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# Endoluminal Endourology Proceedings of the Welsh Urological Society



26<sup>th</sup> and 27<sup>th</sup> January 2023 @ The Metropole Hotel, Llandrindod Wells

## **Welsh Urological Society**

# Annual Meeting Sponsored by the pharmaceutical companies

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#### ABSTRACTS FROM THE HUW WILLIAMS POSTER SESSION

## LOCAL ANAESTHETIC TRANSPERINEAL PROSTATE BIOPSY (LA TP BX): A DISTRICT GENERAL HOSPITAL EXPERIENCE

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#### Introduction

Recently, Local Anaesthetic Transperineal Prostate Biopsies (LA TP Bx) have been introduced in Wrexham, following the NHS Innovation Accelerator programme in UK. TP Bx may provide a safe and accurate diagnosis, in an outpatient setting. In this paper we present our initial experience of LA TP Bx, concentrating primarily on diagnostic outcome.

#### **Material and Methods**

We reviewed the clinico-pathological data of 110 consecutive patients undergoing LA TP Bx, at our institution. 98 patients had pre biopsy MRI scan. The primary outcome measure was histological outcome of the template biopsy. Secondary outcomes included overall risk stratification and correlation with MRI scan for those diagnosed as prostate cancer.

#### **Results**

The median age was 70 yrs (range 40–89 yrs), the median PSA was 7.5ng/ml (range 1.5–1900 ng/mL). Of the 110 patients, 81 (74%) were found to have a positive biopsy. Of the 81 positive biopsies, 19 (23.5%) were stratified into low risk disease, 26 (32.1%) into intermediate risk disease and 36 (44.4%) into high-risk disease according to the UK's NICE prostate cancer risk stratification. High-risk disease correlated well with MRI scan Likert 5.

#### Conclusion

LA TP Bx has been shown to have very good diagnostic outcome. There is a high pick-up rate of intermediate and high-risk disease. High risk disease correlated with likert 5 at MRI scan.



## USING ULTRASONOGRAPHY AND MRI TO ACCURATELY DIAGNOSE SUSPECTED PENILE FRACTURES

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#### **Introduction & Aim**

Penile fracture (PF) is a rare but potentially catastrophic injury due to the risk of erectile dysfunction (ED) and penile curvature. The diagnosis is commonly made by clinical examination but is inaccurate in 15%. Despite this, penile ultrasound (US) and MRI remains poorly utilised. We aimed to correlate imaging of PF with intraoperative findings as the gold standard comparator to calculate the sensitivity and specificity.

#### Methods

Retrospective analysis of men referred for imaging querying penile fracture over ten years (January 2010–December 2020). Included all men with suspected PF on US and/or MRI. Imaging findings were correlated with intraoperative findings.

#### **Results**

114 men underwent surgical exploration, median age of 39 years. 9 had pre-existing ED and 6 pre-existing Peyronie's disease. 92% had a doppler US with subsequent MRI in 11.6% men. 2 were surgically explored after MRI only. Table 1 summarises the strong correlation between imaging and intraoperative findings. PF was not identified in US in 8 men. MRI upgraded equivocal US findings to PF in 76.5%. All PF were identified on MRI but there was a single false positive. Urethral injury was identified in 24 men intraoperatively but US only identified 10 with a further 4 identified on subsequent MRI.

#### Conclusion

Penile US has a high sensitivity for PF when compared to intraoperative findings. MRI has excellent specificity for both PF and urethral injury. Imaging is useful to avoid unnecessary surgery and characterise complex/atypical injuries. Imaging should be used routinely in all men prior to surgical exploration.

**TABLE 1** The strong correlation between imaging and intraoperative findings

		n	Sn	Sp	PPV	NPV
Penile #		114				
	US	106	92.4	90.7	94.2	88.0
	Same-day MRI	24	100	83.3	95.2	100
Urethral inj		28				
	US	21	57.6	93.2	71.4	87.9
	Same-day MRI	5	50	100	100	87.5

<sup>\*</sup>US, Ultrasound Scan; MRI, Magnetic Resonance Imaging; Sn, Sensitivity; Sp, Specificity; PPV, Positive predictive value; NPV, Negative predictive value.

#### **HUW WILLIAMS BEST POSTER AWARD WINNING ABSTRACT**

## A NEW URETERIC PIGTAIL SUTURE STENT TO IMPROVE PATIENT'S QUALITY OF LIFE: OUR EXPERIENCE

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#### **Background**

Ureteric stent-related symptoms represent a major issue and impair the patients' quality of life. To minimize stent-related symptoms, a newly single pigtail suture stent was developed, where the distal part of the stent is a 0.3 Fr suture that terminates in the bladder.

