

PUS CONFERENCE 2018

2nd Annual Technology in Surgery Conference



THE FUTURE OF SURGERY

14th April 2018, Sherwell Centre, Plymouth University

WESLEYAN
we are all about you



MDU

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Welcome Note

This is the second year that the Plymouth Undergraduate Surgeons have organised a conference on the theme of Technology in Surgery. We recognise that the face and procedures of surgery is ever changing due to the exponential rate at which our technologies are advancing. Already there are debates and hot topics about the evolution of certain surgical specialties, while some are just beginning to adopt new techniques like robotic surgery to improve surgical outcomes; others fear the end of their era as micro-technology allow surgery to take place without the need of a skilled surgeon's hand.

The Royal College of Surgeons are also recognising the rapid rate at which technologies are affecting surgical practice. Just last year, they have set up an independent commission to explore current innovations that will most likely affect the way we provide surgical care to all. These are indeed interesting times and we hope this conference will provide a flavour of what may come next in the field of surgery.

Please enjoy the rest of the day as we have experienced surgeons who will be talking about their views on the future of their respective specialties. We have also prepared interesting workshops that we hope will be useful in giving you basic surgical experience and opportunities to explore other aspects that may shape surgical practice in the near future.

Sincerely,

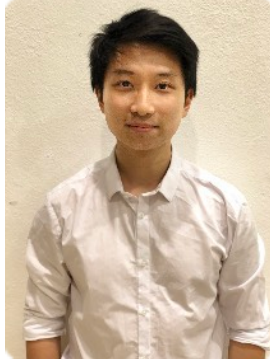
Your organising committee

PUS Conference Committee 2017-2018



PUS Conference Committee 2018

Dylan Tan



Chair

Emily Hale



Logistics officer

Thomas Tribedi



Vice-chair

Ahmed Chowdhury



Workshops officer

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Maddiyah Khan - Clinical officer

Raashmi Varadarassou - WinS Representative

Jessica Kennett - IT and Publicity Officer

Patron

Mr Somaiah Aroori



Consultant hepatobiliary surgeon

Schedule

Event	Time
Registration	08:30 - 09:00
Welcome and opening	09:00 - 09:10
Mr Aroori - PUS Patron	09:10 - 09:30
Keynote Speaker: Mr Devender Mittapalli "Technological Advancements in Vascular Surgery"	09:30 - 10:00
Break	10:00 - 10:05
Compulsory workshop: Suturing/Laparoscopic surgery/VR	10:05 - 10:35
Break	10:35 - 10:40
Compulsory workshop: Suturing/Laparoscopic surgery/VR	10:40 - 11:10
Coffee Break	11:10 - 11:30
Compulsory workshop: Suturing/Laparoscopic surgery/VR	11:30 - 12:00
Poster presentation and lunch	12:00 - 13:00
Oral presentations	13:00 - 13:30
Break	13:30 - 13:35
Keynote Speaker: Dr. Edward Cardiff Proximie	13:35 - 14:05
Break	14:05 - 14:10
Optional & college student workshops	14:10 - 14:40
Coffee Break	14:40 - 14:50
Keynote speaker: Mr. Aroori The Future of Transplantation Surgery	14:50 - 15:20
Prize giving and Committee speech	15:20 - 15:50
Networking in atrium	15:50 - 17:00

Workshops

Suturing and Knot Tying

An introductory workshop for those who have limited experience in suturing. The Basic Suturing workshop covers instrument basics and participants will have the opportunity to demonstrate basic suturing techniques. All supplies will be provided.

Laparoscopy Skills

This workshop will teach basic principles of laparoscopic surgery. Practise a number of laparoscopic skills under the guidance of experienced general surgeons.

Virtual Reality Surgery

This workshop will give attendees the chance to trial various surgical simulators.

Optional - CV-building Workshop

Are you an aspiring surgeon? How do you know if your C.V. is heading in the right direction to help achieve your aims? Participate in this optional workshop and gain personalised advice as to how you can maximise your chances of gaining entry into a surgical specialty.

Optional - Moving Forward with Equality, Diversity and Discrimination in Surgical Practice

This 30 minute workshop will involve a panel of three surgeons discussing their own experiences with equality, diversity and discrimination issues around surgical practice. Join us in a lively conversation around these seldom talked about areas and be part of the movement to increase awareness of the issues that still need to be tackled within surgery.

