



# SAOA 2023

GT DU TOIT PRIZE  
SHORTLISTED ABSTRACTS  
PRESENTATIONS

## Table of Contents

P1. The effect of treatment delays on fracture-related infection in open tibia shaft fractures. GT4. ...	3
P2. Complications associated with primary reverse shoulder arthroplasty in the public sector a retrospective study 2011-2021. GT5 .....	5
P3. Musculoskeletal Injuries from Gender-based Violence at a Tertiary Orthopaedic Centre. GT7. ....	6
P4. The role of prophylactic antibiotics in zone II and zone V acute flexor tendon injuries. GT11 .....	7
P5. Outcomes of Open Tibia Fractures in Children. GT16 .....	8
P9. RADIOGRAPHIC AND CLINICAL OUTCOMES IN ADOLESCENT IDIOPATHIC SCOLIOSIS CORRECTIVE FUSION SURGERY. GT2 .....	9
P13. A survey of the practice of cervical traction reduction in the Western Cape. GT17 .....	10
P14. A review of fluoroscopy guided percutaneous transpedicular spinal biopsies at a tertiary hospital. GT14 .....	11
P25. Arthroscopic and radiographic findings at time of Latarjet screw removal. GT12 .....	12
P32. Shoulder septic arthritis in paediatrics and adolescents: a retrospective review of clinical presentation, bacteriological profile and outcomes. GT10 .....	13
P35. Antibiotic targeted cement rods in chronic osteomyelitis, long term outcomes from a level one South African trauma centre. GT3 .....	14
P38. Primary Malignant Bone Tumours: Epidemiological data from Pretoria, South Africa. GT6 .....	15
P42. Is malnutrition contributing to the severity of Supracondylar fractures in children: a retrospective review. GT13 .....	16
P51. Comparison of visual estimations of distal radius fracture radiographic parameters between different levels of orthopaedic doctors. GT15 .....	17
P67. Deep infection rate resulting in reoperation for sepsis following minor hand surgery with Wide-Awake Local Anaesthesia No Tourniquet (WALANT) and field sterility in an outpatient setting. GT9 .....	18
P68. A retrospective review of the bacteriology of hand sepsis at a tertiary hospital in Gauteng. GT1 .....	19
P87. Primary Hip and Knee Arthroplasty at District Level is Safe and may reduce the Burden on Tertiary Care in a Low-Income Setting. GT8 .....	20



GT du Toit Prize Shortlisted Abstracts

Date	Venue	Time	Paper	Presenter	Co-Authors
Monday, 4 September 2023	Venue 1 - Plenary - Hall D	11h15-11h22	<b>P1:</b> The effect of treatment delays on fracture-related infection in open tibia shaft fractures. <b>GT4</b>	Dr FW Kock	T Basson, M Burger, N Ferreira
Monday, 4 September 2023	Venue 1 - Plenary - Hall D	11h22-11h29	<b>P2:</b> Complications associated with primary reverse shoulder arthroplasty in the public sector a retrospective study 2011-2021. <b>GT5</b>	Dr J Du Plessis	O Koch , M O'Connor, TLB le Roux
Monday, 4 September 2023	Venue 1 - Plenary - Hall D	11h29-11h36	<b>P3:</b> Musculoskeletal Injuries from Gender-based Violence at a Tertiary Orthopaedic Centre. <b>GT7</b>	Dr K Leslie	S Matshidza
Monday, 4 September 2023	Venue 1 - Plenary - Hall D	11h36-11h43	<b>P4:</b> The role of prophylactic antibiotics in zone II and zone V acute flexor tendon injuries. <b>GT11</b>	Dr R Tshisikule	
Monday, 4 September 2023	Venue 1 - Plenary - Hall D	11h43-11h50	<b>P5:</b> Outcomes of Open Tibia Fractures in Children. <b>GT16</b>	Dr W Ncana	
Monday, 4 September 2023	Venue 3 -Room 11	14h40 - 14h50	<b>P9:</b> Radiographic and clinical outcomes in adolescent idiopathic scoliosis corrective fusion surgery. <b>GT2</b>	Dr B Blankson	R Dunn, L Noconjo
Monday, 4 September 2023	Venue 3 -Room 11	16h00 - 16h10	<b>P13:</b> A survey of the practice of cervical traction reduction in the Western Cape. <b>GT17</b>	Dr B Salence	Dr N Kruger
Monday, 4 September 2023	Venue 3 -Room 11	16h10 - 16h20	<b>P14:</b> A review of fluoroscopy guided percutaneous transpedicular spinal biopsies at a tertiary hospital. <b>GT14</b>	Dr S Bhikha	
Tuesday - 5 September 2023	Venue 1 - Plenary - Hall D	14h50 - 15h00	<b>P25:</b> Arthroscopic and radiographic findings at time of Latarjet screw removal. <b>GT12</b>	Dr R du Plessis	S Roche, J-P du Plessis, R Dey, W de Kock, J de Wet
Tuesday - 5 September 2023	Venue 2 - Parallel - Hall C	14h45-14h50	<b>P32:</b> Shoulder septic arthritis in paediatrics and adolescents: a retrospective review of clinical presentation, bacteriological profile and outcomes. <b>GT10</b>	Dr N Mukansi	
Tuesday - 5 September 2023	Venue 2 - Parallel - Hall C	15h05-15h10	<b>P35:</b> Antibiotic targeted cement rods in chronic osteomyelitis, long term outcomes from a level one South African trauma centre. <b>GT3</b>	Dr C Nicolaou	AR Sekeitto, JD Urrea, B Milner
Tuesday - 5 September 2023	Venue 3 - Room 11	14h45 - 14h55	<b>P38:</b> Primary Malignant Bone Tumours: Epidemiological data from Pretoria, South Africa. <b>GT6</b>	Dr J du Preez	J Meijer, T Le Roux
Tuesday - 5 September 2023	Venue 4 - Room 8 & 9	14h50 - 15h20	<b>P42:</b> Is malnutrition contributing to the severity of Supracondylar fractures in children: a retrospective review. <b>GT13</b>	Dr S Rangunandan	R Goller
Wednesday, 6 September 2023	Venue 3 - Room 11	11h05-11h10	<b>P51:</b> Comparison of visual estimations of distal radius fracture radiographic parameters between different levels of orthopaedic doctors. <b>GT15</b>	Dr V Naidoo	J Du Plessis, B Milner
Wednesday, 6 September 2023	Venue 4 - Room 8 & 9	10h50 - 11h00	<b>P67:</b> Deep infection rate resulting in reoperation for sepsis following minor hand surgery with Wide-Awake Local Anaesthesia No Tourniquet (WALANT) and field sterility in an outpatient setting. <b>GT9</b>	Dr L Skosana	O Koch, T Le Roux
Wednesday, 6 September 2023	Venue 4 - Room 8 & 9	11h00 - 11h10	<b>P68:</b> A retrospective review of the bacteriology of hand sepsis at a tertiary hospital in Gauteng. <b>GT1</b>	Dr A Adams	H Sithebe
Thursday, 7 September 2023	Venue 1 - Plenary - Hall D	11h00 - 11h10	<b>P87:</b> Primary Hip and Knee Arthroplasty at District Level is Safe and may reduce the Burden on Tertiary Care in a Low-Income Setting. <b>GT8</b>	Dr K Laubscher	N Kauta, M Held, M Nortje, R Dey