#### Aim

To compare the single pigtail suture stent (JFil®, Rocamed) with the conventional double-J stent in relation to stent-related symptoms.

#### Methods

The inclusion criteria were patients with pelvi-ureteric junction obstruction (PUJO) who were managed with long-term stents and complained strongly of symptoms. Patient with urinary stones or strictures were excluded from the study. Five women with a median age of 64 +/-24 years were included and underwent replacement of their long-term double-J stents with JFil. All patients completed the ureteral stent symptoms questionnaire (USSQ) prior to replacement (baseline) and Day 90 post-replacement. We compared the means of each USSQ domain between the two stent types.

#### **Results**

The urinary symptom index score (37.5 vs 24.4, p = 0.019), body pain index score (21.1 vs 8.4, p = 0.04) and general health index score (18.2 vs 9.6, p = 0.014) were significantly in favour of JFil pigtail-suture stent. No difficulty in the placement of JFil stent was encountered. No stent failure and no calcification were observed 6 months after stenting. Stent suture migrated to the ureter in one patient and required a ureteroscopy to exchange the stent.

#### Conclusion

JFil stent is a potentially beneficial option to minimize stent-related symptoms. We are planning to conduct a multi-center study to shed more insight on symptoms response to this stent design.



## OUTCOME OF 5-YEAR FOLLOW-UP OF RENAL ANGIOMYOLIPOMA: A SINGLE CENTRE EXPERIENCE

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#### **Introduction and Objectives**

We analyse the five year outcome of renal angiomyolipoma (AML) of various sizes and assess if all AML needs surveillance.

#### Materials and methods

The data collected retrospectively from radiography database and electronic patient records were analysed for patients with renal AMLs over a five-year period (January 2011 to December 2015) to identify the change in size of AML, intervention, mortality and re-presentation after discharge.

#### **Results**

A total of 344 patients were identified. Mean age at first detection of AML was 53.6 years and the median follow up was 56 months. The median size at the diagnosis was 13 mm (smallest and the mean growth rate was 0.11 mm per year. Eighty three percentage (286) AMLs were shown to have no growth or negative growth, in remaining 17 % (58), 49 AMLS have demonstrated increase in size (minimum of 3 mm to maximum of 35 mm in size) over 5 years and only 2.6 % (9) experienced complications of AML haemorrhage and pain. Among the patients developed complications, 88.8% female (n = 8) and 11.2 % male (n = 1) and majority of female (n = 4) were in childbearing age group. Management was either embolization (n = 5) or surgical management (n = 4), two patient developed Bilateral haemorrhage, one patient needed bilateral embolization of kidneys. All the patients (n = 3) who experienced haemorrhage has multiple lesions on the both sides associated with tuberous sclerosis. The size of the lesion in patients who presented with haemorrhage was 90 mm, 100 mm and 5 mm (multiple lesions).

#### Conclusion

Our study suggests that AML haemorrhage is more prevalent in patients with multiple bilateral lesion associated with tuberous sclerosis and almost no haemorrhagic complications in sporadic AML. Hence, frequent surveillance (annual) of AML is essential for patients with bilateral multiple AMLs as there is risk of bleeding. In case of sporadic AMLs, risk of haemorrhage is low and the growth rate is not significant, so we suggest either no follow up or less frequent is needed for patients with sporadic AML.



#### AN AUDIT OF VACUUM DEVICE USAGE AFTER A RADICAL PROSTATECTOMY

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#### Introduction

Within the first year after a radical prostatectomy (RALP) the majority of men experience erectile dysfunction (ED) and penile shortening. One treatment option is a vacuum device. Raina et al and Kohler et al showed that early use of vacuum device (VED) after a RALP facilitates early sexual intercourse, early patient sexual satisfaction and helped to maintain penile size.

#### Aim

To assess the effectiveness and compliance of VED use in patients after RALP.

#### Methods

Patients attending the andrology clinic after a RALP were asked the questions in Table 1.

#### **Results**

222 patients are included. Median follow-up was 12 months (min = 3, max = 23). 76% (n = 169) wanted a VED and 85% (n = 144) received one. 87% (n = 126) had this prescribed via their GP, 5% (n = 7) self-funded and 7% (n = 10) prescribed via the hospital.

