NZOA
New Zealand
Orthopaedic Association

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

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Welcome

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PERFECTING SURGICAL PERFORMANCE

Welcome to the Annual Scientific Meeting of the New Zealand Orthopaedic Association held at the Rutherford Hotel, Nelson

Sunday 5th November – Tuesday 7th November, 2023.

The theme of the meeting is **"Perfecting Surgical Performance,"** where we will concentrate on how to perform technically perfect surgery on a consistent basis.
We have confirmed surgical speakers who possess these skills and are superb teachers.

Dr Chris Ahmad is the RACS visiting speaker who wrote the book "Skill" which highlights how to perform and teach surgery, consistently, at an elevated level. Chris will be accompanied by his friend and colleague at Columbia University Dr Mike Vitale who leads the orthopaedic world in quality and safety initiatives.

Dr Stuart Weinstein (University of Iowa) will share his extraordinary career learnings with us.

There is a combination of plenary lectures, free papers, and breakout sessions, where selected surgeons from the Sub Specialties will present on techniques they use for different surgeries. These will be 90-minute sessions of "How to do the perfect operation" in their field. There will be an international flavour to the meeting, with visiting Presidential Carousel contributing to these sessions.

Nelson is a superb place to hold an Annual Meeting, one of New Zealand's hidden treasures, the town itself is vibrant and the surrounding countryside an adventure playground.

Take the opportunity to come earlier and walk the Abel Tasman or the Queen Charlotte Track. The Local Hosts, Angus Jennings and Kate Ball have organised a fantastic social programme. Sporting events on Sunday afternoon include golf at Nelson Golf Club, and mountain biking in the hills behind the city.

Sunday night is a welcome dinner at the famous Nelson Car Museum, with the Gala dinner at Rutherford Hotel on Monday evening.

There will be local walks and morning tea for partners on Monday and Tuesday mornings, hosted by the local surgeons so please join in and make the meeting a real celebration.

Thank you for joining us in sunny Nelson, it promises to be an extremely stimulating meeting and celebration of what we do so well.

Haemish Crawford
NZOA President

General Information

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GENERAL INFORMATION

Abstracts

If you have an accepted podium presentation, please ensure to load your presentation on Sunday the 5th of November between 12pm and 5pm with the AV tech at the speaker prep desk, located in the Riwaka foyer on the ground floor of the Rutherford 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 Riwaka foyer or Maitai 2 foyer (registration area) on the ground floor of the Rutherford Hotel to pin your posters. You may hang your A0 sized posters either portrait or landscape style on one side of the wall only please.

Catering

All catering will be held in the exhibition hall (Maitai room #2) and registration area during the event, aside from the gala dinner on Monday 6th November (Maitai room #1). Note, only those registered for the gala dinner may attend.

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.

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 Exhibition Hall is located on the ground floor of the Rutherford hotel. As you walk into the hotel, turn left to register before entering the trades area in Maitai room #2. All catering will be in the exhibition hall and registration area during the event.

Gala Dinner

The Gala dinner is a black tie / evening attire event and will commence at 7:30pm in Maitai Room #1 Monday 6th November of the Rutherford hotel. The Theme is Nelson Oceania.

A pre – gala dinner reception will be held between 6:30pm and 7:30pm in the Hotel lobby prior to the ASM.

Registration

Please register and collect your name badges and lanyards from the registration desk, open from Sunday 5th November 12 – 5pm opening again from 7:00am on Monday 6th November.

Please note, the opening ceremony will commence at 7:30am sharp. If you are not seated in the main conference plenary room (Maitai #1) then you will not be permitted in until after the mihi whakatau has finished and the conference is officially open.

Welcome Function | Nelson Classic Car Museum

The ASM welcome function will commence at 6:30pm at the Nelson Classic Car Museum and run until 10:30pm.

Transport to the function will be provided from the Rutherford hotel, departing at 6:15pm Sunday 5th November, with two return options at either 9:00pm or 10:30pm back to the Rutherford Hotel. If you are joining us but have accommodation at other hotels, please either make your own way to the car museum, or ensure you join us by 6pm in the reception lobby of the Rutherford Hotel to catch the bus.

Wi-Fi

The Wi-Fi password for the ASM is NZOA2023

- Please select "**Rutherford Conference Wireless**" > "**Visitors**"
- Then enter **NZOA2023**
  Note, the password is not case sensitive.
- Select "**Connect**"

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1. Doan G, Curtis P, Wyss J, Clary C. Resection Accuracy Improved during Robotic-Assisted Total Knee Arthroplasty (March 2021). Internal Report 103720852. 2. Cool CL, Jacofsky DJ, Seeger KA, Sodhi N, Mont MA. A 90-day episode-of-care cost analysis of robotic-arm assisted total knee arthroplasty. J Comp Eff Res. 2019;8(5):327-336.

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References

1. Stryker EPS report: D0000205786, internal document, Stryker, Trauma & Extremities, 2022
2. Stryker VOC report: A0000377, internal document, Stryker, Trauma & Extremities, 2020

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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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Floorplan

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Floorplan

FLOORPLAN

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2. DePuy Synthes
3. Stryker
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5. REM Systems
6. Corin
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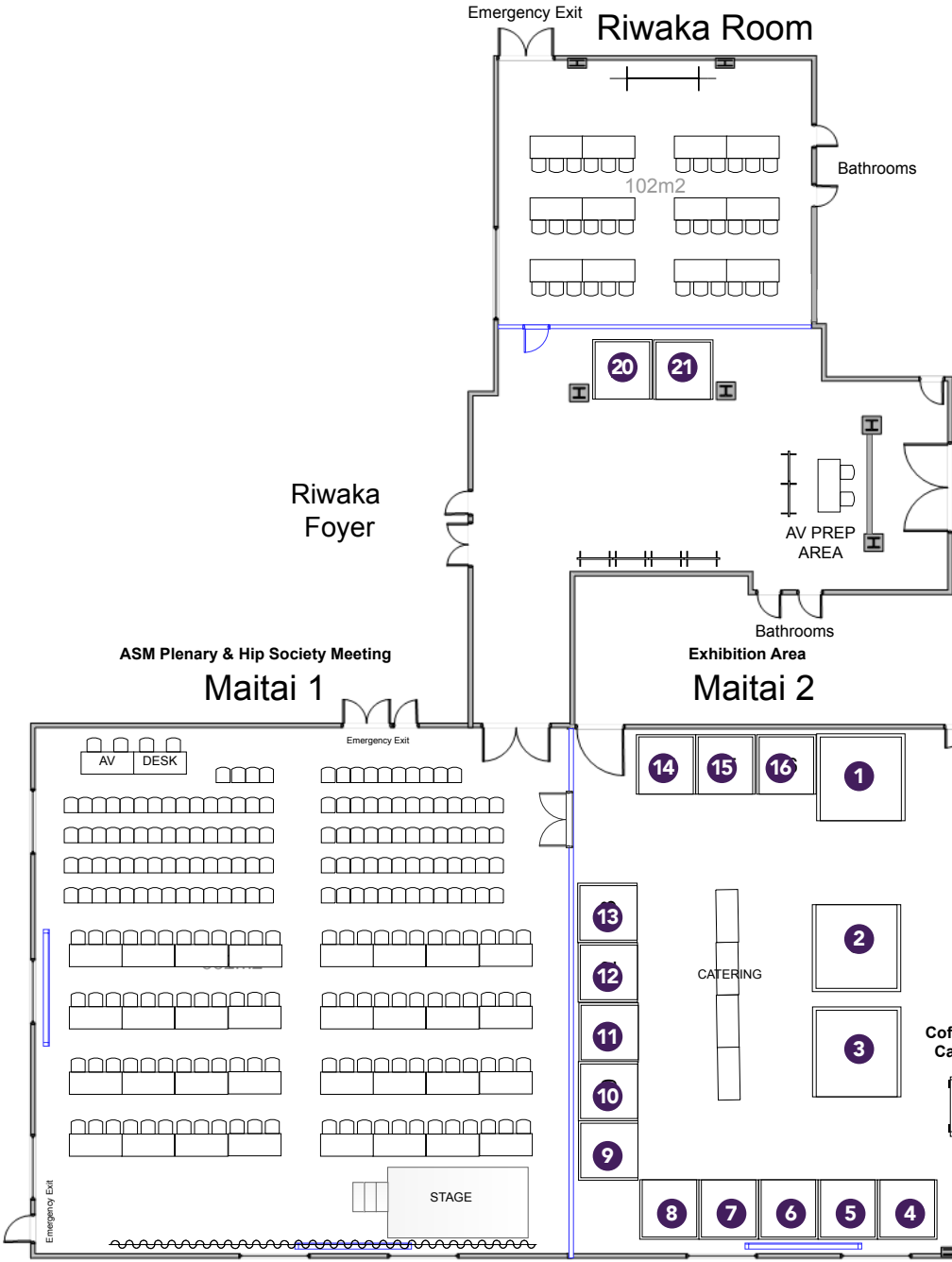
8. Evolutis New Zealand
9. Avanos
10. Evolution Healthcare
11. DBM Medical Group
12. Ossur
13. Lima Orthopaedics NZ Ltd
14. Device Technologies
15. Life Healthcare
16. Pioneer Medical
17. Orb Medical
18. Arthrex
19. Mathys
20. NZ Osteoarthritis Research Network
21. Nuvasive


Emergency Exit
Riwaka Room
102m2
Bathrooms
20
21
Riwaka
Foyer
AV PREP
AREA
Bathrooms
ASM Plenary & Hip Society Meeting
Maitai 1
Exhibition Area
Maitai 2
Emergency Exit
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DESK
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CATERING
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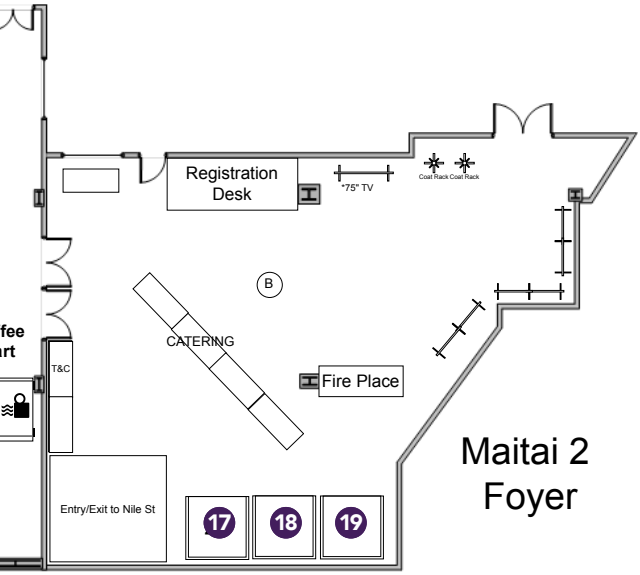
STAGE
Emergency Exit

To Hotel Lobby



Programme

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Programme

PROGRAMME

SUNDAY, 5TH NOVEMBER

Sports afternoon	**Golf** Nelson Golf Club
12.30pm and 1.20pm	Tee times **Convenor:** Alex Rutherford
	Mountain biking
1:00pm	Coppermine trail
1:00pm	Codgers trails **Convenors:** Kate Ball and Angus Jennings
5:30pm	**Specialty Orthopaedic Training Board Meeting** Hawker Lounge
6:45pm	**SET 5 Trainee Dinner** (invite only) Hawker Lounge
6:30pm	**Welcome Function** Nelson Classic Car Museum (dinner) Dress Smart Casual

MONDAY, 6TH NOVEMBER

7:00am	**Registrations Open** **Light breakfast served from 7:00am in Trades area*
8:10am – 9:30am	**Plenary session** | **Moderator:** Haemish Crawford
8:10am – 8:30am	**Dr Chris Ahmad**, Sharpening the scalpel
8:30am – 8:50am	**Dr Mike Vitale**, Quality and safety
8:50am – 9:05am	**Dr Buddy Savoie**, Maintaining Excellence in the Struggling Healthcare Environment
9:05am – 9:30am	**Dr Stuart Weinstein**, Sustaining excellence over a career
9:30am -10:00am	Discussion
10:00am – 10:30am	**MORNING TEA**

PROGRAMME

10:00am – 10:30am	**Wishbone Research Foundation Trust** | Heaphy Room, Level 2
10:30am – 11:30am	**Avoiding Burnout as an Orthopaedic Surgeon.** Nick Petrie (partners welcome) **Moderator:** Perry Turner Nick is a local Nelson researcher and internationally acclaimed speaker on workplace stress and burnout. He will research NZ Orthopaedic surgeons and present on ways to control burnout and have a more positive career from registrar until retirement. *Partners are encouraged to attend at no cost.*
11:30am – 12:30pm	**Plenary Session** **Moderators:** Bruce Twaddle and Margy Pohl
11:30am – 11:50am	**Women in Orthopaedics – A Road to a culture of inclusion.** John Sullivan Lecture – Dr Laurie Hiemstra (COA President)
11:50am – 12:10pm	**Clutch performance for intra op complication – How to avoid choking**. Dr Chris Ahmad (RACS Guest Speaker)
12:10pm – 12:30pm	**Creating the Most Efficient Operating Room** – Dr Mike Vitale
12:30pm – 1:30pm	**LUNCH**
12:30pm – 1:30pm	**NZOA Trust Meeting** | Heaphy Room
1:30pm – 2:30pm	**Free papers** **Foot and Ankle** | **Moderators:** Rhett Mason and Helen Rawlinson Waimea Room, Level 2
1:30pm – 1:40pm	Life and Limb: The Surgical Management of Foot Complications in People with Diabetes. **Marinus Stowers**
1:40pm – 1:50pm	Randomised Prospective Trial Comparing the Salto Talaris Fixed-Bearing and Salto Mobile-Bearing Total Ankle Arthroplasty. **Aleksandar Sevic**
1:50pm – 2:00pm	Can you predict which 'routine' closed ankle fractures require external fixation rather than cast immobilisation? A retrospective matched cohort study. **Jessica Lynch-Larkin**

2:00pm – 2:10pm	Surgical Outcomes in Intramedullary Fibular Nail Fixation Compared with Plate Fixation of Distal Fibular Fractures. **Shamunyama Mooya**

General | **Moderators:** Tim Love and David Gwynne-Jones
Matai Room #1, Ground Floor

1:30pm – 1:38pm	Gelatin and VEGF incorporation in PVA-Tyramine hydrogels as a strategy to enhance vascular infiltration and treat avascular necrosis**. Sam Arnold**
1:38pm – 1:46pm	Affordable Virtual Reality Haptic-Feedback Surgical Simulator: a Proof-of-Concept. **Jonathan Bartlett**
1:46pm – 1:54pm	Surgical Waste and a Circular Medical Textile Economy. **Holly Morris**
1:54pm – 2:02pm	Lactoferrin as an adjuvant antimicrobial in battlefield-relevant open fractures. **Reece Joseph**
2:02pm – 2:10pm	Preparation Times for Elective Orthopaedic Surgery. **Simon Hadlow**
2:10pm – 2:18pm	The epidemiology and economic impact of Accident Compensation Corporation (ACC)-funded primary total knee and total hip arthroplasty in Aotearoa. **Katarina Sim**
2:18pm – 2:26pm	Experiences of Pacific Patients Seeking Arthroplasty in New Zealand. **Charlotte Tuimana**
2:30pm – 3:00pm	**AFTERNOON TEA**
2:30pm – 3:00pm	**NZ Hip Fracture Registry Trust** | Heaphy Room
3:00pm – 4:30pm	**Subspecialty Techniques:** Breakout sessions on: Hip, Shoulder, Foot and Ankle

Hip Society Session | Waimea Room, Level 2

Moderators: Georgina Chan and Matt Boyle

- Posterior approach to the hip. **Dr John Timperley**
- Direct anterior approach to the hip. **Dr Michael Solomon**
- ITB release. **Richard Keddell**

PROGRAMME

- GT fixation. **Andy Vane**
- Cementing the femur. **Tony Lamberton**
- PAO a la Boston: Continuing Evolution of Principles and Techniques. **Dr Michael Millis**
- Surgical hip dislocation. **Matt Boyle**

Shoulder Society Session | Maitai Room #1

Moderators: Warren Leigh and Dr Chris Ahmad

- Indications and how to perform the perfect Open Capsular shift and bankart repair. **Khalid Mohammed**
- Arthroscopic bankart repair and Remplissage. **Dr Buddy Savioe**
- Latarjet Giles Walch Video. **Warren Leigh**
- Open tibial allograft for massive bone loss and stabilization. **Mike van Niekerk**
- Arthroscopic soft tissue releases and cuff repair. **Dr Chris Ahmad**
- Clavicle osteotomy. **Perry Turner**

Foot and Ankle Society Session | Riwaka Room, Ground Floor

Moderators: Simon Hodkinson and Kate Ball

- Scarf Osteotomy. **Rhett Mason**
- Lesser Toe Deformity Correction. **Fraser Harrold**
- Midfoot / Forefoot Fusion. **Jonny Sharr**
- Flatfoot Reconstruction. **Rupesh Puna**
- Lateral Ligament Reconstruction. **Tony Danesh-Clough**
- Total Ankle Replacement. **Matt Tomlinson**

4:30pm – 5:30pm	**AGM**	Waimea Room, Level 2
6:30pm – 7:30pm	Canape's and Drinks, Riwaka Foyer, Rutherford ground floor
7:30pm	**Gala Dinner** (Matai Room #1), Ground Floor (Dress: Black tie)

TUESDAY, 7TH NOVEMBER

6:15am	**Stand up paddle boarding** – Tahuna Beach
7:00am	Registrations open **Light breakfast served from 7:00am in Trades area*
7:00am – 8:30am	**Sub Specialty Society Meeting** | Heaphy Room (breakfast)
7:30am – 8:30am	**Plenary Session:** Where are we heading with trainee education? **Moderators:** Tim Gregg and David Bartle
7:30am – 7:50am	The need for competency based education. **Dr Ann van Heest** (American Orthopaedic Association)
7:50am – 8:00am	The Australian experience competency based training. **Dr Chris Morrey**
8:00am – 8:10am	Competency based education for NZOA trainees. **Dawson Muir**
8:10am – 8:30am	Discussion
8:30am – 10:00am	**Subspecialty techniques:** Breakout sessions Knee, Spine, Elbow

Knee Society Session | Waimea Room, Level 2

Moderators: Bruce Twaddle and Julian Ballance

- How I do fasciotomies for exercise compartment syndrome. **Stuart Walsh**
- How I do a meniscal root repair. **Michael Rosenfeldt**
- How I do "ALL reconstruction". **Bruce Twaddle**
- How I do a Tibial osteotomy. **Mark Clatworthy**
- How I do a Unicompartmental knee replacement. **Paul Monk**
- How I do a patellofemoral trochleoplasty. **Laurie Hiemstra**

PROGRAMME

Spine Society Session | Room Maitai Room #1

Moderators: Angus Don and Michael Barnes

- PLIF. **Peter Robertson**
- Lateral. **Angus Don**
- ALIF. **Antony Field**
- Discectomy. **Chris Hoffman**
- ACDF. **Hamish Deverall**
- Laminoplasty. **Ed Yee**

Elbow (Shoulder and Elbow Society) Session | Riwaka Room, Ground Floor

Moderators: Basil Vrettos and Dr Buddy Savoie

- Advanced Elbow Arthroscopy. **Dr Buddy Savoie**
- Elbow replacement. **Dr Basil Vrettos**
- Ulnar nerve decompression and transposition. **Jonny Manson**
- Distal biceps tendon reconstruction. **Dr Chris Ahmad**
- Elbow Arthroscopy for Arthritis. **Dr Buddy Savoie**

10:00am – 10:30am	**MORNING TEA**
10:00am – 10:30am	**NZOA Joint Registry**	Heaphy Room
10:30am – 11:00am	**Plenary Session** **Moderator:** Simon Hadlow (Maitai Room #1)
10:30am – 10:40am	National Sarcoma service. **Andy Johnston**
10:40am – 10:50am	National Spine service. **Tom Geddes**
10:50am – 11:00am	Surgical Site Infection in Orthopaedics. **Dr Arthur Morris**