## P1. The effect of treatment delays on fracture-related infection in open tibia shaft fractures. GT4.

Category: Trauma

Presentation: Oral

Frans Willem Kock (Stellenbosch University), Tinus Basson (Stellenbosch University) Marilize Burger (Stellenbosch University), Nando Ferreira (Stellenbosch University)

**Background:** This study aimed to investigate the outcomes of open tibia shaft fractures at a level one trauma center in a developing world setting. Specific objectives were to determine the association of time delay to antibiotic administration, surgical debridement, definitive skeletal stabilisation and soft tissue reconstruction, and the development of fracture-related infection (FRI).

**Methods:** A retrospective cohort study included all adult patients with open tibia shaft fractures from July 2014 to June 2016 and January 2018 to December 2019. Patients who were skeletally immature at the time of injury, those with pathological fractures and who did not complete follow-up of at least three months were excluded. Patients were identified from hospital records. Data was captured in Microsoft Excel and analysed using STATISTICA. A Chi-squared was used to detect significant differences between groups.

**Results:** No association between infection and antibiotic administration was observed when patients were treated within or after 3 hours ( $p=0.625$ ) or if patients had their first surgical debridement in theatre before or after 24 hours ( $p=0.259$ ). Patients who waited more than five days for definitive skeletal fixation or soft tissue reconstruction had a significant increase in FRI (OR 4.7, 95% CI 2.0 – 10.9 and OR 4.7, 95% CI 2.0 – 11.0, respectively). Patients who underwent more than two formal debridements had a higher risk of developing FRI (OR 15.6, 95% CI 5.8 – 41.6).

**Conclusion:** Whilst administration of antibiotics within 3 hours of presentation to the emergency unit had no impact on the development of FRI, time delays in managing open tibia shaft fractures are associated with an increased risk for FRI. Definitive soft tissue reconstruction and skeletal stabilization should not be delayed for more than five days.

## P2. Complications associated with primary reverse shoulder arthroplasty in the public sector a retrospective study 2011-2021. GT5

Category: Arthroplasty

Presentation: Oral

Jan Gabriel du Plessis (University of Pretoria), Odette Koch (University of Pretoria), Megan O'Connor (University of KZN), TLB le Roux (University of Pretoria)

Registrar Mmed Project

### Background

In reverse shoulder arthroplasty (RSA), a high complication rate is noted in the international literature (24.7%), and limited local literature is available. The complications in our developing health system, with high HIV, tuberculosis and metabolic syndrome prevalence may be different from that in developed health systems where the literature largely emanates from.