#### TABLE 1

Questions	Answers
Did you want a vacuum device?	Yes/No
Did you obtain a vacuum device?	Yes/No
Was it prescribed or did you self-fund?	<ul><li>1. Via GP</li><li>2. Self funded</li><li>3. Via hospital</li></ul>
How long after decision in clinic did the device arrive?	(Number in weeks)
How are you using this?	<ol> <li>Just for rehab</li> <li>Just for intercourse</li> <li>Both</li> </ol>
Does it create an erection?	Yes/No
Have you stopped using it?	Yes/No
If stopped: How long did you use it for	(Number in months)
If stopped: why?	<ol> <li>Pain</li> <li>Didn't work</li> <li>Psychological</li> <li>Didn't need anymore</li> <li>Other</li> </ol>
Do you use anything with the vacuum device?	

65.3% (n = 94) were using only for rehabilitation, 1.4% using only for intercourse, 27.8% (n = 40) for both and 6 patients hadn't used the device.

84.7% (n = 122) told us it created an erection. However, 24% (n = 32) of the patients stopped using the device during the follow-up period. 40.6% due to pain, 31.2% because it didn't work and the remaining for other reasons.

#### Conclusion

A large proportion of men undergoing RALP are motivated to use a VED.

Although a high proportion found it effective, only a small proportion use it for intercourse and the compliance rate is low raising the question of the cost effectiveness of routine recommendation of this device. Improved patient support and motivation is required for encouraging long term use.



## QUALITY IMPROVEMENT PROJECT TO IMPROVE THE EFFECTIVENESS OF UROLOGY MDT MEETINGS: A SINGLE CENTRE 'CONSENSUS BASED' STUDY

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#### Introduction

Multidisciplinary Teams (MTDs) are the backbone of managing urological cancers and complex conditions. Performance of these MDT can vary, due to multiple reasons. We aimed to study the factors affecting our MDT efficiency and ways of improving it.

#### Methods

Conducted between April 2021–July 2022, this study was based on the Cancer Research UK questionnaire to improve the effectiveness of MDT meetings. Initially the 15 question survey was aimed at all members of the Urology MDT, using both Likert scale and free text to identify issues. The second stage developed and introduced a proforma for streamlining and identifying when information was not available. Final stage was a re-survey, identifying changes in the perceived efficiency of the MDT.

#### **Results**

Respondents consisted of Consultants across Urology, Radiology, Oncology and Pathology, trainees, Nurse Specialists and MDT co-ordinators. The initial phase had 14 respondents and 10 post change implementation. Efficiency improved according to 90% of respondents. The ability to identify and prioritise complicated cases went from 14% to 70%, and the ability to stratify patients based on risk went from 21% to 60%. Time to discuss all patients in adequate detail improved from 21% to 80%. The least significant impact, was noted for discussing complex cases adequately.

#### Conclusion

The study identified many areas for potential improvement that have not been addressed before. Having a clearly identified case list, with all appropriate information available including the reason for discussion listed on the proforma is a first step in the ongoing quality improvement process.



## SINGLE-USE FLEXIBLE CYSTOSCOPY (SUFC) SERVICE ENHANCES PATIENT FLOW AND ACCESSIBILITY AND IS COST-EFFECTIVE

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#### Introduction

Flexible cystoscopy has been the most common urological outpatient procedure since its introduction in the 1980s (L R Kavoussi et al. 1988). In Swansea Bay University Health Board, we perform, on average, 2200 FC annually. Lengthy waiting times for planned FC are due to multiple factors. Therefore, we introduced the SUFC service to augment our existing cystoscopy service.

#### **Material & Methods**

Between June/2020–June/2021, retrospective data collection of the number of cancelled outpatient Flexible cystoscopies and waiting time for in-patient referrals for diagnostic FC were collected. Between February 2022–Oct-2022, prospective data collection of the usage of SUFC.

#### **Results**

Nineteen outpatient FC lists were cancelled from sterilisation failure (226 patients, accounting for about 10% of the yearly volume). One hundred nineteen USC in-patient referrals were made with an average waiting time of 37 days.

Forty-one documented usages of the SUFC, 23/41 used in the acute setting (23 difficult catheterisations, 6/23 had urethral strictures). Eighteen in-patient referrals for USC were completed using SUFC; only 2/18 required repeating, 7/18 patients were diagnosed with bladder tumours, and 9/18 had benign and nil significant findings. All diagnostic FC using SUFC were performed within 24 hours from referral time. There was a significant saving of 2362 pounds for the 18 diagnostic FC.