College Students - Medical School Application Workshop

The committee of PUS will be providing a talk for college students who are preparing themselves for medical school applications. They will provide information about CV opportunities that students can utilise, as well as preparatory techniques for medical school entrance exams, e.g. UKCAT and BMAT. Additionally, there will also be a Q&A session for students to ask about what life in medical school is like.

Poster presentations

Global Demographics of Diagnosis, Surgical Management, and Investigation of SLAP Surgery: A Scoping Review.

Edward Perera

Aim: The aim of this study was to review the global demographics and trends of SLAP literature, diagnosis, management, and consistency of reported outcomes.

Methods: We performed a systematic search for studies addressing SLAP pathology published over the last 10 years. Extracted data included sample size, study location, intervention, outcome measures reported, sex distribution, and level of evidence. Management was compared between geographic areas.

Results: We identified 363 studies over the past decade that met our inclusion and exclusion criteria. The majority of studies originated from North America (50.4%), followed by Asia (22.3%) and Europe (20.9%) with most describing operative interventions originating from the United States (58.5%). We found the majority of literature was case series level data (44.0%) consisting of sample sizes of less than 40 patients (50.1%). The majority of studies presented clinical outcome scores with the ASES score being the most commonly reported (28.3%). The most common complications reported were pain (32.6%) and stiffness (30.4%).

Conclusion: Current literature on SLAP pathology demonstrates overall low levels of evidence with small samples and variably reported clinical outcome scores. Future research should focus on multi-centre, randomised studies to clarify current controversies in the surgical versus non-operative management of SLAP pathology.

A Systematic Review of Clinical Outcomes of Different Vitrectomies Used to Treat Diabetic Vitreous Haemorrhage.

Jamie Routledge

Aims: To compare postoperative complications, re-operation rates and effect on visual acuity of the different methods of modern small gauge vitrectomy and the traditional sutured vitrectomy in the treatment of diabetic vitreous haemorrhage.

Methods: A comprehensive literature search was performed using PubMed, PRIMO and the Cochrane library. The terms 'proliferative diabetic retinopathy', 'vitrectomy' and 'diabetic vitreous haemorrhage' were searched. Retrospective studies and a randomised clinical trial were identified. In order to select appropriate studies only those which had been peer reviewed and published in English were included.

Results: 4 papers describe 23g and 25g small gauge vitrectomies showing favourable outcomes when compared to the traditional sutured 20g technique used previously. When comparing the small vitrectomies against each other the results seem to differ. 1 paper showed that the 27g vitrectomy provides the better outcomes when compared to 25g. 1 paper showed that 23g was superior to 25g whereas 3 papers showed no significant difference.

Conclusion: Modern small gauge vitrectomies are superior to traditional sutured techniques and give the best outcomes. However, existing studies give inconclusive results on which small gauge vitrectomy provides the best results and more studies are required to ascertain this.

Is Cardio-pulmonary exercise testing predictive of outcomes in the first year post renal transplant?

Jessica Elizabeth Kennett

There are many factors which affect renal transplant outcomes. One of these factors is cardiopulmonary function which can be tested during exercise to give the clinician an indication of how well they might do after surgery. Cardiopulmonary exercise testing (CPET) has been validated for intra-abdominal surgeries. We retrospectively analysed data from a large transplant centre on graft failure or death as well as other indicators of complications or poor function such as number of bed days and graft function using creatinine as a marker within the first-year post-transplant. Fortunately, there were too few deaths or graft failures to validly draw conclusions on the predictive value of CPET in this instance. However, there was a negative correlation between CPET results and creatinine at 6 months and a positive correlation for bed days.

It is proposed that bed days may not be a sensitive measure of post-transplant difficulty as it also included accidents and potentially unrelated admissions or ED visits. The validity of our results is also influenced by the small sample size and incomplete data regarding co-morbidities so that they could not be considered. A larger prospective study is proposed to further explore the predictive value of CPET.

Surgical Management of Glenohumeral Arthritis.

Jessica Elizabeth Kennett

Although less common than osteoarthritis affecting hip and knee joints, for affected patients, osteoarthritis of the glenohumeral joint can cause disabling pain, reduced function and disturbed sleep. When conservative management fails, surgery may be sought. The choice of management depends on several factors such as age, the level of activity demanded, bone stock, and rotator cuff integrity, although some management options at present lack a high-quality evidence base. Arthroscopic debridement may be combined with other procedures known as Comprehensive Arthroscopic Management (CAM) to delay arthroplasty in patients who have a higher functional demand increasing complication rates of arthroplasty such as glenoid component loosening.