The aim of this study is to describe the complications and complication rate following RSA in a South African cohort.

### Methods

An analytical, cross-sectional study was done where all patients' who received RSA over an 11 year period at a tertiary hospital were evaluated. One-hundred-and-twenty-six primary RSA patients met the inclusion criteria and a detailed retrospective evaluation of their demographics, clinical variables and complication associated with their shoulder arthroplasty were assessed. All fracture, revision and tumour resection arthroplasties were excluded, and a minimum of 6 months follow up was required.

### Results

A primary RSA complication rate of 19.0% (24/126) was noted, with the most complications occurring after 90 days at 54.2% (13/24). Instability was the predominant delayed complication at 61.5% (8/13) and sepsis being the most common in the early days at 45.5% (5/11). Haematoma formation, hardware failure and axillary nerve injury were also noted at 4.2% each (1/24).

### Conclusions

Keeping in mind the immense difference in socioeconomical status and patient demographics in a third world country the RSA complication rate in this study correlates with the known international consensus. This also proves that RSA is still a suitable option for rotator cuff arthropathy and glenohumeral osteoarthritis even in an economically constrained environment like South Africa.

### P3. Musculoskeletal Injuries from Gender-based Violence at a Tertiary Orthopaedic Centre. GT7.

Category: Trauma

Presentation: Oral

Kenneth Leslie (University of the Free State), Steven Matshidza (University of the Free State)

Intimate partner violence (IPV) causes significant morbidity and its unlikely to be reported compared to other forms of gender-based violence (GBV). For early detection, understanding Orthopaedic injuries from GBV is vital.

This study assesses the pattern of musculoskeletal injuries from GBV and determines the factors associated with it.

It is a retrospective observational study of patients aged  $\geq 18$  years, with GBV-related acute Orthopaedic injuries. Data was reviewed from January 2021 to December 2021, including, demographic information, soft tissue and bony injuries, relationship to assailant, substance abuse and the day and time of injury. Frequencies and percentages for categorical data were analysed. Chi-square test was used to calculate association. T-test was used to compare groups for continuous & categorical variables. Multivariate analysis was conducted to find the odds ratio and a p-value  $< 0.05$  was statistically significant.

138 patients were included, the mean age at presentation being 35.02 years (SD=11). 92.75% of GBV victims were females. Most were unemployed (66.7%). 30.43% (n=42) had a soft tissue injury; superficial laceration being the most common (23.1%), flexor tendon injury (10.87%), hand abscess (5.8%), and extensor tendon injury (5.07%). 71.02% (n=98) sustained appendicular fractures. 51.45% (n=71) sustained upper limb fractures; distal radius fractures (10.86%) and distal 3rd ulnar fractures (9.42%). 19.57% (n=27) had lower limb fractures; 7.25% (n=10) had lateral malleolus ankle fractures. 63.7% (n=80) of cases were by an intimate partner on weekends (50.73%). 62.31% occurred between 16h00 and 0h00. 41.1% (n=65) reported alcohol abuse. 63.04% had surgery.

GBV likely occurs in early middle-aged females by intimate partners influenced by alcohol over the weekends between 16h00 to 0h00. Distal radius/distal 3rd ulnar fractures are the most common bony injuries. Superficial wrist laceration is the commonest soft tissue injury. These findings may assist with early detection and intervention to prevent adverse outcomes in GBV.

## P4. The role of prophylactic antibiotics in zone II and zone V acute flexor tendon injuries. GT11

Category: Hands

Presentation: Oral

Rihangwele Tshisikule (WITS University)

**Background:** Our study sought to establish the necessity of prolonged pre-operative antibiotic prophylaxis in patients presenting with zone II and zone V acute flexor tendon injuries (FTI). We hypothesized that a single dose of prophylactic antibiotic was adequate in prevention of post-operative wound infection in acute zone II and V FTI.

**Methods:** This was a prospective study of 116 patients who presented with zone II and zone V acute FTI. The study included patients who were 18 years and older. Those with macroscopic contamination, immunocompromised, open fractures, bite injuries, and crush injuries were excluded. Patients were randomised into a group receiving a single dose of prophylactic antibiotic and another group receiving a continuous 8 hourly antibiotic doses until the day of surgery. Each group was subdivided into occupational and non-occupational injuries. Their post-operative wound outcomes were documented 10 – 14 days after surgery. The wound outcome was reported as no infection, superficial infection (treated with wound dressings), and deep infection (requiring surgical debridement).

**Results:** There was 0.9% rate of deep post-operative wound infections, which was a single zone V acute FTI case in a single dose prophylactic antibiotic group. There was a 7.8% superficial post-operative wound infection rate, which was mainly zone II acute FTI in both antibiotic groups. There was a strong association between zone II acute FTI and post-operative wound infection ( $p < 0.05$ ). There was no association between (antibiotic dosage or place of injury) with post-operative wound infection ( $p > 0.05$ ).

**Conclusion:** There is no benefit in prescribing prolonged pre-operative antibiotic in patients with acute, simple lacerations to zone II and zone V FTI if there is no macroscopic wound contamination.