#### Conclusion

SUFC is a safe, very accessible, and reliable augmentation to the cystoscopy service but has its limitation, and one of the main concerns is the CO2 footprint.



## PENOSCROTAL DECOMPRESSION SHOULD BE CONSIDERED FOR THE TREATMENT OF PROLONGED ISCHEMIC PRIAPISM

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#### **Objectives**

Outcomes of men with prolonged ischemic priapism (PIP) are poor. Management includes a proximal corporal shunt or immediate penile prosthesis placement. Penoscrotal decompression (PSD) relieves the acute compartment syndrome and restores perfusion but experience is limited to 31 cases from North America.

#### Methods

Retrospective review of men presenting with ischemic priapism. Duration of ischemia, prior management, clinical outcomes and change in International Index of Erectile Function (IIEF) score were analyzed.

#### Results

Thirteen patients with a median duration of PIP of 48 hours presented between 2019–2022. Aetiology of PIP was idiopathic in 5, drug-related in 6 and sickle-cell disease (SCD) in 2. All failed phenylephrine and 2 failed distal corporo-glanular shunting. All had successful detumescence. Immediate pain relief was achieved in all but one. Another patient with SCD recurred within 24 hours that resolved with intracavernosal phenylephrine. Only one man without SCD developed a recurrence of priapism the next day and he proceeded to malleable penile prosthesis insertion on day 2. There was no association between unilateral PSD and recurrence. IIEF scores fell by a median of 12 (IQR 2.25–15.5) and 6 men developed refractory erectile dysfunction after median follow-up of 17.6 months (IQR 1.3–19.7).

#### **Conclusions**

This is the first study outside of America, PSD successfully relieved PIP in all patients with good pain relief for most. Six men developed refractory erectile dysfunction while 3 had recurrent priapism due to SCD (n = 2) and cocaine abuse (n = 1). PSD averted the need for penile prosthesis insertion in 54% of men.



## PERSISTENT GLANS ISCHEMIA AND TISSUE LOSS AFTER INFLATABLE PENILE PROSTHESIS EXPLANTATION: A CASE REPORT AND LITERATURE REVIEW

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#### Introduction

Glans ischemia post-PPI is a rare and underreported complication. Early recognition is vital. Our patient is the third reported case with persistent glans ischemia and tissue loss after prosthesis explantation and the first one without pre-existing ischemic risk factors. A literature review was undertaken examining perioperative risk factors and management.

#### **Materials and Methods**

A 52-year-old male patient, with refractory erectile dysfunction and Peyronie's disease had a plaque incision, graft, insertion of a 3-piece inflatable penile prosthesis and circumcision in Turkey. Eight days postoperatively, he presented with a 6-day history of dusky, cold glans.

#### **Results**

The patient underwent prosthesis explantation at which time the right cylinder was found to have perforated the urethra. Post operatively, the glans slowly recovered with subsequent sloughing of superficial necrotic skin. Glans sensation is preserved but there has been a significant loss of penile length.

#### **Conclusions**

In the literature, 19 cases were managed conservatively of which 18 cases had tissue loss. While 10 cases had immediate prosthesis explantation of which 2 cases had tissue loss. Therefore, if glans ischemia is suspected, then early recognition and immediate explantation of the device is essential in preventing tissue loss. Glans ischemia complication has bad physical and psychological effects. It was mentioned in EAU guidelines but not in BAUS guidance. Patient counselling and informed consent about this possible complication is important. We recommend adding this complication to the BAUS guidance.



# INITIAL PATIENT EXPERIENCES OF OPTILUME DRUG-COATED BALLOON TREATMENT FOR URETHRAL STRICTURE PERFORMED IN EUROPE FIRST OUTPATIENT SETTING

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#### Aim

Optilume is a novel treatment for male anterior urethral stricture. Procedure combines balloon dilatation of stricture and treating the dilated area with Paclitaxel (microtubule inhibitor). As the first centre in Europe to deliver Optilume in outpatient, we are interested in patients' overall experience, throughout the periprocedure period.

#### Method

Patient experience information collected over phone, 7–14 days post-procedure.