11:00am – 12:30pm	**Free Papers**
	Arthroplasty | Maitai Room #1
	Moderators: Helen Tobin and James Taylor
11:00am – 11:05am	Total Knee Arthroplasty Revision Rates in Mobile vs. Fixed Bearing Implants: A New Zealand Joint Registry Study. **Erynne Scherf**
11:05am – 11:10am	Accuracy of Registry-Reported Reasons for Unicompartmental Knee Arthroplasty Revision. **William Chen**
11:10am – 11:15am	Discussion
11:15am – 11:25am	Outcomes of Revision Total Knee Arthroplasty after Unicompartmental Knee Arthroplasty and Periarticular Osteotomy. **Doug Hancock**
11:25am – 11:35am	Can we predict DAIR failure in PJI? External validation of the KLIC and Crime80 scores. **Joshua Knudsen**
11:35am – 11:40am	Patient Specific TKA Two Year Outcome Study - Velys vs Brainlab. **Mark Clatworthy**
11:40am – 11:45am	Robotic-Assisted Total Knee Arthroplasty is Associated with Earlier Return of Symmetrical Limb Function Compared to Conventional Total Knee Arthroplasty. **Faseeh Zaidi**
11:45am – 11:50am	In-Vivo Accuracy of a New Robotically-Assisted System for Total Knee Arthroplasty: A Prospective Cohort Study. **Faseeh Zaidi**
11:50am – 12:00pm	Discussion
12:00pm – 12:10pm	Outcomes of Trabecular Metal in Revision Acetabular Reconstruction in Auckland. **Katarina Sim**
12:10pm – 12:20pm	The influence of bearing surface on periprosthetic joint infection in total hip arthroplasty. **Dr. David Owen** (Trans-Tasman Travelling Fellow)
12:20pm – 12:30pm	Influence of Obesity on functional outcomes and revision rates following revision Total Knee Arthroplasty. **Rushi Penumarthy**

PROGRAMME

Upper Limb Session (Shoulder & Elbow and Wrist & Hand)
| Waimea Room, Level 2

Moderators: Khalid Mohammed and Craig Ball

11:10am – 11:20am	Shoulder Instability in South-East Asia: are we that different? Algorithm and Treatment Strategies in dealing with Minor and Major Bone Loss. **Dr Denny Lie** (ASEAN Singaporean Travelling Fellow)
11:20am – 11:30am	Clavicular osteotomy for surgical exposure of the shoulder joint. **Rushi Penumarthy**
11:30am – 11:40am	Does Reverse Total Shoulder Arthroplasty for Acute Proximal Humeral Fracture Lead to Worse Outcomes Compared To Elective Indications? Results From the New Zealand Joint Registry. **Scott Bolam**
11:40am – 11:50am	Tuberculosis of the Wrist. **Dr Manohar Arumugam** (ASEAN Malaysian Travelling Fellow)
11:50am – 12:00pm	Suture Choice in Carpal Tunnel Surgery: A Randomised Controlled Trial. **Jessica Leary**
12:00pm – 12:10pm	A prospective observational study of thumb function following 1st carpometacarpal joint arthrodesis. **Supilate Mikaele** (Winner - 2023 Paper Day)
12:10pm – 12:20pm	An eight year retrospective review of flexor sheath infections. **Holly Morris**
12:20pm – 12:30pm	TENs in Samoa "A game changer". **Dr Shaun Mauiliu** (Orthopacifix Pacific Island Travelling Fellow)
12:30pm – 1:30pm	**LUNCH**

1:30pm – 2:30pm	**Free Papers**
	Knee | Maitai Room #1, Ground Floor
	Moderators: Richard Keddell and Julian Ballance
1:30pm – 1:40pm	Blood Flow Restriction training of Quadricep Muscles in Advanced Osteoarthritis of the Knee. A Randomised - Controlled Study. **Dr Vincent Chan** (Hong Kong Ambassador)
1:40pm – 1:50pm	Discoid Meniscus. **Dr.Taufin Warindra** (ASEAN Indonesian Travelling Fellow)
1:50pm – 2:00pm	Safety And Efficacy Of Intraosseous Ropivacaine In Lower Extremity (SORE) Study. **Marinus Stowers**
2:00pm – 2:10pm	The Ten-year Radiological Results of the Uncemented Oxford Medial Compartment Knee Arthroplasty. **Jessica Mowbray**
2:10pm – 2:20pm	Risk Factors for Meniscal Repair Failure Following Concurrent Primary ACL Reconstruction. **Mark Clatworthy**
2:20pm – 2:30pm	TKA Following Septic Arthritis – A Longitudinal Study Over 20 Years. **Zoe Wells**
	Trauma | Waimea Room, Level 2
	Moderators: Angus Jennings and Vaughan Poutawera
1:30pm – 1:40pm	Time to Surgery for Neck of Femur Fractures in Southland For Patients Presenting Directly to a Referral Hospital Versus Transferred from Peripheral Hospital: A Matched Cohort Study. **Scott Bolam**
1:40pm – 1:50pm	Developing Next Generation Injectable Adipose Tissue Grafts for Soft Tissue Reconstruction. **Tim Woodfield**
1:50pm – 2:00pm	Risk factors for morbidity and mortality following hip fractures – an ANZHFR study. **Mark Zhu**

PROGRAMME

2:00pm – 2:10pm	Standard of care and outcomes for Māori patients with neck of femur fractures – an ANZHFR study. **Mark Zhu**
2:10pm – 2:20pm	Outcomes of Single vs Combination Fixation in Distal Femur Fractures - A Christchurch Experience. **John Zhang**
2:20pm – 2:30pm	Outcomes Following a Total Femoral Plating Technique for Management of Periprosthetic Fractures Around Stable Hip and Knee Implants. **Brad Atkinson**
2:30pm – 3:00pm	**AFTERNOON TEA**
3:00pm – 4:00pm	**Plenary Session:** Subspecialty techniques I "Trauma for the on - call Orthopaedic Surgeon" **Moderators:** Steve McChesney and Dr Chris Morrey

- Acute management of unstable pelvic fractures – technical tips. **Dr Chris Morrey**
- Acute management of foot & ankle emergencies – technical tips. **Jonny Sharr**
- Surgical fixation of the osteoporotic distal femur fracture – technical tips: how to plate/nail constructs and role of medial plates. **Tim Chuang**
- Surgical fixation of the high energy displaced subcapital neck of femur fracture – technical tips reduction techniques and placement of medial plates & technical tips for ipsilateral neck shaft – table, set-up, order of fixation, etc. **Andy Powell**
- Orthoplastic treatment of the Grade IIIB compound tibial fracture. **Rob Orec & David Morgan-Jones**

6:30 pm — **Presidents Dinner** (invited guests only)
Hopgood's Restaurant
Dress: Smart casual

Carousel and Guest Speakers

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

CAROUSEL

Dr Haemish Crawford

Starship Children's & Ascot Hospitals

President New Zealand Orthopaedic Association

Haemish is a Consultant Paediatric Orthopaedic Surgeon at the Starship Children's Hospital in Auckland, New Zealand. He is also an honorary senior lecturer at the Auckland University Medical School.

His particular clinical interests are paediatric spinal deformity surgery and lower limb surgery. He is a graduate of the New Zealand Orthopaedic Association Training Programme in 1997 and then he spent 18 months on Fellowship at the University of Western Ontario, in London and then 12 months at the University of Iowa with Dr's Ponseti, Weinstein and Dietz.

His areas of research include paediatric spinal deformity, club feet, osteomyelitis, and trauma. His laboratory research at present focuses on sequencing different strains of S.aureus and looking at their virulence. He is presently supervising two PhD students. He has over 30 published research papers and multiple book chapters. Haemish was an American British Canadian (ABC) Travelling Fellow in 2002.

He is on the editorial board of JPOSNA and reviewer for Spine Deformity, JPO, Techniques in Orthopaedics, CORR, and The Journal of Children's Orthopaedics. Haemish is the co-editor of the premier Paediatric Orthopaedic textbook "Lovell and Winter".

He is a member of the Scoliosis Research Society, Paediatric Orthopaedic Society of North America, International Paediatric Orthopaedic Think Tank, Association of Bone and Joint Surgeons and is the current President of the New Zealand Orthopaedic Association.

He is married to Angela and has 4 children.

Dr Laurie Hiemstra

M.D., PhD

Associate Professor Orthopaedic Surgery

Past - President Canadian Orthopaedic Associatio

Dr. Hiemstra is a Fellowship trained orthopaedic surgeon working in Banff, Canada. She holds an Associate Professor appointment at the University of Calgary.

The clinical and research program in Banff is focused on knee ligament injury, prevention of secondary injury, rehabilitation and surgical outcomes with an emphasis on ACL injury and reconstruction and patellofemoral instability.

Laurie is on the Board of Directors of the Patellofemoral Foundation, Banff Sport Medicine Foundation, Canadian Orthopaedic Association (COA) and the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS). Laurie has published over 75 peer-reviewed papers and is a national and international speaker.

Laurie obtained her Medical Degree from the Memorial University of Newfoundland, completed an orthopaedic residency at the University of Manitoba, and a Clinical Fellowship in Orthopedic Sport Medicine at the University of Western Ontario. She also attained a PhD in Neuromuscular Physiology. Laurie has worked as an Orthopaedic Surgeon at Banff Sport Medicine since 2005. Her clinical focus is on patellofemoral instability and ACL reconstruction.

Laurie is the Past-President of the Canadian Orthopaedic Association (COA, 2022-2023). She is also an active member of many sport medicine organizations, including the Arthroscopy Association of Canada (AAC), International Society of Arthroscopy, Knee and Orthopedic Sports Medicine (ISAKOS), European Society for Sport Traumatology, Knee Surgery and Arthroscopy (ESSKA) Arthroscopy Association of North America (AANA), the American Orthopedic Society of Sports Medicine (AOSSM), and the International Patellofemoral Study Group.

Dr. Hiemstra has a keen interest in gender diversity and inclusion in orthopaedic surgery. She is a founding member of the International Orthopaedic Diversity Alliance (IODA) and Women in Orthopaedics Worldwide (WOW). She is the past chair of the Gender Diversity and Inclusion Task Force for both the COA and for ISAKOS.

Mr Simon L Hodkinson

FRCS(Orth)

Consultant Trauma & Orthopaedic Surgeon

President British Orthopaedic Association

Simon trained in London at St. Bartholomew's Hospital and then entered the Royal Navy on a short service commission.

Deciding to stay Simon entered orthopaedic training in the Navy and spent time in Edinburgh and Leeds as part of my rotation as well as within the RN.

Simon spent 6 months flying on the HEMS service at the Royal London Hospital as one of the original three doctors.

Simon accredited in 1995 taking up a consultant post in the RN, serving in Bosnia and the Gulf as a surgeon.

In 1999 left the Navy and was appointed to a consultant post in Portsmouth, where Simon remains.

Simon was trained very much as a general Orthopaedic surgeon but for the last 20 years have been almost purely foot and ankle.

Simon have always had a strong interest in teaching and training and spent 8 years running the Wessex training programme in T&O as well as 5 years sitting on the Specialist Advisory. Committee and6 years on the selection design group delivering national selection for higher trainees in T&O.

Simon was elected to the Council of the BOA in 2017, followed by 2 years as the Honorary Secretary and then onto the Presidential line in 2021.

Associate Professor Christopher N Morrey

MBBS BSc (Hons)

FRACS FAOrthA

President Australian Orthopaedic Association

Chris Morrey is currently the President of the Australian Orthopaedic Association. Chris is a general orthopaedic surgeon who has worked in both public and private practice in North Queensland for over 20 years.

After completion of his orthopaedic training, he undertook a year of pelvic and acetabular trauma and spinal surgery in Bristol UK and completed a fellowship in Ilizarov reconstruction in Lecco Italy. In 2022 Chris was appointed as an Associate Professor at James Cook University in department of Medicine and Dentistry.

Chris has been a member of AO Trauma for over 20 years. He is a past chairperson of AO Trauma Asia Pacific and Vice Chairperson of AO Trauma International. He has taught on many AO trauma courses as well as chairing many pelvic and acetabular courses both in the Asia Pacific region and in Europe and the USA. He is also an examiner for the RACS fellowship exam in orthopaedics, a reviewer for the Journal of Orthopaedics and Australian and New Zealand Journal of Surgery and a member of the Australian Trauma Society.

He is a graduate of the Australian Institute of Company Directors and holds a board position for AFL Cape York. He is a founder of Adept IME , a medicolegal company. Chris has also been involved with the Cairns Taipans basketball team, was the doctor for the WNBL during Covid pandemic and has provided orthopaedic medical support to visiting AFL and women's Australian basketball teams.

Chris also enjoys his family life in Cairns with wife Marilla and they have 4 adult children, a daughter-in-law and several partners. He is an avid sports watcher particularly of AFL football, rugby union and basketball.

Professor Felix H. Savoie III, MD

Chairman, Professor Tulane University School of Medicine, New Orleans, U.S.A

Past President American Academy of Orthopaedic Surgeons.

Dr. Felix H "Buddy" Savoie is an internationally recognized expert in the areas of Shoulder and Elbow Surgery and Sports Medicine.

He has been recognized as an integral member of virtually every respected organization relating to shoulder and elbow surgery, arthroscopy, and sports medicine.

Dr. Savoie has held numerous leadership positions and served as President for several organizations including the Arthroscopy Association of North America (2010), American Shoulder and Elbow Surgeons (2016), Orthopaedic Learning Center (2016), and Louisiana Orthopaedic Association (2016). He is currently the 90th President of the American Academy of Orthopaedic Surgeons. In addition to building a successful clinical and surgical practice, Dr. Savoie has devoted his career to grow and advance the field of Orthopaedics.

He has trained hundreds of medical students, residents, and fellows, including a host of surgeons who visit from across the world to observe and rotate with him year-round.

He has authored more than 1,000 publications and continues to develop new academic and clinical research using his own data, alongside other international innovators.

Dr Ann E. Van Heest

MD, FAOA

University of Minnesota

President American Orthopaedic Association

Ann Van Heest MD is Professor and Vice Chair of Education in the Department of Orthopaedic Surgery at the University of Minnesota.

Dr. Van Heest trained at the University of Minnesota for medical school and orthopedic surgery residency, followed by completion of the Harvard Hand and Upper extremity fellowship.

Dr. Van Heest presently serves in a number of national leadership positions. She is presently the President of the American Orthopedic Association (AOA), a Director at the ABOS, and a member of the ACGME orthopedic RRC. She is past president of Ruth Jackson Orthopedic Society, and on the BOD for Perry Initiative.

Dr. Van Heest has a strong interest in orthopedic education. She served as the University of Minnesota Orthopedic Surgery Residency Program Director for over 20 years. She also has over 20 publications on orthopedic surgery education, with a focus on innovations in surgical simulation. At the University of MN, Dr. Van Heest was the 2016 resident teacher of the year and 2015 hand fellowship teacher of the year, the 2011 University of Minnesota Award for Outstanding Contributions to Graduate Education. In 2022, Dr. Van Heest received the University of Minnesota GME Lifetime Achievement Award. Dr. Van Heest is the 2010 recipient of the ACGME Parker J Palmer Courage to Teach Award (only two orthopedic surgeons have gotten this award). She is the 2018 AOA Distinguished Clinical Educator Award (only female ever to get this award).

Dr. Van Heest endorses collaboration within the house of orthopedics for establishment of competency based medical education in the United States.

In her clinical practice, Dr. Van Heest sees patients at the University Of Minnesota Medical Center, Gillette Children's Specialty Healthcare and Shriners Clinic for Children. Her academic interests include congenital and traumatic disorders of the pediatric hand and upper extremity, neuromuscular disorders, and storage disease disorders,. She is co-founder of the Pediatric Hand Study Group and a member of Congenital Hand Anomalies Study Group.

Professor Basil Vrettos

Life Vincent Pallotti Hospital

Immediate Past President South African Orthopaedic Assocaition

Professor Basil Vrettos is a specialist Shoulder and Elbow Orthopaedic surgeon practicing at Life Orthopaedic Hospital (Vincent Pallotti) and Constantiaberg Mediclinic.

He is an honorary Consultant to the Shoulder and Elbow Clinic at the Princess Alice Unit at Groote Schuur Hospital. He is involved in teaching and training of Registrars and is part of the UCT rotation for the training of fellows in shoulder and elbow surgery. He has regularly hosted local and international visiting orthopaedic surgeons. He is involved in teaching in other countries in Africa and travels regularly to Zimbabwe to teach and work.

He has published numerous articles in local and international orthopaedic journals and presents at local and international courses and congresses. He has been an invited speaker at numerous international congresses, most notably as the Presidential Guest Speaker at the British Elbow and Shoulder Meeting in Dublin in 2016.

He has been the regional editor for the Journal of Shoulder and Elbow Surgery (America) and on the editorial board of the British Shoulder and Elbow Journal. He has been a reviewer for these journals as well as for the British Journal of Bone and Joint Surgery.

He is an executive committee member of the South African Orthopaedic Society and a past President of the South African Shoulder and Elbow Society. He was the Scientific Chairman for the 8th International Congress of Surgery of the Shoulder and Elbow held in Cape Town in 2001 and has been a member of the scientific committee of these 3 yearly congresses since then. He was a full member of the International Board of Shoulder and Elbow surgery from 2008 to 2016. He is a member of the American Shoulder and Elbow Society, the Shoulder and Elbow Society of Australia, the Zimbabwe Orthopaedic Association, the Surgical Society of Zimbabwe and the College of Surgeons of East, Central and Southern Africa.

GUEST SPEAKERS

Dr Christopher S. Ahmad, M.D.

Columbia University
New York
U.S.A

Christopher S. Ahmad, M.D. is a Professor of Clinical Orthopaedic Surgery at the Columbia University College of Physicians and Surgeons and an Attending Orthopaedic Surgeon at the New York-Presbyterian/Columbia University Medical Center.

He completed his orthopaedic surgery residency training at New York-Presbyterian//Columbia University Medical Center in 2000. In 2001, Dr. Ahmad completed a fellowship in sports medicine at the Kerlan-Jobe Orthopedic Clinic which included physician team coverage for many professional teams and college teams.

Dr. Ahmad currently serves as the Chief of Sports Medicine and has authored more than 250 articles and 50 book chapters related to knee, shoulder, elbow and sports medicine and has given greater than 300 lectures nationally, and internationally. He is the author of the textbook *Baseball Sports Medicine*. He has ongoing research in the areas of throwing related injury prevention and treatment, Tommy John Surgery, ACL injury prevention and screening, biomechanics of the elbow, and surgical techniques for rotator cuff repair and shoulder instability.

Dr. Ahmad is the Head Team Physician for the New York Yankees and a member of the Major League Baseball Team Physicians Association. He is past president for the Major League Baseball Team Physicians Association and a member of MLB's Pitchsmart Program. He is also co-founder of Baseball Health Network to promote the health of young throwing athletes.

Dr. Ahmad received his undergraduate degree in mechanical engineering while playing 4 years of division 1 soccer at nationally ranked Columbia University.

Professor Michael B. Millis

MD, Harvard Medical School

Boston Children's Hospital

Sports Medicine, Paediatrics, Hospice and Palliative Medicine, Toxicology, Paediatric Endocrinology, Orthopaedic Surgery Boston, Massachusetts, United States of America

Dr. Michael Millis is an Orthopaedic surgeon in Boston, Massachusetts and is affiliated with multiple hospitals in the area, including Beth Israel Deaconess Medical Centre and Boston Children's Hospital. He received his medical degree from Harvard Medical School and has been in practice for more than 20 years.

He is one of 70 doctors at Beth Israel Deaconess Medical Centre and one of 36 at Boston Children's Hospital who specialize in Orthopaedic Surgery.

Dr. Mike Vitali

Columbia University
New York, U.S.A

Dr. Michael G. Vitale is a world-renowned specialist in the non-operative and operative treatment of complex pediatric scoliosis and spinal disorders, performing approximately 200 scoliosis procedures every year – half of which are in children less than 10 years of age.