## P5. Outcomes of Open Tibia Fractures in Children. GT16

Category: Paediatrics

Presentation: Oral

Waziba Ncana (University of Cape Town)

### Background

Open tibia fractures are common injuries in our paediatric population and are often associated with high-energy trauma such as pedestrian-vehicle accidents. At our institution, these injuries are routinely treated with debridement and mono-lateral external fixation.

The purpose of this study was to determine the outcome of open tibia fractures treated according to this protocol, as well as the complication rate and factors contributing to the development of complications.

### Methods

We performed a retrospective folder review of all patients with open tibia fractures that were treated according to our protocol from 2015-2019. Patients treated by other means, who received primary treatment elsewhere, and with insufficient data, were excluded. Data was collected on presenting demographics, injury characteristics, management, and clinical course. Complications were defined as pin tract infections, delayed- or non-union, malunion, growth arrest, and neurovascular injury. Appropriate statistical analysis was performed.

### Results

One-hundred-and-fifteen fractures in 114 children (82 males) with a median age of 7 years (IQR 6-9) were included in the analysis. Pedestrian vehicle accidents (PVA's) accounted for 101 (88%) of fractures, and the tibial diaphysis was affected in 74 cases (64%). Fracture severity was equally distributed among the Gustillo-Anderson grades. The median Abbreviated Injury Score was 4 (IQR 4;5). Ninety-five fractures (83%) progressed to uneventful union within 7 weeks. Twenty patients (17%) developed complications, with delayed union and fracture site infections being the most common complications. Gustillo-Anderson Grade 3 fractures, an increased Abbreviated Injury Score, and the need for advanced wound closure techniques were risk factors for developing complications.

### Conclusion

Surgical debridement and external fixation in a simple mono-lateral frame is an effective treatment for open tibia fractures in children and good outcomes were seen in 83% of patients. More severe injuries requiring advanced wound closure were associated with the development of complications



## P9. RADIOGRAPHIC AND CLINICAL OUTCOMES IN ADOLESCENT IDIOPATHIC SCOLIOSIS CORRECTIVE FUSION SURGERY. GT2

Category: Spine

Presentation: Oral

Benjamin Blankson (UCT/GSH South Africa), Robert Dunn (UCT, GSH South Africa), Lubabalo Noconjo (UCT/GSH South Africa)

### Introduction

Adolescent idiopathic scoliosis (AIS) is a complex three-dimensional deformity of the spine characterized by a Cobb angle of at least 10 degrees. The goal of surgery is to not only prevent progression but restore sagittal and coronal balance, protecting cardiopulmonary function and improving cosmesis.

We reviewed the impact of deformity correction surgery in terms of radiology and patient reported outcome (PROMs).

### Method

The senior authors prospectively maintained database from 2003 -2022 was retrospectively analysed in terms of pre- and post-operative patient reported outcome measures (SRS 22) as well as radiological parameters.

44 patients with AIS were identified with pre and post op PROMS. The average age at surgery was 15yrs with 84% female. 38% had a Lenke 1 curve and 3 patients had Lenke 6 curves. 73% had posterior surgery.

### Results

There was a total improvement in SRS 22 scores by 7.8%. Patients reported significant satisfaction with treatment 4.8/5 and improvement in self-image with a change of 0.4 ( $p < 0.001$ ). However, no difference in function, pain and mental health were recorded.

Overall, proximal thoracic (PT) curves improved from 24 degrees to 11 degrees ( $p < 0.001$ ), Main thoracic (MT) curve 55 degrees to 19 degrees and Thoracolumbar/Lumbar curves (TL/L) 45 degrees to 11 degrees. Pre-operative flexibility and post-operative correction were 0.40 and 0.41 respectively for PT curve. MT was 0.32 and 0.67. That for TL/L was 0.57 and 0.71 respectively.

### Conclusion

Surgery yields significant main curve correction correlating with high patient reported satisfaction rate. Although total SRS 22 score yielded 7.8% improvement, sub-analysis of self-image showed the most significant improvement.

## P13. A survey of the practice of cervical traction reduction in the Western Cape. GT17

Category: Spine

Presentation: Oral

Bijou Salence (University of Cape Town), Nicholas Kruger (University of Cape Town)

A retrospective follow-up study was done, assessing regional practices in acute cervical reduction in hospitals in the Western Cape. The constitutional court ruled on the urgency in managing cervical dislocations, and our task is to ensure that medical treatment is optimized to comply with best medical practice and the apex court.

A questionnaire was distributed and completed by emergency departments at each hospital, the results retrieved, analysed, and compared to a similar survey done in 2016.

### Results

Protocols for managing cervical spine dislocations had improved from 80% having no protocols to only over half of facilities (52,6%) not having protocols in place. Inadequate equipment availability remained a problem with only 50% of facilities having adequate equipment available in 2016 to 43,6% in 2023. 10,3% of participants did not know if there was equipment available. In terms of knowledge, there remained poor formal training with a drop from 93% participants identifying that the main indication to attempt emergency cervical reduction was acute cervical dislocation with worsening neurology, to only 46,2%. However, there was an increase in the number of participants who thought reduction was safe. The same percentage of participants from 2016 to 2023 would attempt emergency cervical reduction if given adequate training.

