palmerston North
John	Pennington	Taranaki Base Hospital	New Plymouth
Ian	Penny	Orthopaedic Surgical Consultancy Ltd	Christchurch
Rushi	Penumarthy	Auckland City Hospital	Auckland
Andrea	Pettett	NZOA Chief Executive	Wellington
Rocco	Pitto	Middlemore Hospital	Auckland
Greg	Poulter	International Guest Speaker	Indianapolis
Vaughan	Poutawera	Tauranga Hospital	Tauranga

Delegates

Name	Surname	Hospital	City
Anneke	Prankerd-Gough	Middlemore Hospital	Auckland
Fraser	Prendergast	North Shore Hospital	Auckland
Richard	Rahardja	North Shore Hospital	Auckland
Helen	Rawlinson	Auckland City Hospital	Auckland
Sam	Reddish	Waitemata Hospital	Auckland
Peter	Robertson	Mercy Specialist Centre	Auckland
Martin	Roche	International Guest Speaker	Florida
John	Roe	Trans - Tasman Fellow	Queensland
Tyler	Rudolph	Middlemore Hospital	Auckland
Jason	Ryu	North Shore Hospital	Auckland
Hamidullah	Salimi	Shimada Hospital	Osaka
Charles	Saltzman	International Guest Speaker	Utah
Nemandra Amir	Sandiford	Southland Teaching Hospital	Invercargill
Kealey-Rei	Sanford	Whangarei Hospital	Whangarei
Janus	Schaumkel	Ascot Hospital	Auckland
Erynne	Scherf	Timaru Hospital	Timaru
Dean	Schluter	North Shore Hospital	Auckland
Peter	Schneider	Precision Orthopaedics	Feilding
Anand	Segar	Starship Childrens' Hospital	Auckland
Tom	Sharpe	Christchurch Hospital	Christchurch
Mark	Sherwood	Pacific Orthopaedics	Wellington
Morgan	Short	Auckland City Hospital	Auckland
Frank	Sim	Starship Childrens' Hospital	Auckland
Martyn	Sims	Rotorua Hospital	Rotorua
Paul	Smith	International Guest Speaker	Canberra
Derek	Stanley-Clarke	Medico Legal	Rotorua
Gert	Starker	Palmerston North Hospital	Palmerston North
Andrew	Stokes	Tauranga Hospital	Tauranga

Delegates

Name	Surname	Hospital	City
Mark	Stringer	Whakatane Hospital	Tauranga
Andrew	Suchowersky	Taranaki Base Hospital	New Plymouth
Grant	Surtees	Southern Cross Hospital Rotorua	Rotorua
Mei Lin	Tay	North Shore Hospital	Auckland
Shea	Timoko-Barnes	Wellington Hospital	Wellington
Francis	Ting	Taranaki Base Hospital	New Plymouth
Karen	Toh	Auckland City Hospital	Auckland
Cameron	Tuckey	Christchurch Hospital	Auckland
Francois	Van der Westhuizen	Rotorua Hospital	Rotorua
Vonne	Van Heeswijk	The University Of Auckland	Auckland
Rutvik	Vanamala	Waikato Hospital	Hamilton
Nicola	Ward	NZOA HFRT Registry Coordinator	Tauranga
David	Whitehead	Southern Cross Hospital Christchurch	Christchurch
Chris	Williams	Palmerston North Hospital	Palmerston North
Jinny	Willis	NZOA Joint Registry Coordinator	Christchurch
Sophie	Wilton	Whanganui Hospital	Whanganui
Mark	Wright	Auckland City Hospital	Auckland
Nikki	Wright	NZOA Conference & Events Manager	Wellington
Edward	Yee	North Shore Hospital	Auckland
Simon	Young	University Of Auckland	Auckland
Faseeh	Zaidi	Auckland City Hospital	Auckland
John	Zhang	Christchurch Hospital	Christchurch

NZOA Annual Scientific Meeting

CONFERENCE

20th – 22nd October
The Devon, New Plymouth

See you next year!

2024

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NZOA
New Zealand Orthopaedic Association