Dr. Vitale's surgical practice leverages specialized multidisciplinary teams to optimize care of adolescents with scoliosis, and uses innovative treatments for younger children with scoliosis, including magnetic spine lengthening rods ("MAGEC"), and non-fusion procedures such as anterior vertebral tethering for juvenile scoliosis. He also has a special interest in the conservative management of scoliosis and leads a best-in-class team of Schroth scoliosis therapists, Rigo-Chêneau style bracing experts, and cast technicians with extensive experience at Mehta casting. Dr. Vitale is consistently recognized as one of America's Top Doctors by Castle Connolly, and has been the named among the top 50 physicians providing scoliosis care in the United States by Becker's Spine Review.

Dr. Vitale received his undergraduate degree in biology and psychology from Trinity College, and attended medical school at Columbia University's College of Physicians & Surgeons, where he also completed a Master's degree in Public Health. He remained at Columbia for his residency training in Orthopedic Surgery at New York-Presbyterian/Columbia University Irving Medical Center, followed by a fellowship in pediatric orthopedics at the Children's Hospital of Los Angeles.

Dr. Vitale is the Ana Lucia Professor of Orthopedic and Neurosurgery within the Department of Orthopaedics at Columbia University Medical Center. Dr Vitale is also Chair for Quality and Strategy in the Department of Orthopedic Surgery at Columbia University Irving Medical Center, leading efforts to improve outcomes, ensure patient safety, and develop new advances in patient care. He is also Chief of Pediatric Orthopaedics for the New York Presbyterian health system, where he has focused on improving the care of children with spinal deformity since joining the staff of the Morgan Stanley Childrens Hospital of New York in 2001.

Dr Stuart L. Weinstein, M.D.

University of Iowa
Iowa
U.S.A

Dr. Weinstein is the Ignacio V. Ponseti Chair and Professor of Orthopaedic Surgery and Professor of Pediatrics at The University of Iowa. Dr. Weinstein received his A.B. Honors degree in Political Science and History from the University of Illinois in 1968.

He received his medical degree (Alpha Omega Alpha) from the University of Iowa in 1972. After interning in Internal Medicine at The University of California San Francisco, he returned to the University of Iowa for a residency in Orthopaedic Surgery. In 1976 he joined the faculty of the Department of Orthopaedic Surgery at The University of Iowa.

Dr. Weinstein was an NIH funded researcher. He has published more than 270 scientific articles in peer review journals (including first author publications in NEJM, JAMA, The Lancet, Nature). His research work has focused on spinal deformity in children and the natural history and long-term outcome of pediatric musculoskeletal conditions. He has edited six major textbooks including The Pediatric Spine: Principles and Practice; Lovell and Winter's Pediatric Orthopaedics and Turek's Orthopaedics.

Dr. Weinstein's many contributions to orthopaedics have been recognized by his receipt of the Bristol-Myers Squibb/ Zimmer Award for Distinguished Achievement in Orthopaedic Research; The Kappa Delta /Orthopaedic Research and Education Foundation Clinical Research Award twice (1998 and 2015); The ABJS/CORR Nicolas Andry Lifetime Achievement Award for Research (2018); The Russell Hibbs Award for Clinical Research (1998, 2014, 2015) given by the Scoliosis Research Society; and The Arthur H. Heune Memorial Award, given by the St. Giles Foundation and The Pediatric Orthopaedic Society of North America. In 2005, Dr. Weinstein was the recipient of the Alfred R. Shands, Sr., MD Award, presented by the Orthopaedic Research Society and The American Orthopaedic Association for his significant contributions to orthopaedics and his devotion of a professional lifetime to furthering knowledge in the fields of musculoskeletal disease.

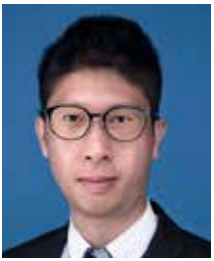
TRAVELLING FELLOWS

Prof Dr Manohar Arumugam

(M.B. B.S)

(M.S. Orthopaedic) University Putra Malaysia

ASEAN Malaysian Travelling Fellow



Dr Vincent Chan

Orthopaedic and Traumatology specialist

Hong Kong Ambassador

Dr Denny Lie

M.B; B. S

FRCS

F.A.M.

President, ASEAN Orthopaedic Association

ASEAN Singaporean Travelling Fellow

Dr. Taufin Warindra

Orthopaedic Surgeon

Port Hospital PHC Surabaya, (PABOI)

ASEAN Indonesian Travelling Fellow

Dr Shaun Mauiliu

Pacific Islands Orthopaedic Association

Orthopacifix Pacific Island Ambassador (Samoa)

David Hugh Owen

Orthopaedic Surgeon

MBBS BE/BSc FRACS

FAOrthoA

Trans - Tasman (Australia) Travelling Fellow

Abstracts

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

Presenter: Marinus Stowers

Time of Presentation: Monday 6th Nov | 1.30pm

Authors: Jack Earp MBChB, Simon Hadlow FRACS, Cameron Walker PhD.

Affiliations: Marinus Stowers, Leah Slykerman, Luke McClean, Surendra Senthi

Type: Paper

Title: Life and Limb: The Surgical Management of Foot Complications in People with Diabetes.

INTRODUCTION

A common acute orthopaedic presentation is an ulcerated or infected foot secondary to diabetic neuropathy. Surgical debridement or amputation are often required to manage this complication of diabetes. International literature indicates that amputation may lead to further complications and an increased mortality rate. The aim of this study is to investigate the mortality rate associated with different surgical interventions. This will inform surgical management of patients presenting with acute foot complications from diabetes.

METHODS

This is a retrospective review of patients with diabetic foot infections aged >16 years attending Middlemore Hospital over a 10-year period (2012-2021). Clinical records were examined to determine whether patients were managed with no surgery, surgery but not amputation, or amputation. We recorded relevant baseline characteristics and comorbidities. Regression models were used to determine factors associated with mortality.

RESULTS

Over the study period, 1260 patients were included in analysis. Patients were divided into three groups, a control group who received no surgical intervention (n=554), those receiving surgery but not amputation (n=269), and those who underwent amputation (n=437). After adjustment for potential confounders, mortality rates were significantly higher in those who underwent amputation compared with those who received surgical intervention without amputation. Survival probability at 1 year and 5 years was highest in the surgical intervention but not amputation group.

CONCLUSION

It is clinically important that there is a lower mortality rate in patients who undergo surgical intervention without amputation. Treatment that aims to salvage the limb rather than amputate should be considered in management of patients with diabetic foot complications to optimise their care.

Presenter: Aleksandar Sevic

Affiliations: Middlemore Hospital

Time of Presentation: Monday 6th Nov | 1.40pm

Type: Paper

Authors: Aleksandar Sevic, Chetan Patel, Matthew Tomlinson

Title: Randomised Prospective Trial Comparing the Salto Talaris Fixed-Bearing and Salto Mobile-Bearing Total Ankle Arthroplasty.

INTRODUCTION

Comparative studies examining Fixed-Bearing (FB) and Mobile-Bearing (MB) Total Ankle Replacement (TAR) designs have demonstrated similar results and successful long-term outcomes for both. To date there has been no study directly comparing FB and MB designs of the same prosthesis. We present the first prospective randomised trial comparing patient satisfaction, functional outcomes and radiographic results of the Salto Talaris Fixed-Bearing and the Salto Mobile-Bearing Total Ankle Replacement in the treatment of end-stage ankle arthritis.

METHODS

A total of 108 adult patients with end-stage ankle arthritis were enrolled in the study between November 2014 and October 2021 with similar demographic comparison. Prospective patient-reported outcomes and standardised weightbearing ankle radiographs were performed preoperatively, at 6 weeks, 6 months and 12 months post-operatively, followed by yearly intervals. All surgeries were performed by a single non-design orthopaedic foot and ankle specialist with experience in over 200 Salto and Salto Talaris TAR prior to the study. Radiographs were examined independently by two clinicians. Complete patient data and radiographs were available for 103 patients with an average follow up of 2 years.

RESULTS

Both groups demonstrated statistically significant improvement from preoperative evaluation to most recent follow up with no statistically significant difference between the two groups in all outcome measures. Radiographic incidence of subchondral cyst formation was 8.9% and 38.2% for FB and MB, respectively. Talar subsidence occurred in 2.2% and 5.5% of FB and MB, respectively.

DISCUSSION

Our study demonstrates a higher than previously reported rate of cyst formation in the MB TAR and comparatively higher talar subsidence in the MB TAR vs FB however this did not correlate with clinical outcome measures which were favourable for both groups.

CONCLUSION

Fixed-Bearing and Mobile-Bearing Total Ankle Replacement demonstrate comparable favourable outcomes.

Presenter: Jessica Lynch – Larkin

Affiliations: Canterbury DHB/Waitaha

Time of Presentation: Monday 6th Nov | 1.50pm

Type: Paper

Authors: Jessica Lynch-Larkin, Andrew Powell

Title: Can you predict which 'routine' closed ankle fractures require external fixation rather than cast immobilisation? A retrospective matched cohort study.

INTRODUCTION

A subset of patients in cast awaiting fixation of ankle fractures require conversion to delayed external fixation (dEF). We aimed to evaluate the effect of delayed versus planned external fixation (pEF), then identify objective characteristics contributing to need for conversion.

METHOD

We extracted data from our booking system to identify all ankle external fixation procedures between 2010 to 2022. Exclusions included open fractures, the skeletally immature, and pilon or talus fractures. Fractures were classified using the AO/OTA classification, then a matched cohort was identified based on fracture classification. We compared the planned, delayed and matched cohorts for demographics, posterior malleolar fragment (PMF) ratio, and degree of displacement at presentation.

RESULTS

We identified 25 pEF, 42 dEF, and 67 matched patients. Ankles with dEF had a 3.8 day longer time to ORIF from presentation than those who had pEF, and had an infection rate of 9.5%, compared to 4% in the pEF group.

Two patients in the dEF group required further operative intervention. There were no infections or reoperations required in the pEF or matched groups. The dEF group were more likely to have ≥2 reductions (OR 4.13), a PMF ratio of >0.23 (OR 5.07), and have increased displacement at time of injury on lateral (32% vs 19%) and AP (62% vs 36%) radiographs.

DISCUSSION

Our retrospective study highlights the longer time to operation and increased infection rates of patients who do not get timely external fixation. We propose a series of objective parameters that predict failure of cast treatment and guide the surgeon to consider planned external fixation in some ankle fractures.

Presenter: Shamunyama Mooya

Time of Presentation: Monday 6th Nov | 2.00pm

Authors: Shamunyama Mooya, Mark Berney, May Cleary, Fiachra Rowan

Affiliations: Waikato Hospital and University Hospital Waterford

Title: Surgical Outcomes in Intramedullary Fibular Nail Fixation Compared with Plate Fixation of Distal Fibular Fractures.

INTRODUCTION

The condition of the soft tissues surrounding an ankle fracture influences timing and treatment of injuries. Conventional treatment used an open approach to facilitate anatomical reduction and rigid internal fixation. Intramedullary devices for fibular fractures provide a safe alternative in patients in which the condition of the soft tissue envelope or the patient's co-morbidities may benefit from a less invasive approach. We compared outcomes for patients treated with open reduction internal fixation (ORIF) with those undergoing treatment with fibular nails (FN).

METHODS

13 consecutive patients treated with fibular nails (FN) were compared with 13 age-matched patients that underwent open reduction and internal fixation (ORIF). All patients were followed to union. Study outcomes were time from admission to surgery, length of stay, wound failure, implant failure, revision surgery, OMAS and SF-36.

RESULTS

There was no difference in age or sex distribution between groups. There was no difference in OMAS at 1 year (83 +/- 9 in FN group; 80+/- 21 in ORIF group) and SF-36 (94 +/- 11 and 90 +/- 20). There were 2 implant failures in the ORIF group and none in the FN group. There was one wound failure in the ORIF group and none in the FN group. Patients treated with FN had a shorter time to surgery (1 day +/- 24 hours vs 3 days +/- 24 hours) and shorter length of stay (1 day +/- 24 hours vs 4 days +/- 96 hours).

CONCLUSION

FN is a safe method to treat patients with displaced distal fibular fractures that may have a poor soft tissue envelope and risk factors for wound healing. FN reduces the time to surgery and overall length of stay compared with similar patients treated with conventional ORIF.

Presenter: Sam Arnold

Affiliations: Christchurch Hospital

Time of Presentation: Monday 6th Nov | 1.30pm

Type: Paper

Authors: A. Longoni[1], S. Arnold[1], G. S. Major[1], A. Jiang[2], L.M. Wise[3], G.J. Hooper[1], D. Kieser[1], T.B.F. Woodfield[1], J. Rnjak-Kovacina[2], K.S. Lim[1]

Title: Gelatin and VEGF incorporation in PVA-Tyramine hydrogels as a strategy to enhance vascular infiltration and treat avascular necrosis.

INTRODUCTION

Stimulation of angiogenesis via the delivery of growth factors (GFs) like vascular endothelial growth factor (VEGF) is a promising strategy for the treatment of avascular necrosis (AVN). Tyraminated poly-vinyl-alcohol hydrogels (PVA-Tyr), which have the ability to covalently incorporate GFs, were proposed as a platform for the controlled delivery of therapeutic levels VEGF to the necrotic areas[1]. Nevertheless, PVA hydrophilicity and bioinertness limits its integration with the host tissues. The aim of this study was to investigated the effectiveness of incorporating gelatin, an FDA-approved, non-immunogeneic biomaterial with biological recognition sites, as a strategy to facilitate blood vessels invasion of PVA-Tyr hydrogels and to restore the vascular supply to necrotic tissues.

METHODS

Progressively higher gelatin concentrations (0.01-5wt%) were incorporated in the PVA-Tyr network. Hydrogel physico-chemical properties and endothelial cell attachment were evaluated. Afterwards, the capability of the released VEGF and gelatin to promote vascularization was evaluated via chorioallantoic membrane (CAM) assay.

VEGF-loaded PVA-Tyr hydrogels with or without gelatin (n=7) were implanted in a subcutaneous mouse model for 3 weeks. Vascularization (CD31+ cells) and cell infiltration (H&E) were evaluated. Finally, AVN was induced in 6 weeks old male piglets as previously described [2]. A transphyseal hole (3mm) was drilled and PVA-Tyr hydrogels with 1% gelatin were delivered in the defects. Piglets were euthanized after 4 weeks and microCT analysis was performed.

RESULTS

The incorporation of 1% gelatin significantly enhanced cell attachment without compromising hydrogels physical properties, degradation time, VEGF retention and release. Thus, this gelatin concentration was selected for further analysis. Additionally, the covalent incorporation of VEGF or gelatin to the PVA-Tyr network does not hamper their bioactivity, as both still promoted neo-angiogenesis in a CAM assay. Following subcutaneous implantation, the presence of gelatin did not increase the cellular infiltration in the PVA-Tyr hydrogels. Nevertheless, higher vascular infiltration was observed in the groups where either gelatin or VEGF were included.

Additionally, preliminary microCT results indicated that the delivery of PVA-Tyr hydrogels containing 1% gelatin in an AVN model was effective in preventing the necrosis-associated resorption of the bone.

DISCUSSION & CONCLUSIONS

These results indicated that the presence of either gelatin or VEGF was sufficient to promote vascular infiltration. Additionally, preliminary results suggested the suitability of the developed hydrogels to treat AVN. [1]Atienza-Roca P et al. Biomater Sci. 2020 [2]Zhang P et al. J Orthop Surg Res. 2010.

Presenter: Jonathan Bartlett

Time of Presentation: Monday 6th Nov | 1.38pm

Authors: David Bartle, Joshua Wesley, Jonathan Bartlett

Affiliations: DB - Tauranga Hospital, JW, University of Auckland, JB, Wellington Hospital

Type: Paper

Title: Affordable Virtual Reality Haptic-Feedback Surgical Simulator: a Proof-of-Concept.

INTRODUCTION

Simulation plays an important role in surgical education and the ability to perfect surgical performance. Simulation can be enhanced by adding various layers of realism to the experience. Haptic feedback enhances the simulation experience by providing tactile responses and virtual reality imagery provides an immersive experience and allows for greater appreciation of three-dimensional structures. In this study, we present a proof-of-concept haptic simulator to replicate key steps of a cervical laminoplasty procedure. The technology uses affordable components and is easily modifiable so that it can be used from novice through to expert level. Custom models can be easily added ensuring the simulator can be used in a wide range of orthopaedic applications from baseline education through to day of surgery pre-operative simulation.

METHOD

We used the Unity Game Engine, the 3D Systems "Touch" Haptic Feedback Device (HFD), and a Meta Quest VR headset. Our system uses a number of complex algorithms to track the shape and provide haptic feedback of a virtual bone model. This allows for simulation of various tools including a high-speed burr, Kerrison rongeur and intraoperative X-rays.

RESULTS

Our simulator replicates the tactile sensations of bone-burring tasks. Although we focused on the cervical laminoplasty procedure, the system can load data from CT scans, enabling the simulation of multiple other procedures. The parts cost of our system, $10,000 NZD, is a fraction of the cost of traditional surgical simulators.
DISCUSSION: Our simulator reduces financial barriers to accessing orthopaedic simulators. Trainees can perform hands-on practice without compromising patient safety. The immersive nature of VR, combined with realistic haptic feedback, enables trainees to develop the dexterity and three-dimensional understanding of detailed bony work. Further refinements are needed before we can perform validation studies on our system.

CONCLUSIONS

We present an affordable surgical simulator capable of simulating bony surgical procedures in a VR environment using haptic feedback technology and consumer-grade components.

ACKNOWLEDGEMENTS

This research was made possible by the generosity of the Wishbone Trust.

Presenter: Holly Morris

Time of Presentation: Monday 6th Nov | 1.46pm

Authors: Holly Morris[1] Siddharth Shah[2],[3] Richard Murray[4]

Affiliations: [1]Pulvertaft Hand Centre, UK[2] Sheffield Teaching Hospitals, UK[3] Doncaster Royal Infirmary, DN[2] 5LT, UK[4] Textile Institute, UK

Type: Paper

Title: Surgical Waste and a Circular Medical Textile Economy.

INTRODUCTION

The health sector contributes the equivalent of 4.4% of global net emissions to the climate carbon footprint. It has been suggested that between 20% and 70% of health care waste originates from a hospital's operating room, the second greatest component of this are the textiles used, and up to 90% of waste is sent for costly and unneeded hazardous waste processing.

Waste from common orthopaedic operations was quantified, the carbon footprint calculated, and cost of disposal assessed. A discussion of the circular economy of textiles, from the author of the textile guidance to the Green Surgery Report follows.

METHODS

The amount of waste generated from a variety of trauma and elective orthopaedic operations was calculated across a range of hospital sites. The waste was separated primarily into clean and contaminated, paper or plastic. The carbon footprint and the cost of disposal across the hospital sites was subsequently calculated.

RESULTS

Elective procedures can generate up to 16.5kg of plastic waste per procedure. Practices such as double draping the patient contribute to increasing the quantity of waste. The cost to process waste vary widely between hospital sites, waste disposal contractors and the method of waste disposal.

CONCLUSION

This study sheds new light on the environmental impact of waste produced in trauma and elective orthopaedic procedures. Mitigating the environmental impact of the operating room requires a collective drive for a culture change to sustainability and social responsibility. Each clinician can impact upon the carbon footprint of their operating theatre.

Consideration should be given to the type of textiles used within the operating theatre.

Presenter: Reece Joseph

Time of Presentation: Monday 6th Nov | 1:54pm

Authors: Reece Joseph[1], Karen Callon[1], Jian-ming Lin[1], Brya Matthews[2], Stuart Irwin[1], Dustin Williams[3,4,5,6], Nicholas Ashton[3], Haemish Crawford[1], Jingyuan Wen[7], Simon Swift[2], Jillian Cornish[1]

Affiliations: [1]Department of Medicine, University of Auckland, Auckland, NZ [2]Department of Molecular Medicine and Pathology, University of Auckland, Auckland, NZ [3] Department of Orthopaedics, University of Utah, Salt Lake City, UT, USA [4] Department of Biomedical Engineering, University of Utah, Salt Lake City, UT, USA [5] Department of Pathology, University of Utah, Salt Lake City, UT, USA [6] Department of Physical Medicine and Rehabilitation, Uniformed Services University of the Health Sciences, Bethesda, MD, USA [7] School of Pharmacy, University of Auckland, Auckland, NZ

Type: Paper

Title: Lactoferrin as an adjuvant antimicrobial in battlefield-relevant open fractures.