### Conclusion

Previously we found that most Western Cape hospitals had inadequate protocols, training, and equipment for cervical reductions. In 2023, more hospitals in the Province have protocols in place for cervical reductions and the same percentage of doctors would attempt emergency cervical reduction with adequate training. However, equipment and training for management of acute cervical dislocations has not improved. We conclude that most Western Cape Hospitals are unprepared to adequately manage acute cervical dislocations.

## P14. A review of fluoroscopy guided percutaneous transpedicular spinal biopsies at a tertiary hospital.GT14

Category: Spine

Presentation: Oral

Shivam Bhikha, (Wits South Africa)

=

### Background

When a suspicious spine lesion is identified, an accurate diagnosis based on tissue biopsy is needed to direct towards the correct treatment protocol.

Several studies concluded that the percutaneous fluoroscopy guided biopsy of vertebral lesions is a safe, effective and accurate diagnostic tool and is preferred over open techniques when possible.

The aim of this study was to review percutaneous fluoroscopy guided transpedicular spinal biopsies at a tertiary hospital over a 6-year period.

### Methodology

The research design was a retrospective review of patients who underwent percutaneous transpedicular spinal biopsies under fluoroscopy guidance at a tertiary hospital over a six year period (1st January 2016 to the 31st December 2021).

The spine theatre registry and hospital records system were used as the source for data collection. Statistical analysis was conducted to determine the effectiveness of transpedicular spinal biopsies, compare spinal pathology amongst age and gender and to identify any complications.

### Results

The study analysed 180 biopsies, 120 yielding a positive result (66.67%). Of these 8.9% were pyogenic infection, 18.4% neoplasm, 36.7% Tuberculosis and 2.7% other. There were 75 males and 105 females with an age range between 9 and 86 years and mean age of 43.44. Comparing age and gender found no statistical significance ( $p = 0.778$ ). Comparing biopsy result and gender showed no statistical significant relationship ( $p = 0.970$ ). Comparison of biopsy result with age showed no statistical significant association ( $p = 0,545$ ). Four complications were identified (2.22%).

### Conclusion

The study showed that fluoroscopy guided percutaneous transpedicular biopsy is an effective and safe modality in obtaining spinal specimens in all age groups for a wide spectrum of spinal pathological lesions.

## P25. Arthroscopic and radiographic findings at time of Latarjet screw removal. GT12.

Category: Shoulder and Elbow

Presentation: Oral

Rimon du Plessis, (UCT South Africa), Stephen Roche (UCT South Africa), Jean-Pierre du Plessis, (UCT South Africa), Roopam Dey, (UCT South Africa) Wybrand de Kock (UCT South Africa), Jape de Wet (UCT South Africa).

### Background

The Latarjet procedure is a well described method to stabilize anterior shoulder instability. There are concerns of high complication rates, one of these being a painful shoulder without instability due to screw irritation. The arthroscopic changes in the shoulder at time of screw removal compared to those pre-Latarjet have not been described in the literature.

### Methods

We conducted a retrospective review of arthroscopic videos between 2015 and 2022 of 17 patients at the time of their Latarjet screw removal and where available (n=13) compared them to arthroscopic findings at time of index Latarjet. Instability was an exclusion criterion. X-rays prior to screw removal were assessed independently by two observers blinded to patient details for lysis of the graft. Arthroscopic assessment of the anatomy and pathological changes were made by two shoulder surgeons via mutual consensus. An intraclass correlation coefficient (ICC) was analyzed as a measure for the inter-observer reliability for the radiographs.

### Results

Our cohort had an average age of  $21.5 \pm 7.7$  years and an average period of  $16.2 \pm 13.1$  months between pre- and post-arthroscopy. At screw removal all patients had an inflamed subscapularis muscle with 88% associated musculotendinous tears and 59% had a pathological posterior labrum. Worsening in the condition of subscapularis muscle (93%), humeral (31%) and glenoid (31%) cartilage was found when compared to pre-Latarjet arthroscopes. Three failures of capsular repair were seen, two of these when only one anchor was used. X-ray review demonstrated 79% of patients had graft lysis. Excellent inter-rater reliability was observed with an ICC value of 0.82.

### Conclusion

Our results show a high rate of pathological change in the subscapularis muscle, glenoid labrum and articular cartilage in the stable but painful Latarjet. 79% of patients had graft lysis with prominent screws on X-ray.

## P32. Shoulder septic arthritis in paediatrics and adolescents: a retrospective review of clinical presentation, bacteriological profile and outcomes. GT10

Category: Infection

Presentation: Oral

Nyiko Mukansi (University of Pretoria)

**Introduction:** Shoulder septic arthritis is uncommon and frequently misdiagnosed, resulting in severe consequences. This study evaluated the demographics, bacteriological profile, antibiotic susceptibility, treatment regimens, and clinical outcomes.