Hemi-arthroplasty is a good option for many patients but has inferior results compared to a total shoulder replacement regarding pain and functional scores. A resurfacing arthroplasty is roughly equivalent to hemi-arthroplasty based on these criteria, but, more bone stock is preserved and thus more amenable to revision. In a cuff-intact patient with good glenoid stock, a total shoulder replacement appears to confer the most benefit and is less likely to have complications than a reverse shoulder arthroplasty. However, cuff-deficient patients, commonly the over 70s, are unlikely to benefit and so a reverse total shoulder is preferable.

Future therapy: Non-invasive brain stimulation in rehabilitation of patients with traumatic brain injury.

Temidayo Osunronbi

Aim: This literature review introduces different techniques of non-invasive brain stimulation which may find potential use for the rehabilitation of patients with TBI.

Methods: We conducted a PubMed, SCOPUS, OVID SP and INFORMA search using the keywords 'Traumatic Brain Injury' (TBI), and 'non-invasive brain stimulation'. We identified 83 papers that were relevant to our study.

Results: The functional impact of TBI occur as a result of primary physical trauma and secondary physiologic/ biochemical alterations which lead to neuronal loss and diffuse axonal injury. Various non-invasive brain stimulation techniques such as Transcranial Magnetic Stimulation (TMS), Transcranial Direct Current Stimulation (tDCS), Low-Level Laser Therapy (LLLT), and Transcranial Doppler Sonography (TCD) were found in literature. These non-invasive brain stimulation techniques have therapeutic potentials as they could guide cortical plasticity and functional restoration in TBI.

Conclusion: There is a paucity of evidence on the effectiveness of non-invasive brain stimulation techniques in traumatic brain injury. However, the current understanding of the pathophysiology of TBI and the mechanisms of action of various non-invasive brain stimulation techniques poses the need to explore the efficacy and safety of these innovative techniques that may aid the rehabilitation of patients with TBI.

Urgent delays: Observational study of delays in emergency theatre list.

Thomas Tribedi

Emergency theatres are managed based on the volume of patients needing surgery rather than capacity of a theatre list, which leads to unpredictable caseloads. To maximise efficiency, strategies must target case duration and downtime of theatre (i.e time between cases). An observational study was performed to identify causes of delays in theatre, a common cause of increased downtime of theatre. The aim of this was to guide future quality improvement projects in this area and ultimately improve emergency theatre efficiency. On twelve days spaced over a six week period, the cases performed in a general emergency theatre in a UK major trauma centre were observed. Each case that was delayed was assigned a category to represent the nature of the delay.

The findings of this study were that 14 of the 54 cases observed were delayed, of these delayed cases eight were due to delays in preparing the patient on the ward. Two were due to patients not being in the location listed at booking, and four cases were due to doctor delay. The results of this study suggest that pre-operative management of emergency patients is a potential target for future quality improvement projects.

When is the best time for surgical intervention in hip fractures? A literature review.

Thomas Tribedi

Hip fracture is the commonest reason for admission to an orthopaedic ward and is usually caused by a fall in an older person, whom often have co-morbidities. For the past few decades there has been an ongoing debate about whether early or delayed surgical intervention is most beneficial for these patients. A literature review was performed to explore the impact of delaying surgery on patient outcomes with the aim to help answer the question of when to perform surgery on these patients. PubMed and TRIP database were searched for literature published in peer-reviewed journals from 1980 to 2017. Non-English literature was excluded due to language limitations.

The key words used to search were: "timing of surgery", "surgical delay", "hip fracture", and combinations of these phrases. The specific outcomes studied were: mortality and medical complications. Although there was some conflicting evidence that delaying surgical intervention may not impact mortality, much of the literature suggests that both mortality and complications were reduced in patients who receive their surgical intervention within the first 24-48 hours of injury. In conclusion this literature review found that it is beneficial to patients to have early surgical treatment as soon as they are medical fit for anaesthesia.

Relationship, Body Image and Mental Health Impact in Adolescent and Young Adult (AYA) Testicular Cancer (TC) Survivors.

Waheed-Ul-Rahman Ahmed

Aim: To review the literature to understand TC impact on sexual and romantic relationships, body image and mental health in AYA patients.