#### **Results**

All patients found it easier to arrange outpatient treatment compared to a day-case surgery. In addition, 90% of patients report less anxiety receiving treatment in outpatient compared to theatre. 70% of patients experienced discomfort, majority reported the most uncomfortable part being insertion of flexible cystoscope, 13% patient found balloon expansion being the most uncomfortable/ painful. Mean pain score was 2.8 (out of 10), all patients agreed Oprilume was tolerable with Instillagel given prior procedure. 20% patient required simple analgesia following procedure. 20% of patients immediately returned to normal daily activities, 50% within 24 hours of catheter removal. All patients noticed improvement in urinary symptoms, improvement is immediate in 80% of patients. When given the option of Optilume to conventional urethral stricture treatments—80% patients chose Optilume over dilators, 70% patients chose Optilume over urethroplasty, no patient preferred Optical urethrotomy over Optilume.

#### Conclusion

Optilume provides a simple and safe alternative to conventional urethral stricture treatments. Performing this procedure in outpatient with topical local anaesthetic provides significant economical and logistical advantages at a time where our health system is under enormous pressure. Further research is required to evaluate financial costs of Optilume compared to conventional treatments and longer-term outcomes.

**Keywords:** New Devices, Bladder Outlet Obstruction, Male



## PRE-HABILITATION SERVICE FOR RADICAL CYSTECTOMY PATIENTS: AN INITIAL EXPERIENCE

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#### **Objective**

Effective pre-habilitation for cystectomy patients has demonstrated faster functional recovery, earlier mobilisation, and time to perform activities of daily living. Physical fitness can be improved 4-6 weeks prior to surgical intervention. We developed a physiotherapy pre-habilitation service for radical cystectomy patients and aimed to study the outcomes from this initial experience.

#### Methods

The service was initiated in March 2022. Service included initial assessment of physical fitness followed by a customised home exercise regime and follow-up sessions. Patient experience was assessed through 5-point Likert questionnaire and outcome data collated.

#### **Results**

In total 16 patients were referred to pre-habilitation over 7-month period of a possible 30 patients. Of those not referred, reduced time to surgery was the predominant factor. Median age 71, length of stay 11.5 days and outcomes following cystectomy included surveillance (44%), adjuvant immunotherapy (19%), palliative management (19%) and deceased (19%). 7/10 eligible patients returned the questionnaire. Face-to-face sessions ranged from 0–3 and telephone follow-up 0–2. All patients were provided with a home exercise regime to follow. Specific teaching on abdominal wall exercises (57%) and pelvic floor exercises (71%) was also provided. 86% of patients found the exercise regime extremely or very useful. All patients felt that they were better prepared for physiotherapists expectations for mobilisation postoperatively. All patients would highly recommend the pre-habilitation to future patients.

#### Conclusion

Initial implementation has been well received by patients. Earlier referral may enable higher patient inclusion. Improvements for the future could include post-operative follow-up in rehabilitation and a website to support patients.



## MANAGEMENT OF PIRADS 3 PATIENTS ACROSS SOUTH WALES UROLOGY DEPARTMENTS: SURVEY AND LOCAL AUDIT

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#### **Background**

Multiparametric MRI has reduced the need for biopsies and showed high negative predictive value for detecting significant Prostate cancer (PC) in PIRADS 1–3. EAU suggests omitting biopsies for PIRADS 3 patients with PSA density (PSAD) <0.1.

#### Method

We sent a short survey to all South Wales Urology department to assess variations in practice for managing patients with PIRADS 3. Biopsy results of all PIRADS 3 patients in Cwm Taff from Jan 2020 to Oct 2022 were audited for clinically significant prostate cancer (CSPCa, >Gleason 7) and correlated with PSAD, categorizing patients based on PSAD value.

#### Results

There is a clear variation in managing patients with PIRADS 3 in clinical practice [Table 1]. A total of 211(62.5%) PIRADS 3 status patients were biopsied, 33 (15.6%) was found to have CSPCa. The population were stratified into four PSAD risk groups <0.10, 0.10–0.15, 0.15–0.20, >0.20 ng/mL/mL. Our analysis showed of 82 biopsied patients with PSAD <0.10; 7 (8.5%) were positive for CSPCa. Of 62 biopsied patients with PSAD between 0.10–0.15, 11 (17.7%) reported to have csPCa. 23 biopsied patients with PSAD of 0.15 to 0.20; 3 (13%) had CSPCa. Of 44 biopsied patients with PSAD >0.20; 12 (27.2%) patients were positive for CSPCa.