**Materials and methods:** This is a 10-year retrospective observational analysis of 30 patients (20 males and 10 females) who were treated for septic arthritis of the shoulder. The data collecting process utilised clinical records, laboratory archives, and x-ray archives. We gathered demographic information, pre- and post-intervention clinical data, serum biochemical markers, and the results of imaging examinations. All patients had a surgical arthrotomy and joint debridement in the operating room, and specimens were taken for culture and sensitivity testing. The specimens were cultivated for at least seventy-two hours. Shoulder joint ranges of motion, comorbidities, and the presence of osteomyelitis were assessed clinically to determine the outcome. All statistical analyses were conducted using the STATA 17 statistical software. Analysis of correlation between categorical variables was performed using the chi-squared test.

**Results:** The majority of the study patients were black Africans (97%). The age range of the group was from 8 days to 17 years. At presentation, 33% of patients had a low-grade fever, whereas the majority (60%) had normal body temperature. The average length of symptoms was 3.9 days (ranged from 1 day to 15 days), and the majority of patients had an increased white cell count (83%) and C-reactive protein (98%). There was accumulation of fluid in the joint of all individuals who received shoulder ultrasound imaging. We noted a significant incidence of gram-positive cocci, which were mostly susceptible to first-line antibiotics. Shoulder stiffness affected 63% of patients and chronic osteomyelitis affected 50% of individuals. Neither the severity nor the duration of the symptoms was related to an increased risk of osteomyelitis.

**Conclusion:**

The results of this study revealed that the clinical characteristics and bacterial profile of septic arthritis of the shoulder conform to typical patterns. The likelihood of osteomyelitis and an unfavourable prognosis is considerable.

### P35. Antibiotic targeted cement rods in chronic osteomyelitis, long term outcomes from a level one South African trauma centre. GT3.

Category: Infection

Presentation: Oral

Caterina Nicolaou (University of Witwatersrand), Allan Roy Sekeitto (University of Witwatersrand), Juan David Urrea (Universidad Del Valle Colombia) Brenda Milner (University of Witwatersrand)

Background:

Fracture related infection, in particular chronic osteomyelitis, requires complex management plans. Meta analyses and systematic reviews have not found a gold standard of treatment for this disease. In 2017 an alternative treatment protocol was undertaken in our institution; whereby staged surgery with the use of cheaply manufactured tailored antibiotic cement rods was used in the treatment of chronic osteomyelitis, secondary to traumatic long bone fractures. Short term outcomes for this protocol demonstrated a 75.7% microbiological resolution to a negative culture and a good clinical outcome of 84.2% overall was demonstrated in terms of sinus resolution, skin changes, pain and function. Our aim now was to assess the long term outcomes of this treatment strategy.

Methods:

A cross-sectional study of patients who had previously undergone the set treatment protocol was performed. Patient satisfaction, effects on activities of daily living, return to work and clinical improvement at 5 years following the intervention were assessed using a patient questionnaire and the validated AAOS lower limb score.

Results:

The average AAOS lower limb score was 88 which was en par to other similar studies. 80% of patients had returned to some form of work. Ongoing mild pain was a persistent problem for 50% of the patients however 98% of the patients were overall satisfied with the treatment satisfaction at 5 years. Only 1 patient required further treatment. 8 patients could not be located for follow up.

Conclusion:

Chronic osteomyelitis remains a complex disease to treat. This treatment protocol demonstrates favourable microbiological, serological and clinical short term outcomes and favourable patient satisfaction and functional long term outcomes at 5 years. Our study highlights antibiotic targeted cement rods as a feasible treatment option in managing chronic osteomyelitis.

### P38. Primary Malignant Bone Tumours: Epidemiological data from Pretoria, South Africa. GT6

Category: Oncology and Limb reconstruction

Presentation: Oral

Johan du Preez (University of Pretoria, South Africa), Jannes Meijer (Private South Africa), Theo le Roux (University of Pretoria, South Africa)

Primary malignant bone tumours are a scarce entity with limited population-based data from developing countries. The aim of the study is to investigate the frequency and anatomical distribution of primary malignant bone tumours in a local South African population. This will be an epidemiological retrospective study. Data will be used of patients that were diagnosed with primary malignant bone tumours over a period of nine years spanning from 1 January 2014 to 31 December 2022. This data will be received from private and government laboratories. Data to be considered are type of primary malignant bone tumours diagnosed, incidence of primary malignant bone tumours over a period of nine years and the most common anatomical sites of primary malignant bone tumours. The rationale behind our study is to assess the frequency of different primary malignant bone tumours in another geographic area of South Africa and to compare these findings to local and international literature. With a projected increase in diagnosis of primary malignant bone tumours in developing countries it is important to have more available data about primary malignant bone tumours from these areas to have a better understanding of these conditions and to understand the impact of the burden they impose on healthcare systems so that management of these conditions can also be improved. Preliminary results show that 23.83% of primary malignant bone tumours occurred in the age group 0-24 years of age, 49.22% in the 25-59 age group and 26.95% in the 60+ age group. The most common tumour that occurred was chondrosarcoma (49.21%) followed by osteosarcoma (41.80%) then Ewing's sarcoma (4.69%) and lastly chordoma (4.30%). From the 256 samples that met the inclusion criteria the five most common anatomical sites were distal femur (63), proximal tibia (41), proximal humerus (38), pelvis (34) and proximal femur (20).