INTRODUCTION

Major trauma during military conflicts involve heavily contaminated open fractures. Staphylococcus aureus (S. aureus) commonly causes infection within a protective biofilm. Lactoferrin (Lf), a natural milk glycoprotein, chelates iron and releases bacteria from biofilms, complimenting antibiotics. This research developed a periprosthetic biofilm infection model in rodents to test an Lf based lavage/ sustained local release formulation embedded in Stimulin beads.

METHOD

Surgery was performed on adult rats and received systemic Flucloxacillin (Flu). The craniomedial tibia was exposed, drilled, then inoculated with S. aureus biofilm. A metal pin was placed within the medullary cavity and treatments conducted. Lf in lavage solutions: The defect was subject to 2x 50 mL lavage with 4 treatment groups (saline only, Lf only, Bactisure with Lf, Bactisure with saline). Lf embedded in Stimulin beads: 4 bead types were introduced (Stimulin only, Lf only, Flu only, Lf with Flu). At day 7, rats are processed for bioluminescent and X-ray imaging, and tibial explants/pins collected for bacterial enumeration (CFU).

RESULTS

Rats without treatments established a mean infection of 2x106 CFU/tibia. 4 treatment groups with a day 0, one-off lavage demonstrated >95% reduction in bacterial load 7 days post-op, with a reduction in CFU from 1x106/tibia down to 1x104/tibia. There was no statistically significant difference between each group ($p = 0.55$ with one way ANOVA). The stimulin bead experiments are ongoing and complete results will be obtained in the end of July.

CONCLUSIONS

This research demonstrated a clinically relevant animal model of implanted metalware that establishes infection. No additional benefit was observed with a one-off, adjuvant Lf lavage during the initial decontamination of the surgical wound, compared with saline alone, and in combination with the antiseptic Bactisure. This animal model provides the foundation for future antibiofilm therapies.

Presenter: Simon Hadlow

Time of Presentation: Monday 6th Nov | 2.02pm

Authors: Jack Earp MBChB, Simon Hadlow FRACS, Cameron Walker PhD

Affiliations: Jack Earp, Simon Hadlow: Taranaki Base Hospital; Cameron Walker: Auckland University School of Engineering

Type: Paper

Title: Preparation Times for Elective Orthopaedic Surgery.

INTRODUCTION

This study aimed to assess the relationship between preparation times and operative procedures for elective orthopaedic surgery. A clearer understanding of these relationships may facilitate list organisation and thereby contribute to improved operating theatre efficiency

METHODS

Two years of elective orthopaedic theatre data was retrospectively analysed. The hospital medical information unit provided de- identified data for 2015 and 2016 elective orthopaedic cases, from which were selected seven categories of procedures with sufficient numbers to allow further analysis - primary hip and knee replacement, spinal surgery, shoulder surgery (excluding shoulder replacement), knee surgery, foot and ankle surgery (excluding ankle replacement), Dupuytrens surgery and general orthopaedic surgery. The data analysed included patient age, ASA grade, operation, operation time, and preparation time (calculated as the time from the start of the anaesthetic proceedings to the patient's admission to Recovery, with the operating time [skin incision to skin closure] subtracted). Statistical analysis of the data was undertaken.

RESULTS

A total of 1596 procedures performed over the two year period were analysed. Preparation times for the different procedures were assessed, along with the relationship to the procedure complexity. Neither age nor ASA correlated strongly with preparation times. Spine procedures had greater preparation times than hip and knee arthroplasty. Greater uniformity in preparation times for hip and knee arthroplasty was seen across the anaesthetic group than operative times across the surgeon group.

DISCUSSION

Preparation times are just one aspect that may be evaluated with regard to theatre utilisation. This study did not address the theatre turn-over time between cases, which includes transfer of the patient from the admitting/pre-operative area into the theatre.

CONCLUSION

Preparation times for elective procedures follow a pattern which may be used to inform list planning, with the potential for greater theatre efficiencies with regard to list utilisation and staff allocation.

Presenter: Katarina Sim

Affiliations: North Shore Hospital, Auckland

Time of Presentation: Monday 6th Nov | 2.10pm

Type: Paper

Authors: Dr Katarina Sim, Dr Mark Zhu, Mr Simon Young

Title: The epidemiology and economic impact of Accident Compensation Corporation (ACC)-funded primary total knee and total hip arthroplasty in Aotearoa.

INTRODUCTION

Individuals with significant hip and knee trauma receive total knee (TKA) and total hip arthroplasty (THA) as definitive end-stage procedures. In Aotearoa, injury-related costs, including workers compensation, may be funded by ACC. With a steady increase of arthroplasty procedures in Aotearoa, we aim to understand the magnitude and characteristics of such procedures to inform future healthcare strategies.

METHOD

This is a longitudinal collaborative study from 1st January 2000 to 31st December 2020, using ACC and New Zealand Joint Registry databases. Total cost was subcategorised into social and medical cost for analysis.

RESULTS

ACC funded 10179 TKA and 5611 THA, amounting to 918 million New Zealand Dollars. Most clients were between 55 and 65 years of age at time of surgery, with greater representation by Male sex and European prioritised ethnicity. Māori and Pacific peoples represent less than 10% of the study population. ACC identified requiring more than 182 days of workers' compensation as a significant marker for needing additional supports. Risk of this was 21% for TKA and 11% for THA, with risk factors being younger age (RR 0.96), Male sex (TKA RR 1.12, THA RR 1.23), and heavy work-types (TKA RR 1.50, THA RR 1.57).

DISCUSSION

Supporting individuals with post-traumatic lower limb arthroplasty is costly. Workers' compensation contributes to a significant proportion of social expenditure. Risk factors for increased cost utilisation can be used to highlight vulnerable clients and target interventions.

CONCLUSIONS

This is one of few nationwide studies investigating the healthcare cost of post-traumatic lower limb arthroplasty. We need to focus on injury prevention, targeted treatment, and rehabilitation protocols to improve recovery and reduce time off work. These findings would be of interest to multiple stakeholders.

Presenter: Charlotte Tuimana

Affiliations: Tauranga Hospital

Time of Presentation: Monday 6th Nov | 2:18pm

Type: Paper

Authors: Charlotte Tuimana, Atua Asafo, Sarah Hunter, Georgina Chan

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Title: Experiences of Pacific Patients Seeking Arthroplasty in New Zealand.

Pacific people in New Zealand experience significant disparity in health outcomes. There is little known about the burden of arthritis within this community or difficulties accessing specialist orthopaedic care. This qualitative study evaluated the experiences of Pacific patients who underwent hip or knee arthroplasty with a goal to identify barriers to accessing arthroplasty for this community.

We interviewed Pacific patients within the Bay of Plenty region who had received either elective hip or knee arthroplasty between 2013 and 2022. Interviews were centred on perceptions of arthritis severity, duration of symptoms, primary care and specialist interactions. Patients were encouraged to offer feedback on ways to improve this experience.

We identified 6087 publicly funded primary joints performed in Tauranga hospital and 58 patients were of Pacific ethnicity. After exclusion criteria was applied, we successfully interviewed 20 patients eligible for our study. Pacific patients represented 2.9% of the of the BOP catchment but only received 0.43% of the publicly funded joints. Most reported reluctance to seek help from primary care until symptoms were present for at least a year. Most commonly cited reasons for not seeking help were fear of hospital services and lack of awareness in the community about osteoarthritis.

We identified a lack of community awareness of osteoarthritis and arthroplasty among Pacific. This may result in delayed presentation to primary care and decreased utilisation of publicly funded joint surgery. It is reassuring that most patients of Pacific ethnicity who receive primary hip or knee arthroplasty report a positive experience. Public health initiatives together with positive feedback from Pacific patients who have undergone surgery will help to increase awareness of arthroplasty as an option to restore function and relieve pain.

Presenter: Erynne Scherf

Time of Presentation: Tuesday 7th Nov | 11.00am

Authors: Erynne Scherf, Jinny Willis, Chris Frampton and Gary Hooper

Affiliations: Te Whatu Ora - Waitaha Canterbury

Type: Paper

Title: Total Knee Arthroplasty Revision Rates in Mobile vs. Fixed Bearing Implants: A New Zealand Joint Registry Study.

INTRODUCTION

The mobile-bearing (MB) total knee arthroplasty (TKA) design was introduced with the aim of reducing polyethylene wear and component loosening seen in the fixed-bearing (FB) design. A recent joint registry study has revealed increased risk for all-cause revision, but not revision for infection, in MB-TKA. We used the New Zealand Joint Registry (NZJR) to compare all-cause revision rates, and revision rates for aseptic loosening of MB-TKA compared with fixed bearing (FB) TKA.

METHODS

All patients who underwent a primary TKA registered in the NZJR between the 1st January 1999 to 31st December 2021 were identified. Analysis compared MB to FB designs, with sub analysis of implants from a single company. We identified 135,707 primary TKAs, with 104,074 (76.7%) FB-TKAs and 31,633 (23.3%) MB-TKAs recorded. We examined all-cause revision rates, reasons for revision and performed survival analyses.

RESULTS

For all-comers, MB-TKA had an all-cause revision rate of 0.43/100-component-years (OCY) compared with 0.42/OCY for FB-TKA (p=0.09). The all-cause revision rate was higher for those age < 65 years (MB TKA 0.60/OCY vs. FB-TKA 0.59/OCY) compared to those > 65 years at time of primary TKA (MB-TKA 0.29/OCY vs. FB-TKA 0.32/OCY), however there was no statistically significant difference between implant design in either age group (p=0.16 and p=0.64; respectively). Similarly, there was no difference in revision rates for aseptic loosening between implant designs. Kaplan-Meier survival analysis demonstrates no statistically significant difference in revision-free survival of implants, with both MB-TKA and FB-TKA demonstrating ~93% revision free survival at 23 years.

CONCLUSIONS

Both FB- and MB-TKA demonstrated excellent survivorship, with no significant difference in all-cause revision rates or revision for aseptic loosening between implant designs.

Presenter: William Chen

Time of Presentation: Tuesday
7th Nov | 11.05am

Authors: William Chen, Mei Lin Tay, Scott Bolam, Kenrick Rosser, A. Paul Monk, Simon W Young

Affiliations: North Shore Hospital

Type: Paper

Title: Accuracy of Registry-Reported Reasons for Unicompartmental Knee Arthroplasty Revision.

INTRODUCTION

A key outcome measured by national joint registries are revision events. This informs best practice and identifies poor-performing surgical devices. Although registry data often record reasons for revision arthroplasty, interpretation is limited by lack of standardised definitions of revision reasons and objective assessment of radiologic and laboratory parameters. Our study aim was to compare reasons for unicompartmental knee arthroplasty (UKA) revision reported to the New Zealand Joint Registry (NZJR) with reasons identified by independent clinical review.

METHODS

A total of 2,272 patients undergoing primary medial and lateral UKA at four large tertiary hospitals between 2000 and 2017 were included. A total of 158 patients underwent subsequent revision with mean follow-up of 8 years. A systematic review of clinical findings, radiographs and operative data was performed to identify revision cases and to determine the reasons for revision using a standardised protocol. These were compared to reasons reported to the NZJR using Chi-squared and Fisher exact tests.

RESULTS

Osteoarthritis progression was the most common reason for revision on systematic clinical review (30%), however this was underreported to the registry (4%, $p<0.001$). A larger proportion of revisions reported to the registry were for 'unexplained pain' (30% of cases vs. 4% on clinical review, $p<0.001$). A reason for revision was not reported to the registry for 24 (15%) of cases.

DISCUSSION AND CONCLUSION

We found significant inaccuracies in registry-reported reasons for revision following UKA. These included over-reporting of 'unexplained pain', under-reporting of osteoarthritis progression, and failure to identify a reason for revision. Efforts to improve registry capture of revision reasons for UKA should focus on increasing accuracy in these three areas. This could be addressed through standardised recording methods and tailored revision reason options for UKA for surgeons to select when recording the reasons.

Presenter: Doug Hancock

Time of Presentation: Tuesday 7th Nov | 11.15am

Authors: Doug Hancock, Jess Leary, Ritwik Kejriwal

Affiliations: Nelson Hospital, Taranaki Base Hospital

Type: Paper

Title: Outcomes of Revision Total Knee Arthroplasty after Unicompartmental Knee Arthroplasty and Periarticular Osteotomy.

INTRODUCTION

This study assessed outcomes of total knee joint replacements (TKJR) in patients who had undergone previous periarticular

osteotomy compared with unicompartmental knee replacement (UKR). Establishing a difference in the results of total knee joint replacements following these operations may be an important consideration in the decision-making and patient counseling around osteotomy versus UKR for the management of single-compartment osteoarthritis.

METHOD

Using data from the New Zealand Joint Registry, we identified 1,895 total knee joint replacements with prior osteotomy and 1,391 with prior UKR. Revision rates and patient-reported outcomes, as measured by the Oxford Knee Score (OKS), between these two groups were compared. Adjusted hazard ratios were also calculated to compare the groups.

RESULTS

The revision rate for total knee joint replacement following osteotomy was significantly lower than TKJR following UKR (0.88 per 100 component years versus 1.38 per 100 component years, respectively).

Adjusted hazard ratio calculations found that those with TKJR with prior UKR had more than double the risk of requiring revision than those with prior osteotomy. Additionally, there was a statistically significant difference in the mean adjusted OKS scores between the two groups, with improved outcomes in the group with prior osteotomy.

CONCLUSION

Our findings suggest that total knee joint replacement following periarticular osteotomy have a lower risk of revision and improved OKS when compared to those with prior UKR. Previous studies assessing New Zealand Joint Registry have not found a statistically significant difference between the two groups however, these results are no longer in keeping with more contemporary literature. Our study confirms the New Zealand population to be comparable with international studies with TKJR after osteotomy performing significantly better compared with prior UKR.

Presenter: Joshua Knudsen

Time of Presentation: Tuesday 7th Nov | 11:25am

Authors: Tom Hoffman, Joshua Knudsen, Satyen Jesani, Helen Clark

Affiliations: Waikato Hospital

Type: Paper

Title: Can we predict DAIR failure in PJI? External validation of the KLIC and Crime80 scores.

INTRODUCTION

Debridement, antibiotics irrigation and implant retention (DAIR) is a common management strategy for hip and knee prosthetic joint infections (PJI). However, failure rates remain high, which has led to the development of predictive tools to help determine success. These tools include KLIC and CRIME80 for acute-postoperative (AP) and acute haematogenous (AH) PJI respectively. We investigated whether these tools were applicable to a Waikato cohort.

METHOD

We performed a retrospective cohort study that evaluated patients who underwent DAIR between January 2010 and June 2020 at Waikato Hospital. Pre-operative KLIC and CRIME80 scores were calculated and compared to success of operation. Failure was defined as: (i) need for further surgery, (ii) need for suppressive antibiotics, (iii) death due to the infection. Logistic regression models were used to calculate the area under the curve (AUC).

RESULTS

117 eligible patients underwent DAIR, 53 in the AP cohort and 64 in the AH cohort. Failure rate at 2 years post-op was 43% in the AP cohort and 59% in the AH cohort. In the AP cohort a KLIC score of <4 had a DAIR failure rate of 28.6%, while those who scored ³4 had a failure rate of 72.2% (p=0.002). In the AH cohort a CRIME80 score of <3 had a DAIR failure rate of 48% while those who scored ³3 had a 100% failure rate (p<0.001).

DISCUSSION

This study represents the first external validation of the KLIC and CRIME80 scores for predicting DAIR failure in an Australasian population. The results indicate that both KLIC and CRIME80 scoring tools are valuable aids for the clinician seeking to determine the optimal management strategy in patients with AP or AH PJI.

Presenter: Mark Clatworthy

Time of Presentation: Tuesday 7th Nov | 11:35am

Authors: Mark Clatworthy

Affiliations: Ascot Hospital

Type: Paper

Title: Patient Specific TKA Two Year Outcome Study - Velys vs Brainlab.

Velys Robotic Assisted Solution (VRAS) vs Brainlab 3 TKA -Two outcome data study.

INTRODUCTION

The first VRAS TKA was performed in New Zealand in November 2020 using a Patient Specific Balanced Technique whereby VRAS enables very accurate collection of the bony anatomy and soft tissue envelope of the knee to plan and execute the optimal positioning for a balanced TKA.

METHOD

The first 45 VRAS patients with idiopathic osteoarthritis of the knee was compared with 45 sequential patients who underwent the same TKA surgical technique using Brainlab 3 which the author has used exclusively in over 1500 patients. One and two year outcome data will be presented.

RESULTS

One year outcome dataVely Brainlab Significance Oxford 43.4 40.5 P=0.01 WOMAC 8.4 14.1P=0.02 Forgotten Joint Score 72.2 58.3 P=0.01 KOOS ADL91.3 85.8 P=0.04 Normal 83.3 74.2P =0.048 Activity Pain 8.6 18.4 P=0.009 ROM 127 124 P=0.01 Patient Satisfaction 98% 95% P=0.62 Operation again 100% 91% P=0.055. The two year data will be available for the ASM

CONCLUSION

The one year outcome data shows a significantly better Oxford , WOMAC, Forgotten Joint score, KOOS ADL, Normal score and ROM scores and the activity pain is less compared to the authors extensive experience with Brainlab 3.

Presenter: Faseeh Zaidi

Time of Presentation: Tuesday 7th Nov | 11:40am

Authors: F. Zaidi, S.M. Bolam, C.M. Goplen, T. Yeung, M. Lovatt, M. Hanlon, J. Munro, T.F. Besier, A.P. Monk

Affiliations: Department of Orthopaedics, Auckland City Hospital, Auckland, NZ

Type: Paper

Title: Robotic-Assisted Total Knee Arthroplasty is Associated with Earlier Return of Symmetrical Limb Function Compared to Conventional Total Knee Arthroplasty.

INTRODUCTION

Robotic-assisted total knee arthroplasty (TKA) has demonstrated significant benefits, including improved accuracy of component positioning compared to conventional jig-based TKA. However, previous studies have often failed to associate these findings with clinically significant improvements in patient-reported outcome measures (PROMs). Inertial measurement units (IMUs) provide a more nuanced assessment of a patient's functional recovery after TKA. This study aims to compare outcomes of patients undergoing robotic-assisted and conventional TKA in the early postoperative period using conventional PROMS and wearable sensors.

METHOD

100 patients with symptomatic end-stage knee osteoarthritis undergoing primary TKA were included in this study (44 robotic-assisted TKA and 56 conventional TKA). Functional outcomes were assessed using ankle-worn IMUs and PROMs. IMU- based outcomes included impact load, impact asymmetry, maximum knee flexion angle, and bone stimulus. PROMs, including Oxford Knee Score (OKS), EuroQol-Five Dimension (EQ-5D-5L), EuroQol Visual Analogue Scale (EQ-VAS), and Forgotten Joint Score (FJS-12) were evaluated at preoperative baseline, weeks 2 to 6 postoperatively, and at 3-month postoperative follow-up.

RESULTS

By postoperative week 6, when compared to conventional TKA, robotic-assisted TKA was associated with significant improvements in maximum knee flexion angle (118o ± 6.6 vs. 113o ± 5.4; p=0.04), symmetrical loading of limbs (82.3% vs.22.4%; p<0.01), cumulative impact load (146.6% vs 37%; p<0.01), and bone stimulus (25.1% vs 13.6%; p<0.01). Whilst there were no significant differences in PROMs (OKS, EQ-5D-5L, EQ-VAS, and FJS-12) at any time point between the two groups, when comparing OKS subscales, significantly more robotic-assisted TKA patients achieved an 'excellent' outcome at 6 weeks compared to conventional (47% vs 41%, p= 0.013).

CONCLUSIONS

IMU-based metrics detected an earlier return to function among patients that underwent robotic-assisted TKA compared to conventional TKA that PROMs were unable to detect within the first six weeks of surgery.