Method: A MEDLINE search for the terms 'TC', 'AYA', 'relationships', 'body image' and 'mental health' was carried out.

Results: Several studies suggest that TC survivors in committed relationships demonstrate better physical and emotional adaptation to the life-changing ordeal.^{6,7} Un-partnered sufferers show poorer quality-of-life outcomes post-treatment due to decreased social support,⁸ sexual fulfilment, and mental wellbeing.⁹ Un-partnered TC patients also exhibit more worry about how their TC history could impact future relationships.^{10,11} Although most survivors conceive children, many studies describe more adversity compared to healthy controls.¹²⁻¹⁶ Findings relating to sexual relationships and body-image are ambiguous in the literature. Many studies describe moderate patient-reported sexual difficulties due to sexual fulfilment,¹⁷⁻²⁰ erectile and ejaculatory dysfunction.^{18-19,21} However, other studies suggest that AYA-TC survivors show little concern with potency, libido and satisfaction.²²⁻²⁵ Studies demonstrate raised anxiety and depression amongst AYA-TC survivors.^{10,26} Indeed, several studies have found 28-33% of TC survivors report high-levels of fear of cancer recurrence(FCR).^{27,28}

Conclusion: Sexual and romantic relationships improve quality-of-life outcomes in AYA-TC survivors. The impact of TC on body-image varies in literature. Many AYA survivors suffer from anxiety, depression and FCR.

“Robosurgeons vs Robosceptics”: Can we afford robotic technology or can we afford not to?

Jasmesh Sandhu

Aim: To investigate the clinical-effectiveness and cost-effectiveness of robotic assisted radical prostatectomy (RARP) in comparison to laparoscopic radical prostatectomy (LRP) and open radical prostatectomy (ORP).

Methods: Cochrane, Medline and Embase databases were searched for randomised control trials (RCTs) to date on RARP vs LRP and RARP vs ORP to assess clinical effectiveness. British Association of Urology Surgeons (BAUS) database and Cancer Research UK were accessed in conjunction with media; keywords included: “Da Vinci,” “first robotic prostatectomy,” “hospital” to estimate cost-effectiveness of RARP in the National Health Service (NHS).

Results: Functional outcome rates improved with RARP, this benefits the NHS financially although the clinical-effectiveness may not meet the threshold of clinical importance. Regarding cost-effectiveness, approximately 12/43 (27.9%) of centres achieved 150 RARP/year while 26/43 (60.4%) centres have managed to meet 100 RARP/year over 2014-2016. A national mean of 120-130 RARP/year for 2014-2016 was estimated.

Conclusion: The cost of RARP is adequately justified if a high volume of surgeries (>150) are performed in high volume centres by high volume experienced surgeons per year. This can be achieved by subsidising the cost of robotic technology, centralisation, education of prostate cancer symptoms and establishing robotic training centres.

Oral Presentations

Robotic technology in urology: Commodity or an expensive novelty.

Ahmed Chowdhury

Aim: Technology and urology are synonymous in association. Robotics is a commonly used tool in urology. However, at a time of rising costs and pressures it is important to scrutinise which resources and services provide the best value for money. Robotic surgery is a resource intensive endeavour therefore the aim of this literature review is to evaluate whether Robotic technology is justified in its use.

Methods: Databases of Medline, Embase, CINAHL Plus and registries were searched from 1/1/2003 to 01/03/2018 with the terms: Technology, Robotics, and urology. Appropriate inclusion and exclusion criteria were applied

Results: 23 articles were used for the final analysis. Articles were primarily research article (18), reviews articles (3), and systematic reviews (2).

Conclusions: The current evidence is limited in its exploration of the cost effectiveness and outcomes of robotic technology in urology. The outcomes of procedures using robotics in comparison to laparoscopic surgery are minimal in difference. Robotic surgery is costlier than both laparoscopic and open approaches due to the initial cost of purchase, annual maintenance and disposable instruments. Higher levels of evidence are needed in order to ensure robotic surgery in urology is the best use of resources in a resource limited healthcare system.

The significance of psoas muscle thickness measured on CT scan to predict mortality in patients with alcoholic liver disease.

Temidayo Osunronbi

Aim: To determine whether psoas muscle thickness measured on CT scan can be used to predict mortality in patients with alcoholic liver disease (ALD) on liver transplantation waiting list.