## P42. Is malnutrition contributing to the severity of Supracondylar fractures in children: a retrospective review. GT13

Category: Paediatrics

Presentation: Oral

Shiksha Rangunandan, University of Pretoria South Africa), Ruan Goller (University of Pretoria, South Africa)

**Background:** The aims of this study was to determine the incidence of malnutrition in children with supracondylar fractures. It was hypothesised that the presence of malnutrition will increase the severity type of fractures.

**Methods:** The study was a retrospective, cross-sectional study at a single institution. Children between 0 years and 12 years of age, who sustained documented supracondylar fracture treated surgically as a result of low velocity trauma were included in the study. Patients who sustained high velocity trauma, who had known bone disorders or had incomplete chart data, were excluded from the study Data was captured from children's' notes who have been treated surgically for supracondylar fractures from casualty, theatre and the clinic notes. The nutritional status of children and fracture grade were identified and the two sets of data were compared against each other to try to identify a possible relation between fracture severity and malnutrition. Data was analysed in STATA and 5% level of significance was used to signify statistically significant associations.

**Results:** 150 patients were identified and included in the study. The majority of patients reviewed were in the normal nutritional range according to their z-scores. The severity of the fracture was not only associated with a poorer nutritional status however children with high and low z-scores (over weight as well as undernourished children) had the more severe fracture patterns, while children with normal z-scores had a fracture patterns of varying severity.

**Conclusion:** Children who were malnourished were more likely to sustain more severe fracture types. The results highlighted the need for all children to have a good nutritional status as this may play a role in preventing more complex fractures.



## P51. Comparison of visual estimations of distal radius fracture radiographic parameters between different levels of orthopaedic doctors. GT15.

Category: Trauma

Presentation: Oral

Vishad Naidoo (University of the Witwatersrand, South Africa), Jason Du Plessis (University of the Witwatersrand South Africa), Brenda Milner (University of the Witwatersrand, South Africa)

**Background:** Distal radius fractures are common in South Africa. Accurate, decisive radiographic parameter interpretation is key in appropriate management. Digital radiographic facilities are rare in the public setting and goniometer usage is known to be low, thus, visual estimates are the primary form of radiographic assessment. Previous research associated orthopaedic experience with accuracy of distal radius fracture parameter estimation but, oftentimes, doctors treating orthopaedic patients are not experienced in orthopaedics.

**Methods:** A cross-sectional questionnaire including four distal radius fracture radiographs administered to 149 orthopaedic doctors at three Johannesburg teaching hospitals. Participants grouped into ranks of: consultants (n=36), registrars (n=41), medical officers (n=20) and interns (n=52). Participants visually estimated values of distal radius fracture parameters, stated whether they would accept the position of the fractures and stated their percentage of routine usage of goniometers in real practice.

**Results:** The registrar group was most accurate in visually estimating radial height, whilst the interns were least accurate ( $p=0.0237$ ). The consultant, registrar and medical officer groups were equally accurate in estimating radial inclination whilst the intern group was the least accurate ( $p<0.0001$ ). The consultant and registrar group were equally accurate at estimating volar tilt, whilst the medical officer and intern groups were least accurate ( $p<0.0001$ ). The Gwet's AC agreement was 0.1612 ( $p=0.047$ ) for acceptance of position of the first radiograph, 0.8768 ( $p<0.0001$ ) for the second, 0.8884 ( $p<0.0001$ ) for the third and 0.8064 ( $p<0.0001$ ) for the fourth. All groups showed no difference in goniometer usage, using them largely 0-25% of practice ( $p=0.1937$ ).

**Conclusion:** The study found that accuracy in visual estimations of distal radius fracture parameters was linked to orthopaedic experience but not linked to routine practice goniometer usage, which was minimal across all groups. Inter-rater agreement on acceptability of fracture position is potentially dependent on severity of deviation from acceptable parameters.

## P67. Deep infection rate resulting in reoperation for sepsis following minor hand surgery with Wide-Awake Local Anaesthesia No Tourniquet (WALANT) and field sterility in an outpatient setting. GT9.

Category: Hands

Presentation: Oral

Lee Skosana (University of Pretoria, South Africa), Odette Koch (1 Military Hospital, South Africa)  
Theo Le Roux (1 Military, South Africa)

### Abstract

This study aims to determine the incidence of surgical site infection leading to reoperation for sepsis following minor hand procedures performed outside the main operating room using field sterility in the South African setting.