Presenter: Faseeh Zaidi

Time of Presentation: Tuesday
7th Nov | 11:45am

Authors: F. Zaidi, C.M. Goplen, C. Fitz-Gerald, S.M. Bolam, M. Hanlon, J. Munro, A.P. Monk

Affiliations: Department of Orthopaedics, Auckland City Hospital, Auckland, NZ

Type: Paper

Title: In-Vivo Accuracy of a New Robotically-Assisted System for Total Knee Arthroplasty: A Prospective Cohort Study.

INTRODUCTION

Recent technological advancements have led to the introduction of robotic-assisted total knee arthroplasty to improve the accuracy and precision of bony resections and implant position. However, the in vivo accuracy is not widely reported. The primary objective of this study is to determine the accuracy and precision of a cut block positioning robotic arm.

METHOD

Seventy-seven patients underwent total knee arthroplasty with various workflows and alignment targets by three arthroplasty-trained surgeons with previous experience using the ROSA® Knee System. Accuracy and precision were determined by measuring the difference between various workflow time points, including the final pre-operative plan, validated resection angle, and post-operative radiographs. The mean difference between the measurements determined accuracy, and the standard deviation represented precision.

RESULTS

The accuracy and precision for all angles comparing the final planned resection and validated resection angles was 0.90° ± 0.76°. The proportion within 3° ranged from 97.9% to 100%. The accuracy and precision for all angles comparing the final intra- operative plan and post-operative radiographs was 1.95 ± 1.48°. The proportion of patients within 3° was 93.2%, 95.3%, 96.6%, and 71.4% for the distal femur, proximal tibia, femoral flexion, and tibial slope angles when the final intra-operative plan was compared to post-operative radiographs. No patients had a postoperative complication requiring revision at the final follow-up.

CONCLUSIONS

This study demonstrates that the ROSA Knee System has accurate and precise coronal plane resections with few outliers. However, the tibial slope demonstrated decreased accuracy and precision were measured on post-operative short-leg lateral radiographs with this platform.

Presenter: Katarina Sim

Time of Presentation: Tuesday 7th Nov | 12.00pm

Authors: Katarina Sim, Mr Dean Schluter, Mr Rob Sharp

Affiliations: North Shore Hospital

Type: Paper

Title: Outcomes of Trabecular Metal in Revision Acetabular Reconstruction in Auckland.

INTRODUCTION

Acetabular component loosening with associated bone loss is a challenge in revision hip arthroplasty. Trabecular Metal (TM) by Zimmer Biomet has been shown to have greater implant survivorship for all-cause acetabular revision in small cohort retrospective studies. Our study aims to review outcomes of acetabular TM implants locally.

METHOD

This is a retrospective observational study using data from Auckland City and North Shore Hospitals from 1st of January 2010 to 31st of December 2020. Primary outcome is implant survivorship (re-revision acetabular surgery for any cause) demonstrated using Kaplan-Meier analysis. Secondary outcome is indication for index revision and re-revision surgery. Multivariate analysis used to identify statistically significant factors for re-revision surgery.

RESULTS

225 cases used acetabular TM implants (shells and/or augments) over 10 years. Indications include aseptic loosening (63%), instability (15%) and infection (13%). Of these, 12% (n=28) had further re-revision for infection (54%) and instability (21%). Median time to re-revision was 156 days (range 11 – 2022). No cases of re-revision were due to failure of bony ingrowth or acetabular component loosening. Ethnicity, smoking status, and age were not risk factors for re-revision procedures. Additionally, previous prosthetic joint infection, ethnicity, sex and age were not significant risk factors for re-revision due to infection. Implant survivorship was 80% at 1 year, 71% at 5 years and 64% at 10 years.

DISCUSSION

Main indications for re-revision were infection and instability. Demographic factors and co-morbidities did not correlate with increased re-revision risk. Survivorship is poorer compared to cumulative survivorship reported by the New Zealand Joint Registry (NZJR). Explanations are multifactorial and possibly contributed by underestimation of true revision rates by registry data.

CONCLUSIONS

We need to identify alternate causes for poorer survivorship and review the role of TM implants in acetabular revision within our specified population.

Presenter: David Owen

Time of Presentation: Tuesday 7th Nov | 12.10pm

Authors: David Owen

Affiliations: Australia – Trans Tasman Fellow

Type: Paper

Title: The influence of bearing surface on periprosthetic joint infection in total hip arthroplasty.

BACKGROUND

Increasing evidence suggests a link between the bearing surface used in total hip arthroplasty (THA) and the occurrence of infection. It is postulated that polyethylene has immunomodulatory effects and may influence bacterial function and survival, thereby impacting the development of periprosthetic joint infection (PJI). This study aimed to investigate the association between polyethylene type and revision surgery for PJI in THA using data from the Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR). We hypothesized that the use of XLPE would demonstrate a statistically significant reduction in revision rates due to PJI compared to N-XLPE.

METHODS

Data from the Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR) spanning September 1, 1999, to December 31, 2021, were used to compare the infection revision rates between THA using N-XLPE and XLPE. We calculated the Cumulative Percentage Revision rate (CPR) and Hazard Ratio (HR) while controlling for factors like age, sex, body mass index (BMI), American Society of Anesthesiologists' (ASA) grade, and head size.

RESULTS

From the total 361,083 primary THAs, 26,827 used N-XLPE and 334,256 used XLPE. Excluding data from the first 6 months post-surgery, 220 revisions occurred in the N-XLPE group and 1,055 in the XLPE group for PJI. The HR for infection revision was significantly higher in N-XLPE compared to XLPE, at 1.64 (95% CI, 1.41-1.90, $p<0.001$).

CONCLUSIONS

This analysis provides evidence of an association between N-XLPE and revision for infection in THA. We suspect that polyethylene wear particles contribute to the susceptibility of THA to PJI, resulting in a significantly higher risk of revision for infection in N-XLPE hips compared to those with XLPE.

Level of Evidence: Therapeutic Level III.

Presenter: Rushi Penumarthy

Time of Presentation: Tuesday 7th Nov | 12:20pm

Authors: Rushi Penumarthy. Angus Jennings.

Affiliations: Nelson Hospital. Middlemore Hospital.

Type: Paper

Influence of Obesity on functional outcomes and revision rates following revision Total Knee Arthroplasty.

BACKGROUND

Obesity has been linked with increased rates of knee osteoarthritis. Limited information is available on the survival and functional outcome results of rTKR in the obese patients. This registry-based study aimed to identify whether BMI is an independent risk factor for poorer functional outcomes and /or implant survival in rTKA.

METHODS

New Zealand Joint Registry (NZJR) data of patients who underwent rTKA from 1st January 2010 to January 2023 was performed. Demographics, American Society of Anesthesiologists (ASA), BMI, Operative time, indications for revision and components revised of the patients undergoing rTKA was collected. Oxford knee score (OKS) at 6 months and rates of second revision (re- revision) were stratified based on standardised BMI categories.

RESULTS

Of the 2687 revisions, functional outcome scores were available for 1261 patients. Oxford knee scores following rTKA are significantly inferior in higher BMI patients (36.5 vs 31.5 p<0.001). This held true when adjusted for age (35.7 vs 30.9 p<0.001).

Tibial component loosening was a more common indication for revision in patients with BMI >40 (31.1% vs 21% for BMI <25), whereas periprosthetic femoral fracture was significantly more commonly seen in patients with BMI <25.

Re-revision rates displayed no significant differences between any pairs of BMI groups (2.18/100 component years) and adjusting for age and sex did not alter this (p= 0.462). Indications for re-revision were also not different between BMI categories.

Over 50% of the rTKA patients were obese. Significantly more obese patients were ASA grade 3 ,4 and more were <75 years. Operative time was longer in the obese patients (p<0.001).

CONCLUSIONS

Although overall re-revision rates are similar between all BMI categories, the functional outcomes favour those with lower BMI. Patients with higher BMI are younger, more comorbid and carry potentially higher perioperative risks. The registry data provides valuable information when providing counsel to patients undergoing rTKA and lends further support to optimising patients prior to pTKA.

NOTES:

Presenter: Denny Lie

Time of Presentation: Tuesday 7th Nov | 11.10am

Authors: Denny Lie

Affiliations: Singapore

Type: Paper

ASEAN Singaporean Travelling Fellow

Title: Shoulder Instability in South-East Asia: are we that different? Algorithm and Treatment Strategies in dealing with Minor and Major Bone Loss.

Concepts in glenoid tracking and treatment strategies of glenoid bone loss are well established. Initial observations in our practice in Singapore showed few patients with major bone loss requiring glenoid reconstructions.
This led us to investigate the incidence of and the extent of bone loss in our patients with shoulder instability. Our study revealed bony Bankart lesions were seen in 46% of our patients but glenoid bone loss measured only 6-10% of the glenoid surface (J Orthopaedics 24, 2021).
In the same study we found that arthroscopic labral repair with capsular plication and Mason-Ellen suturing (Hybrid technique) was sufficient to stabilise patients with bipolar bone defects and minor glenoid bone loss. This led us to develop the concept of minor bone loss and a new algorithm (J ISAKOS Apr 2020).

Our algorithm and strategies to deal with major bone loss will also be discussed, and techniques & outcomes of Arthroscopic Bony Bankart repair, Arthroscopic Glenoid Reconstruction and Arthroscopic Remplissage procedures will be shown.

Presenter: Rushi Penumarthy

Time of Presentation: Tuesday 7th Nov | 11.20am

Authors: Rushi Penumarthy. Perry Turner

Affiliations: Nelson Hospital.

Type: Paper

Title: Clavicular osteotomy for surgical exposure of the shoulder joint Functional outcomes, complications and surgical technique. A regional NZ experience..

AIM

Clavicular osteotomy was described as an adjunct to deltopectoral approach for improved exposure of the glenohumeral joint. This study aims to present contemporary outcomes and complications associated with the routine use of clavicular osteotomy by a single surgeon in a regional setting within New Zealand.

METHODS

A retrospective case series of patients who have undergone any shoulder arthroplasty for any indication between March 2017 to August 2022. This time period includes all patients who had clavicular osteotomy(OS) and patients over an equal time period prior to the routine use of osteotomy as a reference group (N-OS).

Oxford Shoulder Score (OSS) and a Simple Shoulder Test (STT) were used to assess functional outcomes and were compared with the reported literature. Operative times and Complications were reviewed.

RESULTS

66 patients were included in the study. 33 patients in the OS group and 33 in the N-OS group. No difference in age, sex, indications for operative intervention and the surgery provided was identified. No significant difference in operative time between groups (N-OS 121 minutes; OS 128 minutes).

No clinically significant difference was identified in the OSS (N-OS; mean 38 vs OS 39) or the STT (N-OS 8.3 vs OS 9). The outcomes scores of both groups are in keeping with published literature.

Two post operative clavicle fractures, one prominent surgical knot occurred in the OS that required further surgical intervention. Two cases of localized pain over the clavicle and one case of the prominent lateral clavicle were reported in the OS group. Two cases of localized pain over clavicle reported in the N-OS group.

CONCLUSION

Use of clavicular osteotomy is not associated with inferior patient reported. The osteotomy introduces specific risks, however, the study provides evidence that these complications are infrequent and avoidable. Surgeons should feel confident in using this adjunct when exposure to the shoulder is difficult.

Presenter: Scott Bolam

Time of Presentation: Tuesday 7th Nov | 11.30am

Authors: S.M. Bolam, Z. Wells, M.L. Tay, C.M.A Frampton, B. Coleman, A. Dalgleish

Affiliations: University Hospitals of Derby and Burton

Type: Paper

Title: Does Reverse Total Shoulder Arthroplasty for Acute Proximal Humeral Fracture Lead to Worse Outcomes Compared To Elective Indications? Results From the New Zealand Joint Registry.

INTRODUCTION

The purpose of this study was to compare implant survivorship and functional outcomes in patients undergoing reverse total shoulder arthroplasty (RTSA) for acute proximal humeral fracture (PHF) with those undergoing elective RTSA in a population-based cohort study.

METHODS

Prospectively collected data from the New Zealand Joint Registry from 1999 to 2021 and identified 7,277 patients who underwent RTSA. Patients were categorized by pre-operative indication, including acute PHF (10.1%), rotator cuff arthropathy (RCA) (41.9%), osteoarthritis (OA) (32.2%), rheumatoid arthritis (RA) (5.2%) and old traumatic sequelae (4.9%). The PHF group was compared with elective indications based on patient, implant, and operative characteristics, as well as post-operative outcomes (Oxford Shoulder Score [OSS], and revision rate) at 6 months, 5 and 10 years after surgery. Survival and functional outcome analyses were adjusted by age, sex, ASA class and surgeon experience.

RESULTS

Implant survivorship at 10 years for RTSA for PHF was 97.3%, compared to 96.1%, 93.7%, 92.8% and 91.3% for OA, RCA, RA and traumatic sequelae, respectively. When compared with RTSA for PHF, the adjusted risk of revision was higher for traumatic sequelae (hazard ratio = 2.29; 95% CI:1.12-4.68, p=0.02) but not for other elective indications. At 6 months post-surgery, OSS were significantly lower for the PHF group compared to RCA, OA and RA groups (31.1±0.5 vs. 35.6±0.22, 37.7±0.25, 36.5±0.6, respectively, p<0.01), but not traumatic sequelae (31.7±0.7, p=0.43). At 5 years, OSS were only significantly lower for PHF compared to OA (37.4±0.9 vs 41.0±0.5, p<0.01), and at 10 years, there were no differences between groups.

DISCUSSION AND CONCLUSION

RTSA for PHF demonstrated reliable long-term survivorship and functional outcomes compared to other elective indications. Despite lower functional outcomes in the early post-operative period for the acute PHF group, implant survivorship rates were similar to patients undergoing elective RTSA.

Presenter: Manohar Arumugam

Time of Presentation: Tuesday 7th Nov | 11.40am

Authors: Manohar Arumugam

Affiliations: Malaysia

Type: Paper

ASEAN Malaysian Travelling Fellow

Pitfalls in The Diagnosis Of Tuberculosis Of The Wrist Joint

INTRODUCTION

Tuberculosis (TB) is a public health challenge. However, musculoskeletal involvement represents 10–15% of all extrapulmonary cases. Upper extremity involvement is extremely rare.

The slow progressive course of clinical symptoms and lack of radiological signs lead to difficulties in establishing early diagnosis. Hence, the patients who have tuberculosis of the wrist are usually misdiagnosed. We report 5 cases of tuberculosis of the wrist seen in our unit from the year 2012 to 2021.

METHODS

Cases were retrospectively evaluated on demographics, nature of history, clinical presentation, culture finding, and histopathological findings from 2012 to 2021 at our unit.

RESULTS

A total of 5 cases were evaluated retrospectively. Three patients were more than 60 years old and two were less than 30 years old. Four of the patients presented with wrist swelling 2 of them had wrist pain and only 1 patient had discharge from the wound. The duration of the symptoms ranges from 2 months to 3 years. Only one of the patients had a history of pulmonary TB contact whereas the others didn't. All patients underwent surgery. All of the patients had positive cultures for Mycobacterium tuberculosis complex and histopathological examination showed necrotizing granulomatous inflammation from specimens taken intraoperatively, which confirmed the diagnosis of tuberculosis of the wrist.

DISCUSSIONS

Our cases show that the common presentation of tuberculosis of the wrist was comparable to other literature. Most of the patients presented with chronic wrist swelling with or without wrist pain. The diagnosis of the disease was delayed an average of 10 - 12 months from symptoms onset to diagnosis. S. Bayram et al reported a case where the diagnosis was made 45 months later. Due to its rarity, it often is misdiagnosed, resulting in delays in the proper treatment.

CONCLUSION

The diagnosis of the TB wrist remains difficult because of insidious and non-specific. presentation. However, early diagnosis is essential to avoid delays in treatment and complications. Hence, chronic wrist pain, and swelling with or without unexplained bone erosion around the wrist area must be highly suspected of being osteoarticular tuberculosis.

Presenter: Jessica Leary

Time of Presentation: Tuesday
7th Nov | 11.50am

Authors: Dr Jessica Leary, Mr Timothy Lynskey, Dr Andrew Muller

Affiliations: Taranaki Base Hospital

Type: Paper

Title: Suture Choice in Carpal Tunnel Surgery: A Randomised Controlled Trial.

OBJECTIVE

Carpal tunnel release surgery is a commonly performed procedure for alleviating symptoms of median nerve compression and restoring hand function. With pressure on theatre time these procedures are now commonly performed in a step-down out-patient facility under local anaesthetic. The choice of suture for skin closure in this procedure can impact the quality of wound healing, patient outcomes and the follow-up required however the question of the best type of suture remains unanswered. The purpose of this study was to compare the outcomes of absorbable and non-absorbable sutures using a randomised control trial design.

METHODS

Eighty patients diagnosed with bilateral carpal tunnel syndrome were enrolled and underwent outpatient carpal tunnel release surgery under local anaesthetic in a staged fashion. Random number generation was used to assign each hand to receive interrupted nylon or Vicryl Rapide sutures. Pre-operative data collection included patient demographics, ASA, inflammatory conditions, smoking status as well as a Boston Carpal Tunnel Questionnaire (BCTQ) for each hand. Patients were followed up at 2 and 6 weeks after each operation and the BCTQ was repeated along with the Patient and Observer Scar Assessment Scale and the VAS score for wound discomfort. This study has approval from the DHB ethics committee, Local Iwi, HDC and ANZ Clinical Trials:ACTRN12623000100695.

RESULTS

Statistical analysis assessed patient preference and the scores between the groups. Multi-variate analysis was performed to assess the factors that may be contributing to patient choice.

CONCLUSION

Insights into patient preference and clinical outcomes associated with absorbable sutures and non-absorbable sutures in the setting of out-patient surgery are discussed.

Presenter: Supilate Mikaele

Time of Presentation: Tuesday 7th Nov | 12.00pm

Authors: Dr Supilate Mikaele, Mr Chris Taylor, Dr Vahe Sahakian, Dr Wes Xia

Affiliations: Middlemore Hospital

Type: Paper

Winner – 2023 Paper Day

Title: A prospective observational study of thumb function following 1st carpometacarpal joint arthrodesis.

INTRODUCTION

Despite the rising popularity of 1st carpometacarpal joint (CMCJ) arthrodesis as one of the surgical options for basilar thumb arthritis, the available literature on this is poor. This study aims to investigate post-operative pinch and grip strength following 1st CMCJ arthrodesis, at a minimum of 1 year follow-up. Complication rates, range of motion and patient reported scores were also evaluated.

METHODS

A retrospective cohort (2012-2020) was used, which included patients who had arthrodesis performed by the Hands surgeons at Counties Manukau DHB. In a 15 minute visit, we took the measurements using our standard dynamometer and pinch gauge, and collected three questionnaires [QuickDASH, PRWHE, PEM]. For analysis, we compared our results to the preoperative measures, contralateral hand, and to a previous study on a similar cohort looking at thumb strength following trapeziectomy.

RESULTS

42 arthrodesis were performed, and 24 were available for follow-up. The average follow-up time was 77 months and the average age was 51 years old. Overall, we found a statistically significant improvement in thumb strength following surgery. Mean preoperative grip strength was 21.4kg and 32.5kg postoperatively (= +11kg). Preoperative pinch strength was 5.5kg and 7kg postoperatively (= +1.5kg). These results were significantly higher compared to the trapeziectomy cohort. We also found an improvement in 1st CMCJ ROM post-operatively. 7 complications were reported (29.1%). 4 were metalware-related and 3 were non-union. QuickDASH score significantly improved from a median of 42.95 to 12.5 while PRWHE from 67.5 to 14.5. Overall patient satisfaction was 87.4%.

CONCLUSION

1st CMCJ arthrodesis leads to an improvement in thumb function, pain and range of movement and results in high patient satisfaction, and therefore should be recommended for younger patients who need a pain-free and strong thumb.