Methods: A retrospective study of abdominal CT images of 54 patients with ALD admitted to a tertiary hepatology unit between November 2011 and December 2012. We identified the status of each patient 4 years post-admission: Alive (n = 26), dead (n=28). Axial and transverse psoas muscle thickness were measured on CT scans at the level of the umbilicus. Mann Whitney U Test ($\alpha < 0.05$) was used to test for significant difference in psoas muscle thickness in alive vs dead patients. Spearman's rank-order correlation ($\alpha < 0.05$) was used to test for correlation between psoas muscle thickness and UKELD score.

Results: No significant difference in psoas thickness in alive vs dead patients: transverse thickness ($p = 0.29$), and axial thickness ($p = 0.49$). No significant correlation between psoas thickness and UKELD score: transverse thickness ($r = 0.05$, $p = 0.74$), and axial thickness ($r = -0.27$, $p = 0.07$)

Conclusions: Our data set suggests that psoas muscle thickness on CT scan is not a reliable prognostic tool to predict mortality in patients with ALD.

Benefits and limitations of trauma registry use in low- and middle-income countries: A systematic review of the literature on trauma registry implementation.

Emilie Baril

Aim: To examine the published literature surrounding trauma registry use in low- and middle-income countries to identify the benefits and limitations of their implementation, and therefore their potential to improve trauma systems. High-income countries use registries to improve the trauma system and patient care, but little is known about the benefits and limitations in low- and middle-income settings.

Methods: A systematic review of published literature was performed. CINAHL, Embase, Global Health, and PubMed electronic databases were searched. Studies that had implemented a trauma registry in a low- or middle-income country, and reported benefits and limitations, were included for review. Qualitative data was extracted and thematic analysis was undertaken.

Results: Nine articles met the strict inclusion criteria set for this systematic review. All were pilot studies of trauma registry implementation in low- and middle-income countries. 18 benefits and 19 limitations of trauma registry implementation were identified. Most studies collected this data through researcher observation, with three studies using focus groups.

Conclusion: Although some benefits of trauma registry implementation were found, there were many barriers threatening the long-term sustainability of the trauma registries. Further research is needed to assess the evidence surrounding trauma registry implementation in low- and middle-income countries.

Medical School Representatives are Useful in Specialist Surgical Associations.

Waheed-Ul-Rahman Ahmed

Aim: To understand the need for medical school representatives (MSRs) in national surgical associations affiliated with students' specialty of interest.

Method: A questionnaire survey consisting of multiple-choice questions and free-text options was circulated to UK medical students of all years.

Results: 340 students studying at 19 UK medical schools completed the questionnaire. Most respondents were in their first (26.4%), second (21.1%) and third (21.4%) years of study. 85.9%(n=292) of students were not aware of any specialist associations related to their specialty choice. 48.2% of students (n=164) were interested in a career in surgery. Orthopaedics was the most popular surgical specialty (35.4%), however, only 4 students (12.5%) interested in orthopaedics knew about the British Orthopaedic Trainees Association (BOTA) or British Orthopaedic Association(BOA) 85.0%(n=289) thought that having a representative from their medical school in specialist associations of interest would be useful. The main reasons for this were: access to information on their specialty (38.5%), being informed of upcoming opportunities (30.4%), and to act as a bridge between them and associations(22.5%).

Conclusion: Most students were unaware of specialist associations linked with their specialty of interest. Students felt that having MSRs would be useful, allowing more information and opportunity access in their choice specialty.

Contact details

For any enquiries, please contact us via pusconference@gmail.com

For updates and news of our latest events, please see our Facebook group:
www.facebook.com/groups/plymouthundergraduatesurgeons

Conference website: www.pusconference2018.weebly.com

About Us

Plymouth Undergraduate Surgeons (PUS) is a student-led body that aims to provide, facilitate and expose students of Plymouth University Peninsula Schools of Medicine and Dentistry with opportunities to further their experience/interest in surgery.

We are proud to host our third surgical conference in the South West and are aiming to provide a platter of learning opportunities for all levels. We first held a Women In Surgery conference in 2016, where we focused on the issues of surgical culture and how it negatively impacts the interests of young women in pursuing a career in this demanding field. In 2017, we organised our first national Technology in Surgery conference that was aimed at cultivating the interest of students within the UK to be innovative within a surgical context.

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