### Methods

The investigators retrospectively reviewed the records of 485 patients who had WALANT-assisted minor hand surgery outside a main operating theatre, a field sterility setting between March 2019 and April 2023. The primary outcome was the presence or absence of deep surgical site infection that required reoperation within four weeks. Cases included where elective WALANT minor hand procedures, a minimum age of 18 with complete clinical records.

### Results

The patients were mostly female (54.8%), with a mean age of 56.35 years. The majority of cases were trigger finger and carpal tunnel release. An overall 485 cases were reviewed, the deep surgical site infection rate resulting in reoperation within 4 weeks post-operatively was 1.24% ((95% Confidence Interval (CI) 0.0034 to 0.0237);  $p = 0.009$ ).

### Conclusion

Minor hand procedures performed under field sterility using WALANT have a low surgical site infection rate. The current study's infection rates are comparable to international surgical site infection rates for similar surgeries performed in main operating rooms using standard sterilisation procedures. Field sterility is a safe and acceptable clinical practice that may improve work efficiency in public sector.

Level of evidence: Level 4

Keywords: WALANT, Hand surgery

## P68. A retrospective review of the bacteriology of hand sepsis at a tertiary hospital in Gauteng. GT1

Category: General

Presentation: Oral

Allyson Adams (University of Pretoria), Hlabane Sithebe (University of Pretoria)

**Background:** The aim of this investigation is to firstly quantify the burden of disease, and secondly qualify the organisms being cultured during debridement to establish their sensitivities to available antibiotics. This study will also look at the concomitant burden of Human Immunodeficiency Virus (HIV) and Diabetes Mellitus (DM) in cases of hand sepsis, to establish whether these two disease processes require special consideration and treatment tailoring.

**Methods:** The method employed to collect the data will be retrospective collection of patient information, using random sampling. Included patients will be adult patients who undergo debridement and have a sample registered on the National Health Laboratory System (NHLS). The daily intake sheet will be used to collect patients details and these details will then be used to collect results of intra-operative specimens using the NHLS. These patient details will also be used to check patients' HIV results and HBA1c (Glycated Haemoglobin A1c) results.

**Results:** Majority of the specimens revealed Methicillin Sensitive Staphylococcus Aureus (MSSA), with a reassuringly low rate of Methicillin Resistant Staphylococcus Aureus (MRSA) when compared to international data. The yield of patients tested for HIV or DM was lower than expected, despite this being the standard of care.

**Conclusion:** The projected impact of this study will be assessment of the current burden of disease and then clarification of our current management strategy, in order to assess if it would be possible to change to a more cost-effective antibiotic with a narrower spectrum of bacteria coverage. The potential exists to not only implement cost saving measures, but also promote antibiotic stewardship by decreasing the practice of empiric broad-spectrum antibiotic use.

## P87. Primary Hip and Knee Arthroplasty at District Level is Safe and may reduce the Burden on Tertiary Care in a Low-Income Setting.GT8

Category: Arthroplasty

Presentation: Oral

Kim Laubscher (UCT, South Africa), Ntambue Kauta (UCT South Africa), Michael Held (UCT South Africa), Marc Nortje (UCT South Africa) Roopam Dey (UCT South Africa)

**Background:** Arthroplasty procedures in low-income countries are mostly performed at tertiary centers, with waiting lists exceeding 12 to 24 months. Providing arthroplasty services at other levels of healthcare aims to offset this burden, however there is a marked paucity of literature regarding surgical outcomes. This study aims to provide evidence on the safety of arthroplasty at district level.

**Methods:** Retrospective review of consecutive arthroplasty cases performed at a District Hospital (DH), and a Tertiary Hospital (TH) in Cape Town, between January 2015 and December 2018. Patient demographics, hospital length of stay, surgery related readmissions, reoperations, post-operative complications, and mortality rates were compared between cohorts.

**Results:** Seven hundred and ninety-five primary arthroplasty surgeries were performed at TH level and 228 at DH level. The average hospital stay was  $5.2 \pm 2.0$  days at DH level and  $7.6 \pm 7.1$  days for TH ( $p < 0.05$ ). Readmissions within 3 months post-surgery of 1.75% (4 patients) for district and 4.40% (35) for TH ( $p < 0.05$ ). Reoperation rate of 1 in every 100 patients at the DH and 8.3 in every 100 patients at the TH ( $p < 0.05$ ). Death rate was 0.4% vs 0.6% at district and TH respectively ( $p > 0.05$ ). Periprosthetic joint infection rate was 0.43% at DH and 2.26% at TH. The percentage of hip dislocation requiring revision was 0% at district and 0.37% at TH. During the study period, 228 patients received arthroplasty surgery at the DH; these patients would otherwise have remained on the TH waiting list.

**Conclusions:** Hip and Knee Arthroplasty at District health care level is safe and may help ease the burden on arthroplasty services at tertiary care facilities in a Southern African context. Adequately trained surgeons should be encouraged to perform these procedures in district hospitals provided there is appropriate patient selection and adherence to strict theatre operating procedures.