Presenter: Holly Morris

Time of Presentation: Tuesday 7th Nov | 12.10pm

Authors: Sean Gerlach, Justin Chou, Michael Lee

H. Riyat Sheffield University Teaching Hospitals, UK. H. Morris Pulvertaft Hand Centre, Royal Derby Hospitals, DE22 3NE, UK. C. Cheadle Airedale NHS Foundation Trust, UK. A. Leatherbarrow Pulvertaft Hand Centre, Royal Derby Hospitals, DE22 3NE, UK. D.Jupinderjit Academic Foundation Doctor, Pulvertaft Hand Centre, Royal Derby Hospitals, DE22 3NE, UK. Associate Professor N. Johnson Pulvertaft Hand Centre, Royal Derby Hospitals, DE22 3NE, UK.: BSSH

Type: Paper

Title: An eight - year retrospective review of flexor sheath infections.

INTRODUCTION

Flexor sheath infections require prompt diagnosis, and management with intravenous antibiotics and/or surgical washout followed by physiotherapy. Complication rates as high as 38% have been reported.

METHODS

A retrospective review was carried out of all patients between January 2014 and May 2021 attending with a suspected or confirmed diagnosis of flexor sheath infection. Age, gender, co-morbidities, cause of infection, management, and subsequent complications recorded.

RESULTS

Of 132 patients, 67% were male. Mean age was 50.8 years. A trend towards fewer presentations each year with animal bites, foreign bodies and penetrating trauma as the main cause of infection. 89% (n=117) required admission, 77% (n=101) underwent a surgical washout. 11% (n=15) were treated as an outpatient. 7% (n=9) suffered a complication.

DISCUSSION

Whilst flexor sheath washout continues to be the treatment of choice, 23% of patients were managed with intravenous antibiotics, 48% of these purely via an outpatient service. Our overall complication rate was 7%.

Presenter: Shaun Mauiliu

Time of Presentation: Tuesday 7th Nov | 12.20pm

Authors: Shaun Mauiliu

Affiliations: Samoa,

Type: Paper

Orthopacifix Pacific Island Ambassador

Title: Titanium Elastic Nails (TENs) / A game changer in the Management of Paediatric & Adult Trauma in Samoa.

Titanium Elastic Nails have been around for the last 40 years, but it has never been introduced properly in the Pacific especially in Samoa in the management of femoral & in severely displaced forearm fractures in the paediatric age group & also Adult upper limb Trauma.

This paper looks at the cases treated in TTM Hospital (Apia, Samoa) from June 2019 – June 2023, looking at common injury patterns, indications for fixation and the cost benefit to the family and hospital, in terms of early rehabilitation and improving the length of stay in hospital pre-Tens nail era from 6-8 weeks to 1-2 weeks in hospital. 29 cases were treated with TENs concept during this period, 17 femoral fractures, 10 forearm fractures & 1 humerus fracture.

Lastly this is very useful skill and tool to have in every hospital in the Pacific Islands, through proper training to prevent long term complications.

Presenter: Vincent Chan

Time of Presentation: Tuesday 7th Nov | 1:30pm

Authors: Chan VWK[1], Yeung SS[2], Chan PK[1], Fu H[1], Cheung MH[1], Cheung A[1], Luk M[1], Tsang CCR[2], Chiu KY[1]

Affiliations: : Department of Orthopaedic and Traumatology, Queen Mary Hospital

[2]Department of Physiotherapy, MacLehose Medical Rehabilitation Center

Type: Paper

Hong Kong Ambassador

Title: Blood Flow Restriction training of Quadricep Muscles in Advanced Osteoarthritis of the Knee. A Randomized- Controlled Study.

INTRODUCTION AND AIM

Quadriceps strength is crucial for the physical function in patients with knee osteoarthritis (KOA). The use of low-intensity training (LIT) with blood flow restriction (BFR) in patients with advanced KOA is unclear.

Hence, we designed this randomized controlled study to investigate the effect of BFR on quadriceps strength in patients with advanced KOA.

METHODS

Patients with advanced KOA were randomized to the control or BFR group. The control group received LIT with leg press (LP) and knee extension (KE) at 20-30% of 1-repetition maximum (1-RM), while the BFR group had the same training with 70% limb occlusion.

Physical, functional, and patient-reported outcomes were charted up to 12 weeks.

RESULTS

Twenty-one patients, 11 in control and 10 in the BFR group, were analyzed.

BFR group had a significant increase in KE power in the 4th and 12th week (9.6kg (SD 4.4), 13.6kg (SD 5.8), $p<0.05$), while both showed a significant increase in LP power from the 4th to 12th weeks ($p<0.05$). The control group showed improvement in timed up and go from 4th to 12th weeks ($p<0.05$), BFR group had improvement in 30second timed stand test at 12th weeks (17.8 (SD2.2), $p=0.018$).

There was no between-group difference in quadricep power and functional assessments and no significant change in patient-reported outcomes.

All patients tolerated the training with no dropouts and adverse events.

CONCLUSION

LIT with BFR significantly improved KE and LP power, while LIT without BFR had an increase in LP power only. However, there was no between-group difference in quadriceps power.

Presenter: Taufin Warindra

Time of Presentation: Tuesday 7th Nov | 1:40pm

Authors: Taufin Warindra

Affiliations: Indonesia

Type: Paper

ASEAN Indonesian Travelling Fellow

Title: Discoid Meniscus.

Discoid Meniscus (DM) is a congenital variant of the knee joint that involves morphological and structural deformation, with potential meniscal instability. The prevalence of the Discoid Lateral Meniscus (DLM) is higher among the Asians than among other races, and both knees are often involved. Meniscal pathology is widely prevalent in the adult population, secondary to acute trauma and chronic degeneration. The true prevalence in children remains unknown, as pathologies such as discoid menisci often go undiagnosed, or are only found incidentally. A torn or unstable discoid meniscus can present with symptoms of knee pain, a snapping or clicking sensation and/or a decrease in functional activity, although it is not known if a specific presentation is indicative of a torn DM. While simple radiographs may provide indirect signs of DLM, magnetic resonance imaging (MRI) and arthroscopy is essential for diagnosis and treatment planning. Asymptomatic patients require close follow-up without surgical treatment, while patients with symptoms often require surgery. Partial meniscectomy is currently considered the treatment of choice for DLM. For children are more likely to achieve better results after partial meniscectomy.

Presenter: Marinus Stowers

Time of Presentation: Tuesday 7th Nov | 1.50pm

Authors: Marinus Stowers, Richard Rahardja, Lance Nicholson, Darren Svirskis, Jacqueline Hannam, Simon Young

Affiliations: Middlemore Hospital, North Shore Hospital, North Shore Hospital, University of Auckland, University of Auckland, North Shore Hospital

Type: Paper

Title: Safety And Efficacy Of Intraosseous Ropivacaine In Lower Extremity (SORE) Study.

INTRODUCTION

Day stay surgery for anterior cruciate ligament (ACL) reconstructions is an increasingly common practice and has driven clinicians to come up with postoperative pain regimes that allow same day mobilisation and a safe and timely discharge. There is a paucity of literature surrounding the use of intraosseous (IO) ropivacaine used as a Bier's block to provide both intraoperative and postoperative analgesia in lower limb surgery.

METHODS

This patient blinded, pilot study randomised 15 patients undergoing ACL reconstruction to receive either IO ropivacaine 1.5 or 2.0 mg/kg; or 300 mg of ropivacaine as local infiltration (standard of care). Toxic plasma levels of ropivacaine have been defined in the literature and therefore the primary outcome for this study was arterial plasma concentration of ropivacaine as a means to determine its safety profile. Samples were taken via an arterial line at prespecified times after tourniquet deflation. Secondary outcomes that we were interested in included immediate postoperative pain scores using the visual analogue scale (VAS) and perioperative opioid equivalent consumption.

RESULTS

Participants had a mean age of 27.8 (SD 9.2) years and 87% (13/15) were male. All patients in the intervention group receiving IO ropivacaine had plasma concentrations well below the threshold for central nervous system (CNS) toxicity (0.60 µg/ml). The highest plasma concentration was achieved in the intervention group receiving 1.5 mg/kg dose of ropivacaine reaching 3.59 mg/ml. This would equate to 0.22 µg/ml of free plasma ropivacaine. There were no differences across the three groups regarding pain scores or perioperative opioid consumption.

CONCLUSIONS

This study demonstrates that IO administration of 0.2% ropivacaine is both safe and effective in reducing perioperative pain in patients undergoing ACL reconstruction. There may be scope to increase the IO dose further or utilise other analgesics via the IO regional route to improve perioperative pain relief.

Presenter: Jessica Mowbray

Time of Presentation: Tuesday 7th Nov | 2.00pm

Authors: Owain Davies, Jessica Mowbray, Rod Maxwell, Gary Hooper

Affiliations: Christchurch Hospital

Type: Paper

Title: The Ten-year Radiological Results of the Uncemented Oxford Medial Compartment Knee Arthroplasty.

INTRODUCTION

The Oxford Unicompartmental Knee Replacement (OUKA) is the most popular unicompartmental knee replacement (UKR) in the New Zealand Joint Registry with the majority utilising cementless fixation. We report the 10-year radiological outcomes.

METHODS

This is a prospective observational study. All patients undergoing a cementless OUKA between May 2005 and April 2011 were enrolled. There were no exclusions due to age, gender, body mass index or reduced bone density.

All knees underwent fluoroscopic screening achieving true anteroposterior (AP) and lateral images for radiographic assessment. AP assessment for the presence of radiolucent lines and coronal alignment of the tibial and femoral components used Inteliviewer radiographic software. The lateral view was assessed for lucencies as well as sagittal alignment.

RESULTS

687 OUKAs were performed in 641 patients. Mean age at surgery was 66 years (39-90yrs), 382 in males and 194 right sided. 413 radiographs were available for analysis; 92 patients had died, 30 UKRs had been revised and 19 radiographs were too rotated to be analysed the remainder were lost to follow-up. Mean radiograph to surgery interval was 10.2 years (7.1-16.2yrs).

RLLs were identified in zone 1 (3 knees), zone 2 (2 knees), zone 3 (3 knees), zone 5 (3 knees), zone 6 (2 knees) and zone 7 (42 knees). No RLL had progressed, and no case had any osteolysis or prosthesis subsidence.

Alignment in the coronal plane: mean 2.90° varus (9.30° varus - 4.49° valgus) of the tibial component to the tibial anatomic axis and the femoral component in mean 4.57° varus (17.02° varus - 9.3° valgus). Sagittal plane posterior tibial slope was a mean 6.30° (0.44° -13.60° degrees) and mean femoral component flexion of 8.11° (23.70° flexion – 16.43° extension).

CONCLUSION

The cementless OUKA demonstrates stable fixation with low revision rates at our centre supporting results earlier published by the design centre.

Presenter: Mark Clatworthy

Time of Presentation: Tuesday 7th Nov | 2.10pm

Authors: Richard Rahardja Mark Clatworthy Simon Young Richard Rhajarda Hamish Love

Affiliations: Ascot Hospital

Type: Paper

Title: Risk Factors for Meniscal Repair Failure Following Concurrent Primary ACL Reconstruction: Results from the New Zealand ACL Registry.

BACKGROUND

Anterior cruciate ligament (ACL) reconstruction with concomitant meniscal injury occurs frequently. Meniscal repair is associated with improved long-term outcomes compared to resection but is also associated with a higher reoperation rate. Knowledge of the risk factors for repair failure may be important in optimizing patient outcomes.

PURPOSE

This study aimed to identify the patient and surgical risk factors for meniscal repair failure, defined as a subsequent meniscectomy, following concurrent primary ACL reconstruction.

METHODS

Data recorded by the New Zealand ACL Registry and the Accident Compensation Corporation, the New Zealand Government's sole funder of ACL reconstructions and any subsequent surgery, was reviewed. Meniscal repairs performed with concurrent primary ACL reconstruction was included. Root repairs were excluded. Univariate and multivariate survival analysis was performed to identify the patient and surgical risk factors for meniscal repair failure.

RESULTS

Between 2014 and 2020, a total of 3,024 meniscal repairs were performed during concurrent primary ACL reconstruction (medial repair = 1,814 and lateral repair = 1,210). The overall failure rate was 6.6% (n = 201) at a mean follow-up of 2.9 years, with a failure occurring in 7.8% of medial meniscal repairs (142 out of 1,814) and 4.9% of lateral meniscal repairs (59 out of 1,210). The risk of medial failure was higher in patients with a hamstring tendon autograft (adjusted HR = 2.20, p = 0.001), patients aged 21-30 years (adjusted HR = 1.60, p = 0.037) and in those with cartilage injury in the medial compartment (adjusted HR = 1.75, p = 0.002). The risk of lateral failure was higher in patients aged ≤ 20 years (adjusted HR = 2.79, p = 0.021) and when the procedure was performed by a surgeon with an annual ACL reconstruction case volume of less than 30 (adjusted HR = 1.84, p = 0.026).

CONCLUSION

When performing meniscal repair during a primary ACL reconstruction, the use of a hamstring tendon autograft, younger age and the presence of concomitant cartilage injury in the medial compartment increases the risk of medial meniscal repair failure, whereas younger age and low surgeon volume increases the risk of lateral meniscal repair failure.

Presenter: Zoe Wells

Time of Presentation: Tuesday 7th Nov | 2.20pm

Authors: Zoe Wells, Mark Zhu, Katarina Sim, Dean Schluter, Simon W Young

Affiliations: Te Whatu Ora Waitemata, Counties Manukau, University of Auckland

Type: Paper

Title: TKA Following Septic Arthritis – A Longitudinal Study Over 20 Years.

OBJECTIVES

Post-infective arthritis is an important sequalae of septic arthritis(SA). While total knee arthroplasty(TKA) is an effective treatment for said arthritis, previous SA brings challenges for treatment planning. Using prospectively collected data from a cohort of patients with knee SA, this study aims to determine the proportion of patients requiring eventual TKA, and risk factors of developing prosthetic joint Infection(PJI).

METHODS

All cases of 1st episode knee SA from 01/01/2000 to 31/12/2020 were identified in the Auckland region. Patient records and NZJR records of all cases were searched to identify subsequent TKA. PJI following arthroplasty was identified using ICM criteria.

Univariate and multivariate analysis was performed to determine risk factors for developing PJI.

RESULTS

854 cases of native SA were identified. Of these, 71 (8.3%) progressed to TKA. Average time from completion of SA treatment to TKA was 3.8 years (SD 3.4). At an average follow-up of 7.8 years(1-19.6), 11(15.5%) developed PJI and required reoperation in the form of; DAIR (n =5), revision (n= 6). A further 4 were readmitted for superficial infections. Five-year and ten-year implant survival was 90.0% and 87.1%, significantly lower than average survival of TKA in the NZJR (97.3% at 5 years and 95.7% at 10). Average time between completion of SA treatment and TKA was 2.1 years in those developing PJI, vs 4.1 years in those who did not($p = 0.0019$). 4.8% of cases developed PJI when TKA was performed >5 years after SA, compared with 20% risk of PJI within 5 years($p=0.16$). Multivariate analysis showed no significant impact of pre-defined medical risk factors or demographic on outcomes.

CONCLUSION

A significant percentage of patients required TKA following knee SA. Time lapsed from SA treatment completion to TKA is an important risk factor for developing PJI.

Presenter: Scott Bolam

Time of Presentation: Tuesday 7th Nov | 1.30pm

Authors: S.M. Bolam, N. Matheson, M. Douglas, K. Anderson , S. Weggerty, M. Londahl, D. Gwynne- Jones, P. Navarre

Affiliations: Southland Hospital, Dunedin Hospital, Lakes District Hospital, University of Otago

Type: Paper

Title: Time to Surgery for Neck of Femur Fractures in Southland For Patients Presenting Directly to a Referral Hospital Versus Transferred from Peripheral Hospital: A Matched Cohort Study.

INTRODUCTION

The Te Whatu Ora Southern catchment area covers the largest geographical region in New Zealand (over 62,000 km2) creating logistical challenges in providing timely access to emergency neck of femur (NOF) fracture surgery. Current Australian and New Zealand guidelines recommend that NoF surgery be performed within 48 hours of presentation. The purpose of this study was to compare the outcomes for patients with NoF fractures who present directly to a referral hospital (Southland Hospital) compared to those are transferred from rural peripheral centres.

METHODS

A retrospective cohort study identified 79 patients with NoF who were transferred from rural peripheral centres to a referral hospital for operative management between January 2011 to December 2020. This cohort was matched 1:1 by age and sex to patients with NoF who presently directly to the referral hospital over the same period. The primary outcome was to compare time to surgery between the groups and secondary outcomes were to compare length of hospital stay, complication rates and mortality rates at 30-days and 1-year.

RESULTS

The mean delay in transfer time from peripheral centres was 11.5 ± 6.4 h. The mean time to surgery was higher, but not significantly different (p=0.155), for patients transferred from peripheral centres compared to patients presenting directly to the referral hospital (30.7 ± 16.5 h vs. 26.8 ± 17.2 h, respectively). However, rates of surgery within 48 h were similar between the patients transferred from peripheral centres and patients presenting directly to the referral hospital (8.8% vs 7.6%, p>0.999). There were no significant differences in complication rates, length of stay or 30-day or 1-year mortality between the groups.

DISCUSSION AND CONCLUSION

Significant delays in transfer from peripheral centres to the referral hospital were identified, averaging 11.5 h. There was a strong trend towards increased time to surgery for patients transferred from peripheral centres. Early transfer of patients with NoF to a referral hospital should continue to be made a high priority.

Presenter: Tim Woodfield

Time of Presentation: Tuesday 7th Nov | 1.40pm

Authors: Tim Woodfield[1], Gretel Major[1], Alessia Longoni[1], Jeremy Simcock[2], Gary Hooper[1], Khoon Lim[1]

Affiliations: [1]Christchurch Regenerative Medicine and Tissue Regeneration (CReaTE), Dept of Orthopaedic Surgery & Musculoskeletal Medicine, University of Otago Christchurch, [2]Riccarton Avenue Christchurch 8011; [2]Department of Surgery, University of Otago Christchurch, [2]Riccarton Avenue Christchurch 8011

Type: Paper

Title: Developing Next Generation Injectable Adipose Tissue Grafts for Soft Tissue Reconstruction.

INTRODUCTION

Autologous fat grafting has favourable potential as a regenerative strategy and is the current gold-standard to repair large contour defects, as needed in breast reconstruction after mastectomy and traumatic soft tissue reconstruction. Clinically, there is a limit on the volume of lipoaspirate which can be utilised to repair a soft-tissue defect. Surgical complications are the result of poor structural fidelity of lipoaspirate and graft resorption as a filling material and are hindered further by poor graft vascularisation. This study aims to develop injectable lipoaspirate-derived adipose tissue grafts with enhanced biologically and clinically-admissible structural and functional properties adopting light photocrosslinking of unmodified lipoaspirate.

METHODS

Patient-derived lipoaspirate was harvested and crosslinked using novel photoinitiator and exposure to visible light (wavelength 450nm) in surgery, establishing bonds between extracellular matrix (ECM) proteins within the material. The degree of crosslinking was tuned (photoinitiator concentration, light exposure, light intensity) and covalent bond formation measured using mass spectrometry. To predict patient response, SWATH-MS was used to identify differences in patient ECM and crosslinked grafts were implanted in vivo using a subcutaneous mouse model. Functional vessel formation and resorption were quantified using micro-CT and tissue-remodelling was assessed via histology.

RESULT

There was an increase in the relative abundance of covalent bonds present with increasing degree of crosslinking. When injected, crosslinked lipoaspirate had better shape fidelity compared with native lipoaspirate – demonstrated by a smaller fibre diameter. Crosslinked lipoaspirate remained viable over long term culture and resulted in more predictable resorption profiles when implanted in vivo.

CONCLUSIONS

The crosslinking approach described here is tunable and functional across different patient samples. Improving the structural properties of lipoaspirate through minimal manipulation has clinical utility for the delivery of grafts with higher shape fidelity and therefore increased graft survival when implanted.

Presenter: Mark Zhu

Time of Presentation: Tuesday 7th Nov | 1.50pm

Authors: Mark Zhu, Christopher Mayo, Chris Rahardja, Min Yee Seow, Simon Young

Affiliations: Waikato Hospital

Type: Paper

Title: Risk factors for morbidity and mortality following hip fractures – an ANZHFR study.

AIMS

Using the Australian and New Zealand Hip Fracture Registry (ANZHFR) data, this study aimed to identify patient, fracture, and management factors associated with survival, mobility and residential status at 120 days. This will allow future interventions to target modifiable risk factors to improve the overall care of patients with hip fractures.

METHODS

All NZ patients from 2018 – 2020 were included. Baseline demographics, management factors, and outcomes were recorded. Key outcomes were change in walking status, residential status and survival at 120 days.

Univariate analysis was performed to compare differences in demographics, surgical and management factors for the key variables. Multivariate analysis was conducted to identify factors independently associated with outcomes.

RESULTS

Data from 9432 patients were analysed. The average age was 82.8 years (SD 9.8). 70.3% were females. 39.5% of patients were cognitively impaired on admission, 71.4% were from their own residence.

At 120 days post injury, 10.9% (1029) had died 1029 (10.9%), 15.3% (1034) had a decrease in their residential status, 44.9% (2966) had a reduction in walking ability. On multivariate analysis; older age (RR1.1/yr, p<0.001), male sex (RR1.7, P<0.001), cognitive impairment (RR2.2, p<0.001) and ASA>3 (RR3.7, p=0.015) were risk factors for death. Similarly, increasing age (RR1.1 per year, p<0.001), cognitive impairment (RR1.2, p=0.04) and ASA>3 (RR2.9, p=0.047) were significant risk factors for worsening residential status. Decreasing mobility was associated with extracapsular fractures (RR1.4, p=0.01).

After adjustment for demographics, ASA and fracture type, performing total hip arthroplasty was preventative for both worsening residential status (RR0.23, p<0.001) and decreasing walking ability (RR 0.21, p<0.001). There was no significant survival, functional or revision differences for other fixation types.

CONCLUSION

There is a significant decline in walking ability post hip fracture which may be a key contributor to long-term morbidity. The benefits of THA in preserving mobility and independence should be further investigated. Additional discharge planning and multi-disciplinary team input are likely required for high-risk patients of older age, with cognitive impairment and extracapsular fractures.

Presenter: Mark Zhu

Time of Presentation: Tuesday 7th Nov | 2.00pm

Authors: Mark Zhu, Grace Taylor, Christopher Mayo, Simon Young, J ohn Mutu-Grigg, Vaughan Poutawera,

Affiliations: Waikato Hospital

Type: Paper

Title: Standard of care and outcomes for Māori patients with neck of femur fractures – an ANZHFR study.

AIMS

Hip fracture is a common injury in the elderly. Recent studies in orthopaedic access have demonstrated inequities affecting Māori. This study aimed to compare the demographic differences between Māori and NZ Europeans with hip fractures, identify any deficiencies in initial, surgical and post op care and in outcomes.

METHODS

All cases in New Zealand from 2018-2020 were included.. Key outcomes included time to theatre from admission, change in walking status, residential status and survival at 120 days post fracture.

Univariate analysis compared differences in demographics, surgical and management factors between ethnicities. Key outcome comparisons were conducted using multivariate analysis to assess whether ethnicity was an independent risk factor for outcomes.

RESULTS

Data from 9432 patients were analysed. 305 patients were Māori (3.2%). Māori were younger at presentation (76.2 vs 83.2 yrs, p<0.001), used less walking aids (50 vs 56%, p=0.034), were more medically comorbid and more likely to have impaired cognition (42% vs 37%, p=0.022). There were no differences in fracture types, surgical management strategy, and nerve block utilisation between ethnicities. No perioperative management differences were found. Māori had a longer delay to theatre (39 vs 35hrs, p=0.007), and were less likely to be prescribed bone protection on discharge (64% vs 71%, p=0.011). Once adjusted location and ASA, difference in time to theatre was not statistically significantly.

Overall mortality was 13.1% at 120 days. 45% had a reduction in walking ability while 15% required increase level of care. Multivariate analysis found no differences were found between ethnicities for mortality, change in residential or walking status.

DISCUSSION

While younger at presentation, Māori are more co-morbid and may live in DHBs with worse theatre access, contributing to a longer time to theatre. Improving access to tertiary care and overall health of older Māori will likely improve outcomes.

Presenter: John Zhang

Time of Presentation: Tuesday 7th Nov | 2.10pm

Authors: J. Zhang, R. Miller, T. Chuang

Affiliations: Orthopaedic Department, Christchurch Hospital, Te Whatu Ora

Type: Paper

Title: Outcomes of Single vs Combination Fixation In Distal Femur Fractures – A Christchurch Experience.

INTRODUCTION

Distal femur fractures have traditionally been stabilized with either lateral locking plate or retrograde intramedullary nail. Dual-plates and nail-plate combination fixation have the theoretical biomechanical advantage, faster union and allows patients to weight bear immediately. The aim of this study is to compare single vs combination fixation, and evaluate outcomes and complications.

METHOD

We retrospectively reviewed all patients over 60, admitted to Christchurch Hospital, between 1st Jan 2016 and 31st Dec 2022, with an AO 33A/33B/33C distal femur fracture. Patient demographics, fracture characteristics, operation details, and follow up data were recorded.

Primary outcomes are union rate, ambulatory status at discharge, and surgical complications. Secondary outcomes include quality of reduction, operation time and rate of blood transfusions.

RESULTS

114 patients were included. (92 single fixation, 22 combination fixation).

Baseline demographic data and fracture characteristics did not differ between the cohorts.

There was no difference in the rate of union or time to union between the two cohorts. Combination fixation patients were allowed to weight-bear as tolerated significantly more than single fixation patients (50% vs 18.9%, p=0.003). There was no difference in length of hospital stay, transfusion, complication and mortality rates.

Medial translation of the distal articular block was significantly lower in the combination fixation cohort (1.2% vs 3.4%, p=0.021). Operation time was significantly longer in the combination fixation cohort (183mins vs 134mins, p<0.001).

DISCUSSION

The results show no difference in achieving union or time to union, despite better quality of fracture reduction with dual fixation. This differs to previously published literature. The clear benefit of combination fixation is immediate weight-bearing. As expected, operation times were longer with combination fixation, however this did not translate to more complications.

CONCLUSION

Combination fixation allows earlier weight bearing, at the cost of longer operation times.

Presenter: Brad Atkinson

Time of Presentation: Tuesday 7th Nov | 2.20pm

Authors: Nemandra A Sandiford, Brad Atkinson, Alex Trompeter, Daniel Kendoff

Affiliations: Southland Hospital, Invercargill. St George's Hospital, London. Helios ENDO-Klinik, Berlin.

Type: Paper

Title: Outcomes Following a Total Femoral Plating Technique for Management of Periprosthetic Fractures Around Stable Hip and Knee Implants.

INTRODUCTION

Management of Vancouver type B1 and C periprosthetic fractures in elderly patients requires fixation and an aim for early mobilisation but many techniques restrict weightbearing due to re-fracture risk. We present the clinical and radiographic outcomes of our technique of total femoral plating (TFP) to allow early weightbearing whilst reducing risk of re-fracture.

METHODS

A single-centre retrospective cohort study was performed including twenty-two patients treated with TFP for fracture around either hip or knee replacements between May 2014 and December 2017. Follow-up data was compared at 6, 12 and 24 months.

Primary outcomes were functional scores (Oxford Hip or Knee score (OHS/OKS)), Quality of Life (EQ-5D) and satisfaction at final follow-up (Visual Analogue Score (VAS)). Secondary outcomes were radiographic fracture union and complications.

RESULTS

Mean OHS and OKS was 50.25, EQ-5D score was >4 for all modalities, VAS was 64.4/100. Radiographs demonstrated bony union in 58% at 3 months and 76% at 6 months. We identified no case of re-fracture however non-union occurred in 4 patients. No other operative complications were identified.

CONCLUSION

These results suggest that TFP may be a safe, viable option for management of periprosthetic fractures around stable implants allowing the benefit of early weightbearing, satisfactory outcomes and low re-fracture risk.

Presenter: Brad Atkinson

Authors: B S Atkinson

Affiliations: Southland Hospital, Invercargill

Category: General

Title: The First Four Months of Procedures as an Orthopaedic Registrar – The Appeal of Rural Centers.

INTRODUCTION

Little is known about the experience obtained by junior doctors in different clinical settings. We have been unable to identify any formal comparisons between rural and urban settings in the context of junior orthopaedic training.

We aimed to identify the case-load, case-mix and level of independence given to a junior orthopaedic registrar in a rural New Zealand setting.

METHODS

A complete cohort was extracted from the Royal Australasian College of Surgeons logbook of a first-year junior orthopaedic registrar. The first four months of cases were included in the analysis. Cases were assessed by type of procedure and level of independence.

RESULTS

One hundred and sixty procedures were included, of which 87 were performed independently or under supervision. The registrar assisted in 69 procedures and observed 4 procedures without being surgically involved.

The most common procedures to be performed independently or under supervision were closed reductions of fractures or dislocations, debridement of open fractures or wounds, closure of traumatic wounds, extensor tendon repairs, open reduction and internal fixation of ankle fractures and surgical fixation of neck of femur fractures.

DISCUSSION

Whilst there is no established benchmark for comparison, this cohort analysis demonstrates excellent opportunities for hands-on involvement and rapid surgical exposure for junior orthopaedic registrars in rural New Zealand. Most cases were performed independently or under supervision of a senior colleague. More advanced cases were performed with the registrar assisting and there were only two instances where the registrar did not have the opportunity to assist in a surgery.

CONCLUSION

Rural centers appear to offer excellent case exposure for junior orthopaedic registrars to gain early experience.

Presenter: Katy Kim

Authors: Rhidian Morgan-Jones, Katy Kim, Daniel Kendoff, Nemandra Sandiford

Affiliations: Colchester Hospital, SDHB, ENDO-Klinik Berlin, SDHB

Category: General

Title: Management of Prosthetic Joint Infection: A Defined Technique for Surgical Debridement.

INTRODUCTION

Periprosthetic joint infection (PJI) is a devastating complication following joint arthroplasty and is identified as a leading cause of revision. Successful debridement will allow antibiotics to be used locally potentially achieving minimum biofilm eradication concentrations, and systemically to penetrate the soft tissue envelope and wound, outside the debridement field. Six methods of débridement are recognized, three deep and three superficial methods. Deep debridement methods are surgical, mechanical and chemical; superficial debridement methods are autolytic, enzymatic and biological. The aim of this paper is to present standardized surgical technique, that will be useful and applicable for orthopaedic surgeons at all levels of practice.

DISCUSSION

We propose that each patient undergoing surgery to eradicate PJI undergo the three essential deep stages of debridement; surgical, mechanical and chemical. Deep surgical debridement has 3 parts; exposure, explantation and excision. Adequate exposure should be obtained with the utility of old scars which may need to be further extended, followed by explantation of infected, failed implants, bony sequestra or retained foreign material. Sharp dissection completes surgical debridement with sharp dissection of infected or avascular and necrotic soft tissue and biofilm. Mechanical debridement also has three parts; curettage, reaming, lavage. Curettage of all bone and soft tissue surfaces to scrape away lingering biofilm. This is completed using curettes and rongeurs. Reaming produces a similar result to curettage but inside the intramedullary cavities. The concept of high-volume lavage producing a 'dilutional effect' is not controversial, however the exact volume and type of lavage requires further study. A choice of chemical debriding agent, either mono- or poly-therapeutic, are available and further work is needed to establish which is most advantageous for bacterial, fungal and multi-organism infections. A defined debridement protocol is necessary for any future work comparing the many variables of single- / two-stage / DAIR techniques.

Presenter: Katy Kim

Authors: Katy Kim, Nemandra Sandiford

Affiliations: Southland Hospital

Category: Arthroplasty

Title: The Role of 3D Custom Printing in Revision Total Hip Arthroplasty.

Acetabular revision accounts for approximately 18% of all total hip arthroplasty (THA) procedures. This was the third most common reason for THA revision in 2020 according to the New Zealand Joint Registry. One of the unique challenges faced by reconstruction surgeons performing revision THAs is acetabular bone loss. Bone loss in revision THA can be secondary to the presenting pathology or it can be iatrogenic and occur during exposure or extraction of the in situ implant. The aim of this paper is to present the role of custom acetabular reconstruction with significant bone loss for undergoing revision THA, using a local case study as an example.

DISCUSSION

All patients undergo pre-operative planning, including a pre-prescribed fine slice CT scan (1.0mm) imaging sequence preloaded by the implant manufacturer. Custom components are built layer-by-layer with 3D printing based on the fine slice imaging. The implant is then built to specifically fit the shape of the defect and enable fixation to be achieved in region of the most robust available bone stock. The 3D printing process involves Powder Bed Fusion (PBF), either using the selective laser melting (SLM) or electron beam melting (EBM) technology.

We present the case of a 84-year-old woman successfully treated with a customised revision acetabular implant for advanced wear of Duraloc socket with significant periacetabular bone loss in zones 2 and 3.

CONCLUSIONS

We described utilisation of custom components to address the highly complex cases with Paprosky classification of three and above. Recent studies have shown comparable clinical results to conventional methods and improvement of post-operative patient rated outcome scores. However, larger clinical trials focusing on the long-term outcomes in comparison to off-the-shelf components in complex acetabular revisions would be of merit.

Presenter: Morgan Lingard

Authors: Morgan Lingard, Chris Frampton, Jinny Willis, Gary Hooper

Affiliations: University of Otago, Christchurch

Category: Arthroplasty

Title: Surgeon-specific outcome monitoring has become increasingly prevalent over the last three decades

INTRODUCTION

Surgeon-specific outcome monitoring has become increasingly prevalent over the last three decades. The New Zealand Orthopaedic Association monitors individual surgeon performance through two mechanisms: arthroplasty revision rates derived from the New Zealand Joint Registry, and a practice visit programme. Despite remaining confidential, surgeon-level outcome reporting remains contentious. The purpose of this survey was to evaluate the opinions of hip and knee arthroplasty surgeons in New Zealand on the perceived importance of outcome monitoring, current methods used to evaluate surgeon-specific outcomes and potential improvements identified through literature review and discussion with other registries.

METHODS

The survey consisted of nine questions on surgeon-specific outcome reporting, using a five-point Likert scale, and five demographic questions. It was administered through SurveyMonkey® and distributed to all current hip and knee arthroplasty surgeons.

RESULTS

One hundred and fifty-one hip and knee arthroplasty surgeons completed the survey, a response rate of 50%. Respondents agreed that monitoring of arthroplasty outcomes is important and revision rates are an acceptable measure of performance. Reporting risk adjusted revision rates and more recent timeframes were supported, as was including patient reported outcomes when monitoring performance. Surgeons did not support public reporting of surgeon-level or hospital-level outcomes.

CONCLUSIONS

The findings of this survey support the use of revision rates to confidentially monitor surgeon-level arthroplasty outcomes and suggest concurrent use of patient reported outcome measures would be acceptable.

Presenter: Morgan Lingard

Authors: Morgan Lingard, Chris Frampton, Gary Hooper

Affiliations: University of Otago, Christchurch

Category: Arthroplasty

Title: New Zealand Joint Registry surgeon-level feedback: the influence of reporting timeframe on distribution of reasons for revision following total knee arthroplasty

New Zealand Joint Registry surgeon-level feedback: the influence of reporting timeframe on distribution of reasons for revision following total knee arthroplasty

INTRODUCTION

NZJR provides surgeon-level feedback on revision rate for total knee arthroplasty. The current method involves reporting all-time revision rate. Shorter reporting timeframe has been identified as a potential improvement. This paper considers the impact of reporting shorter timeframes on the distribution of reasons for revision.

METHODS

Distribution of reason for revision of primary total knee arthroplasty was analyzed by reporting timeframe. Timeframes of 12 months, two years, five years and all-time were evaluated. Standardized reasons for revision on registry forms were deep infection, pain, fractured femur, fractured tibia, previous unicompartmental and loosening of the femoral, tibial or patella component. Stiffness and instability accounted for a substantial proportion of free-text reasons; these were included in analysis.

RESULTS

Deep infection was a reason for revision in 27% of "all-time' revisions, 35% within five years, 43% at two years and 57% at 12 months. Loosening was a reason in 45% of 'all-time' revisions, 25% within five years, 14% at two years and 7.4% at 12 months. Pain was identified as the reason for 12% of revisions at 12 months, but approximately 25% for other timeframes.

Fractures, stiffness and instability accounted for a stable proportion of revisions across timeframes. Reporting revision at two years would result in a 59% increase in the proportion attributed to deep infection and a 73% decrease in the proportion attributed to loosening compared with reporting 'all-time' revisions.

CONCLUSION

While shortening the reporting timeframe may ensure feedback reflects recent practice and increase responsiveness to changes in performance, the distribution of reasons for revision would change substantially. Debate regarding the role of individual surgeons in causing deep infections will become increasingly important if shorter timeframes are reported.

Presenter: Carrisa Murugesh
Authors: Carissa Murugesh, Viren Kasipersad
Affiliations: Rotorua Hospital
Category: Arthroplasty

Title: Approaching Zero: An Attempt to Identify Contributing Factors and Create a Framework to Reduce the Number of Prosthetic Joint Infections at Rotorua Hospital

The rate of Prosthetic Joint Infections (PJIs) was 5% from April 2022 to June 2022 at Rotorua Hospital which is five times the rate which we consent patients on. We wanted to identify the relevant factors at Rotorua Hospital, that may be contributing to the increased rate of PJIs with the intent to create a framework of best practice for Arthroplasty.

We observed the processes in each of the Orthopaedic surgeons' theatres and determined current perioperative practices for a patient receiving Arthroplasty. We looked into each PJI case to determine any commonalities.

Six Orthopaedic surgeons performing six operations were included. On average, there were nine people in theatre, doors were opened 34 times and implants were inserted five minutes after opening. There were used drink bottles, local anaesthetic, tissues and blood identified in theatre from previous days' operations. The five moments of hand hygiene when handling the patient prior to and after the operation was rarely observed.

Analysis of eleven PJI cases revealed that the patients had a mean ASA of 2.7 and 54.5% had a high BMI. We identified that there has been a hiatus (due to COVID-19) in Arthroplasty days where patients are examined for skin breaks and other infections two weeks prior to surgery, which coincides with our high PJI rate.

We need to be meticulous in our patient selection and education when considering Arthroplasty. Optimising patient's nutritional status and haemoglobin level preoperatively is not currently done but would be useful. Identifying high-risk patients for the purposes of receiving extended antibiotics postoperatively and negative pressure wound therapy should be considered. The theatre environment needs to be regulated for cleanliness.

In conclusion, we have created a framework of best practice for patients receiving Arthroplasty at Rotorua Hospital that could be used to guide our Orthopaedic surgeons.

Presenter: Sean Gerlach

Authors: Sean Gerlach, Justin Chou, Michael Lee

Affiliations: Capital & Coast DHB

Category: Wrist

Title: Distal Radius Malrotation as Assessed by CT and Correlation to Common Radiographic Features

BACKGROUND

Malrotation from distal radius fractures can lead to distal radioulnar joint (DRUJ) instability and block to forearm rotation. Rotational deformity is difficult to assess on standard radiograph. Subsequent rotational malunion can result in significant functional limitations.

This study aims to quantify rotational deformity on CT in distal radial fractures and identify correlations with common radiograph parameters.

METHODS

We performed a retrospective review of 42 adult patients presenting to Wellington Hospital between February 2021 and July 2022 who had undergone CT scans for distal radius fractures after cast application. AO classification was used to classify each fracture. Common plain film radiographic features including dorsal tilt, radial inclination, ulnar variance and radial height were measured of the same wrist in cast. Axial CT images were used to calculate the degree of rotational deformity based on a standardised method (Filer et al). Statistical analysis was carried out to identify any correlations between malrotation and each radiographic measure.

RESULTS

A total of 42 distal radius fractures were included for analysis. Over 80% were of the AO 2R3C classification. Median radial rotation angle measured 8.4 degrees of pronation with median absolute rotation angle of 9 degrees. Results showed high concordance across 2 independent observers. We observed no significant correlation between the amount of tilt, ulnar variance, inclination or height on x-ray with rotation seen on CT.

CONCLUSIONS

Radiographic features of distal radius fractures have not been found to correlate with CT demonstrated malrotation. This study supports the view that malrotation is an independent deformity that is often under-appreciated and therefore poorly corrected based on two dimensional images alone. Open surgical reduction of the volar cortex should be considered to address malrotation in at- risk groups.

Presenter: Holly Morris

Authors: Mr Tomas Berg; Ms Holly Morris; Mr Andrew Dekker; Mr Amol Tambe; Mr David Clark; Mr Timothy Cresswell; Mr Marius Espag

Affiliations: University Hospitals of Derby and Burton

Category: Shoulder & Elbow

Title: Does Reverse Total Shoulder Arthroplasty for Acute Proximal Humeral Fracture Lead to Worse Outcomes Compared To Elective Indications? Results From the New Zealand Joint Registry

INTRODUCTION

The primary aim of this study was to better define the factors that increase the likelihood of failure of conservative treatment of calcific tendonitis of the shoulder. The hypothesis was that a patient with a deposit >10mm is more likely to require surgical intervention.

METHODS

A retrospective review was performed on a consecutive series of patients diagnosed with CT at Hospital A between 2014 and 2018. All patients were assessed radiographically, and the largest diameter deposit size recorded. Patient demographics, co- morbidities, Oxford Shoulder Score, range of motion, details of presenting complaint and presentation were captured. Details of both conservative (physiotherapy, barbotage and cortisone injections) and surgical arthroscopic removal of the calcium deposit were recorded and analysed. Outcome measures include the Oxford Shoulder Score and range of motion, pre- and post- intervention. The complications of surgery were also recorded.

RESULTS

The study included 261 patients. Mean age was 52, mean BMI 31.1 and the gender split 98/163 (male/female). The rate of failure of conservative treatment was 40.6%. A greater proportion of the surgical cohort had a deposit >10mm (52.8% versus 39.3%, p=0.005); were female (72.6% versus 55.5%, p=0.005); and had at least 6 months duration of symptoms prior to referral (75.5% versus 45.2%, p=<0.001). The surgical cohort had a lower mean range of forward flexion post-treatment (155° to 166°, p=0.031). Within the cohort, 19 patients had post-surgical complications.

CONCLUSION

Female gender, increased deposit size (>10mm), and increased chronicity of condition (symptoms for more than 6 months) were predictive of failure of conservative treatment. Surgical outcomes were good, though 11.5% of patients developed post operative adhesive capsulitis.

Presenter: Jack Hanlon

Authors: Jack Hanlon, Angus Don, Peter Robertson, Alastair Hadlow, Antony Field, Henrik Bäcker

Affiliations: Auckland City Hospital

Category: Shoulder & Elbow

Title: Spinopelvic dissocation through a Tarlov cyst: a unique case and systematic literature

INTRODUCTION

Patients with Tarlov cysts typically present with diffuse pain or neurological symptoms which when undergoing further investigations are found incidentally. In a few cases fractures through these have been reported which are primarily atraumatic. Spinopelvic dissociation is typically related to high traumatic energy with an approximate incidence of 2.9%.

PURPOSE

The purpose of this study was to perform a systematic review of fractures related to Tarlov cysts as well as presenting a 60-year-old patient who sustained a spinopelvic dissociation through a Tarlov cyst.

METHODS

On January 13th, 2023, a systematic review on Tarlov cysts was performed searching the MEDLINE, Pubmed, google and Cochrane databases. Search terms included (Tarlov cyst) and all articles in English and German presenting a fracture related to a Tarlov cyst were included. A total of 344 articles were found of which a 7 met inclusion criteria.

RESULTS

Within the 7 articles, 8 patients were reported at a mean age of 65.9±16.3. The majority of people were female in 87.5% (n=7/8). Most of them were treated nonoperatively as the fracture was non-displaced. All of the patients did not have any pain or symptoms for follow up. Our 60-year-old male patient presents after paragliding injury. An H-type spinopelvic dissociation with symphysis disruption, and a right sided Tarlov cyst was diagnosed. Neurologically he had no anal tone and weakness in his right leg (ASIA C). Triangular fixation was performed. Postoperatively the anal tone improved however the weakness remained.

CONCLUSION

Fractures through a Tarlov cyst are rare and primarily seen in the elderly without any major trauma. The presented case has not been described yet and it is likely that the presence of the Tarlov cyst may have contributed to the neurological impairment as well as S1 and S2 nerve root injuries.

Partner Programme

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

Partner Programme

PARTNER PROGRAMME

MONDAY 6TH NOVEMBER

9:00am – 10:00am	**Local city walk** Meet in the Rutherford lobby at 8:45am
10.00am – 10.30am	Coffee Rutherford, Atom Café
10:30am	**Keynote Lecture** with Nick Petrie Rutherford, Maitai Room #1

TUESDAY 7TH NOVEMBER

10:00am – 11:00am	**Session with Craig Potton**, Photographer | Nelson's Flora, and Fauna. Wairau Room, Rutherford
11:00am	Morning Tea at Victus Café

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

Sports

Sports

SPORTS

SUNDAY SPORTS AFTERNOON

Please contact the below organisers directly if you wish to attend the Sunday sports activities.

GOLF

Nelson Golf Club
Sunday Tee off at 12:30pm and 1:20pm
28 player capacity, first in, first served.

- **$65PP or $50** for club/affiliate members, pay at club.
- Please make your own way to the golf course.

Contact: Alex Rutherford
alexrutherford@xtra.co.nz
027 434 7754

BIKING

OPTION 1: Codgers Trail (easy/medium) 1-2 hours, Free.

Meet in the Rutherford Hotel lobby at 1:00pm.

Contact: Kate Ball
kate.ball@nmdhb.govt.nz
022 014 2137

OPTION 2: Coppermine Adventure Trail (Medium/Hard) 4-5 hours, Free.

Change to say Meet in the Rutherford Hotel lobby at 1:00pm.

Contact: Angus Jennings
gusjennings@gmail.com
021 0222 4839

SPORTS

BIKE RENTAL PLACES:

https://gravitynelson.co.nz/RENTAL-AND-DEMO-MOUNTAIN-BIKES/

https://www.kiwijourneys.co.nz/

https://www.torpedo7.co.nz/NELSON

PADDLE BOARDING

Tuesday 7th November
6:30am at Tahunanui beach with Kate.

- $20 PP, includes board & life jacket.
- Please let Kate know if you need a ride to Tahunanui - meet 6:15 Rutherford lobby if you do.

Contact: Kate Ball
kate.ball@nmdhb.govt.nz
022 014 2137

Things to do in Nelson

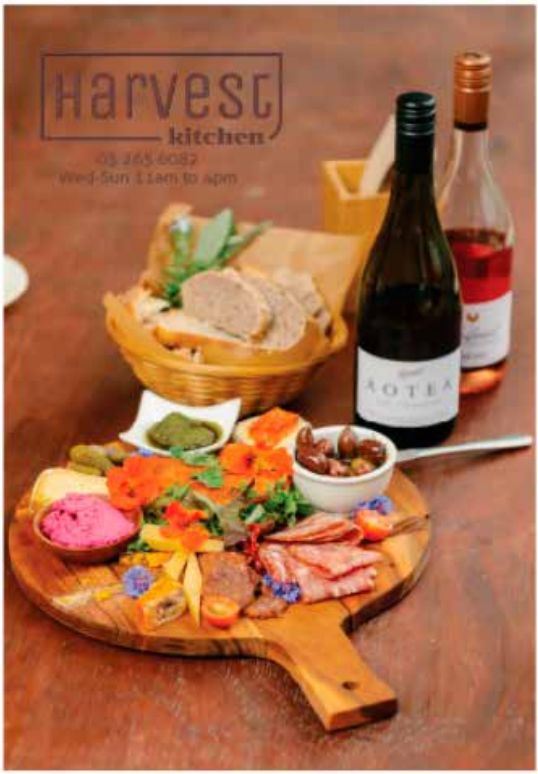
NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

Things to do in Nelson

NELSON: THINGS TO DO

NELSON: THINGS TO DO



The New Zealand
Orthopaedic Association
- Special Offer -
Includes a Harvest Kitchen Ploughman's Platter for two and two glasses of a Seifried Estate wine of your choice.

$65.00

Wine can be substituted for grape juice,
Aotea range not included in special offer.

SWEET TREAT

HOGARTHS CHOCOLATE

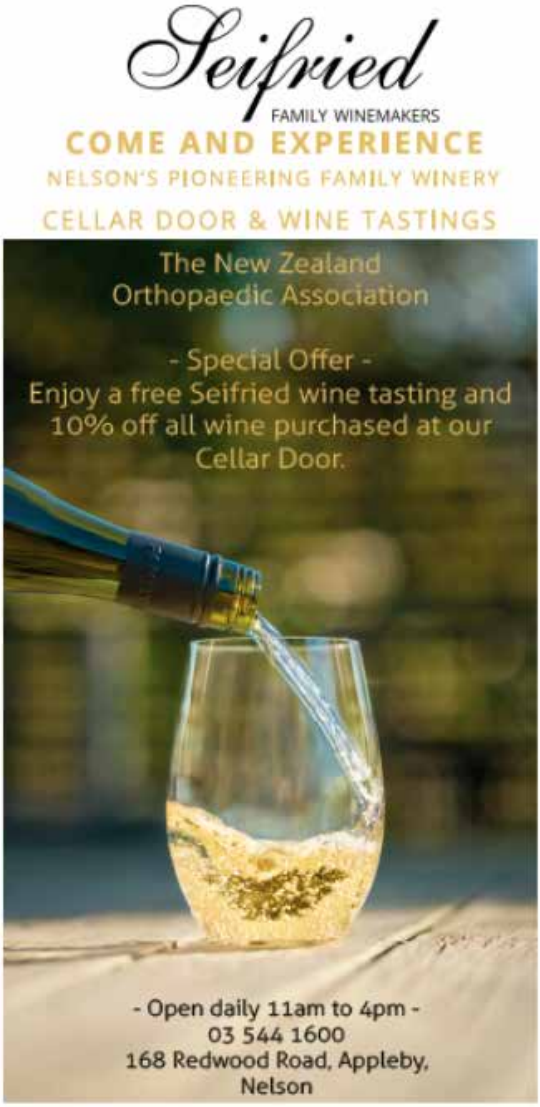
Try their tempting locally made chocolate and you won't be able to resist taking some home at 5 blocks of deliciousness for $45

EAT

PICS PEANUT BUTTER

Their world-famous Peanut Butter World tours are designed for all to enjoy and share in the wonder of how NZ's most loved peanut butter is made

NELSON: THINGS TO DO



Delegates

NZOA ASM 2023

5-7 NOVEMBER
RUTHERFORD, NELSON

DELEGATES

Delegate	Hospital
Dr. Chris Ahmad	Columbia University Medical Center
Gregory Alexander	Gisborne Hospital
Stephen Andrews	Hawkes Bay Hospital
James Aoina	Tauranga Hospital
David Ardern	Tauranga Hospital
Sam Arnold	Tauranga Hospital
Dr.Manohar Arumugam	Malaysian Orthopaedic Association
Brad Atkinson	Southland Hospital
Joe Baker	Waikato Hospital
Kate Ball	Nelson Hospital
Craig Ball	Auckland Bone & Joint Surgery
Julian Ballance	Nelson Hospital
Michael Barnes	Mercy Ascot Hospital
David Bartle	Tauranga Hospital
Jonathan Bartlett	Wellington Hospital
Stephen Bentall	Royston Hospital
Peter Black	Tamahere Orthopaedics
James Blackett	Hawkes Bay Hospital
Scott Bolam	Palmerston North Hospital
Matt Bowman	Starship Children's Hospital
Matthew Boyle	Starship Children's Hospital
James Burn	Burn Orthopaedics
Kenan Burrows	Dunedin Hospital
Michael Caughey	Michael Caughey Ltd
Ryan Chaffey	Hawkes Bay Hospital
Georgina Chan	Tauranga Hospital

DELEGATES

Delegate	Hospital
Heidi Chan	Middlemore Hospital
Dr. Vincent Chan	Hong Kong Orthopaedic Association
William Chen	Middlemore Hospital
Jimmy Chong	Starship Children's Hospital
Tim Chuang	Christchurch Hospital
Mark Clatworthy	Auckland Bone & Joint Surgery
Jon Cleary	Kiewa Orthopaedics
Rob Coup	Whangarei Hospital
Dr. Haemish Crawford	Starship Children's Hospital
Alan Crombie	Rotorua Hospital
Matt D'Arcy	Auckland City Hospital
Dulia Daly	Wellington Hospital
Tony Danesh-Clough	North Shore Hospital
Koen De Ridder	Wellington Hospital
Peter Devane	Wellington Hospital
Hamish Deverall	Waikato Hospital
Ian Dingwall	Pembroke Orthopaedic Clinic
Angus Don	Auckland Hospital
Jason Donovan	Waikato Hospital
Micheal Douglas	Southland Hospital
John Dunbar	Dunedin Hospital
Liam Dunbar	Wellington Hospital
Karyn Eggers	NZOA, P.A. to Chief Executive
Ilia Elkinson	Wellington Hospital
Robert Elliott	North Shore Hospital
Prue Elwood	NZOA Education & Training Manager
Rob English	North Shore Hospital

Delegate	Hospital
Antony Field	Starship Hospital
Prof. Richard Field	St George's University
Michael Flint	Auckland City Hospital
Penisimani Funaki	North Shore Hospital
Ian Galley	Tauranga Hospital
Tom Geddes	Middlemore Hospital
Scott Gilbert	Whanganui Hospital
Darina Gilroy	Nelson Hospital
Rodney Gordon	Middlemore Hospital
Andrew Graydon	Starship Children's Hospital
Tim Gregg	Wellington Hospital
David Gwynne-Jones	Dunedin Hospital
Alastair Hadlow	Auckland City Hospital
Simon Hadlow	Taranaki Base Hospital
Douglas Hancock	Nelson Hospital
Jack Hanlon	North Shore Hospital
Fraser Harrold	Dunedin Hospital
Andrew Herbert	Kensington Hospital
Dr. Laurie Hiemstra	Canadian Orthopaedic Association
Dr. Simon Hodkinson	British Orthopaedic Association
Chris Hoffman	Wellington Hospital
Wayne Hughes	Guest
Sarah Hunter	Wellington Hospital
Narlaka Jayasekera	Wairau Hospital
Jay Jefferies	Whangarei Hospital
Angus Jennings	Nelson Hospital
Andy Johnston	Auckland City Hospital

DELEGATES

Delegate	Hospital
Carl Jones	Waikato Hospital
Reece Joseph	The University Of Auckland
Luke Karalus	Hawkes Bay Hospital
Nick Keddell	Tauranga Hospital
Richard Keddell	Grace Orthopaedic Centre
Grant Kiddle	Wellington Ortho & Sports
Katy Kim	Southland Hospital
Joshua Knudsen	Waikato Hospital
Tom Kuperus	Whangarei Hospital
Tony Lamberton	Grace Orthopaedic Centre
David Lawson	Hawkes Bay Hospital
Jess Leary	Taranaki Base Hospital
David Lees	Tauranga Hospital
Warren Leigh	Orthosports North Harbour
Dr. Denny Lie	Singapore Orthopaedic Association
Morgan Lingard	University Of Otago, Christchurch
Dan Liyanage	Palmerston North Hospital
Tim Love	Aorangi Orthopaedics
Chris Lowden	Hutt Hospital
Chuck Luecker	Southland Hospital
Jessica Lynch-Larkin	Christchurch Hospital
Lewis Mackenzie	Tauranga Hospital
Teriana Maheno	Wellington Hospital
Jonny Manson	Whangarei Hospital
Rhett Mason	Christchurch Hospital
Dr. Shaun Mauiliu	Orthopacifix Charitable Trust

Delegate	Hospital
Rod Maxwell	Christchurch Hospital
Steve McChesney	Waikato Hospital
Anna McDonald	Southland Hospital
Hamish McLaren	Hutt Valley Hospital
Supilate Mikaele	Middlemore Hospital
Prof. Michael Millis	Boston Children's Hospital
Khalid Mohammed	Burwood Hospital
Paul Monk	Auckland Hospital
Shamunyama Mooya	Waikato Hospital
David Morley	Waikato Hospital
Dr. Chris Morrey	Australian Orthopaedic Association
Holly Morris	Middlemore Hospital
Dr. Arthur Morris	Greenlane Hospital
Jessica Mowbray	Middlemore Hospital
Dawson Muir	Tauranga Hospital
Carissa Murugesh	Rotorua Hospital
Bryden Nicholas	Tauranga Hospital
Mary Nugent	Rotorua Hospital
Andrew Oakley	Hutt Valley Hospital
Dr. David Owen	Trans-Tasman Fellow
Allan Panting	NZOA Past President
Pierre Pechon	Palmerston North Hospital
Rushi Penumarthy	North Shore Hospital
Richard Peterson	Nelson Hospital
Nick Petrie	Guest Speaker
Andrea Pettett	NZOA Chief Executive
Margy Pohl	Whangarei Hospital

DELEGATES

Delegate	Hospital
Vaughan Poutawera	Tauranga Hospital
Andy Powell	Christchurch Hospital
Rupesh Puna	Auckland City Hospital
Erin Ratahi	Northland Orthopaedic Centre
Helen Rawlinson	Auckland City Hospital
Peter Robertson	The Orthopaedic Clinic
Michael Rosenfeldt	Middlemore Hospital
Marla Ross	Middlemore Hospital
Robert Rowan	Wellington Hospital
Vahe Sahakian	Tauranga Hospital
N. Amir Sandiford	Southland Teaching Hospital
Dr. Buddy Savoie	American Academy Of Orthopaedic Surgeons
Erynne Scherf	Christchurch Hospital
Peter Schneider	Palmerston North Hospital
Aleksandar Sevic	Auckland City Hospital
Jonny Sharr	Christchurch Hospital
Otis Shirley	Auckland City Hospital
Katarina Sim	Starship Children's Hospital
Prof. Michael Solomon	Prince of Wales Hospital Sydney
Richard Storey	Christchurch Hospital
Sue Stott	Starship Children's Health
Marinus Stowers	Middlemore Hospital
Matt Street	Tauranga Hospital
Neville Strick	Waikato Hospital
Ruth Tan	Waikato Hospital
Yan Ho Bruce Tang	Wellington Hospital
James Taylor	Christchurch Hospital

Delegate	Hospital
Ken Te Tau	NZOA Cultural Advisor
Dave Templeton	Timaru Hospital
Bryan Thorn	Grace Orthopaedic Centre
Prof. John Timperley	Fortius Clinic Marylebone
Helen Tobin	Boulcott Hospital
Matthew Tomlinson	Middlemore Hospital
Tao Sun Tycus Tse	Palmerston North Hospital
Charlotte Tuimana	Palmerston North Hospital
Perry Turner	Nelson Hospital
Bruce Twaddle	Auckland City Hospital
Sean Van Heerden	Timaru Hospital
Dr. Ann Van Heest	American Orthopaedic Association
Mike van Niekerk	Whangarei Hospital
Andrew Vane	Tauranga Hospital
Dr. Mike Vitale	Columbia University Medical Center
Dr. Basil Vrettos	South African Orthopaedic Association
Stewart Walsh	Unisports Orthopaedics
Dr. Taufin Warindra	Indonesia Orthopaedic Association
Dr. Stuart Weinstein	University of Iowa Hospitals & Clinics
Zoe Wells	Middlemore Hospital
David Whitehead	Christchurch Hospital
Chris Williams	Palmerston North Hospital
Jinny Willis	NZOA Joint Registry
Richard Willoughby	Waikato Hospital
Dr. Chris Wilson	Blackwood Hospital
Tim Woodfield	University of Otago Christchurch
Mark Wright	Auckland City Hospital

DELEGATES

Delegate	Hospital
Nikki Wright	NZOA, Conference & Events Manager
Wes Xia	Whangarei Hospital
Edward Yee	North Shore Hospital
Faseeh Zaidi	Auckland City Hospital
John Zhang	Christchurch Hospital
Shiran Zhang	North Shore Hospital
Mark Zhu	Waikato Hospital

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