**TABLE 1** Practice variations between Welsh sites

Location	Rhonda	CARDIFF	Swansea	Newport	West Wales
Health board	Cwm Taff RGH	Cardiff and Vale	SWANSEA BAY	Aneurin Bevan	Hywel Dda
PIRADS 3	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx	Check PSAD	Check PSAD
PIRADS 3 PSAD ≥0.15	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx
PIRADS 3 PSAD 0.10-0.15	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx	Do not recom- mend	DCE or Offer TRUSBx
PIRADS 3 PSAD <0.10	Recommend TRUSBx	Recommend TRUSBx	Recommend TRUSBx	Do not recom- mend	PSA observa- tion
Other factors mentioned	Abnormal DRE, PSA >–10	Offer: Abnormal DRE, PSA ≥10	PSA velocity, family history and ethnicity	Offer: Pt request, abnormal DRE, black race, strong FHx, BRCA mutation	Family history, comorbidities

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#### Conclusion

Our findings suggest we should biopsy all patients with PIRADS 3 irrespective of PSAD as it has detected CSPCa (>5%) despite lower risk (PSAD < 0.10). Local data could be paramount in patient counselling to facilitate and informed decision. Further multicentre studies are needed to replicate our findings and formulate more efficient management pathways for these patients.



## CORRELATION BETWEEN KUB SCORING SYSTEM AND NUMBERS OF PROCEDURE TO TREAT NEGLECTED STENT: WREXHAM MAELOR EXPERIENCE

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#### Introduction

Neglected/ forgotten ureteric stents can pose a significant clinical challenge in management for both the urologist and the patient due to the increased risk of complications, potentially more complex surgeries and high cost of treatment. The kidney, ureter and bladder (KUB) score defines complexity of neglected/ forgotten stent.

#### Method

Wrexham Maelor hospital is a regional referral for complicated stone disease. A total 14 patients with encrusted neglected ureteric stent were managed at our Centre from 2019 till 2022. KUB scoring of each patient were calculated and the relationship of the KUB score with the number of procedure(s) required to treat the encrusted stent determined.

#### Result

Total 14 patients, 10 males and 4 females were referred for treatment. Age ranges between 29 to 79 years and median age 48.9. 70% (11) patients had their ureteric stent between 12 to 24 months, 20% (2) patients had indwelling stent for over 24 months and one of which was up to 3.5 years. One (10%) patient had the indwelling stent for <12 months. Median 22.6 months. Three (21%) patients had KUB score of 10 and 11, 14% (2) patients had score of 12 and 15, while 1(7%) of patient had KUB score of 9. All patients have multimodal treatments while 92.8 % (13) patients had 2 or more procedures. All the patients had K score  $\geq$  3, which correlates with multiple surgeries.

#### Conclusion

Management of neglected ureteric stents is very challenging and require multimodal approach with significant costs to the health care system and more importantly affecting patient safety and quality of life. KUB score correlate with the number of procedures performed and can be helpful to predict the need for multiple surgeries to remove neglected stents.



## POST ROBOTIC RADICAL PROSTATECTOMY FATIGUE AND THE IMPACT ON RETURNING TO WORK – PROTOCOL AND PRELIMINARY RESULTS

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'World EndoUrology Society Funded Summer Student Project' Swansea University & Swansea Bay University Health Board

#### **Objectives**

Fatigue is multi-dimensional. It is noticeable after Robotic Radical Prostatectomy (RRP) but cancer survivorship studies on holistic scale are lacking. We are studying the incidence and duration of it after RRP. We are reporting the preliminary results.

#### Methodology

A 2 phase study was registered & set up at our institution to measure 'Fatigue' using the validated "Multi Dimensional Fatigue Inventory" (MDFI). It assess 5 components: general, physical & mental fatigues, reduced activity and motivation, using 20 reverse-scored statements on a five-point Likert scale. A score of ≥3 classifies a patient as 'fatigued.' Patients who underwent RRP from August 2021–July 2022, were asked to complete the questionnaire retrospectively, based on recollection, on their status prior to and 3 months post-surgery and their employment status. In the second phase, 100 consecutive consenting patients are prospectively studied with questionnaires pre surgery, 1 and 3 months post-surgery. Statistical analysis was performed with SPSS statistics.

#### **Results**

In the retrospective cohort, 43/82 (52%) patients returned the questionnaires. Pre-op 8 (18.6%) had 'fatigue' versus 10 (23.3%) postoperatively (p = 0.727) with no difference in overall scores (2.15 and 2.37 respectively) (p = 0.125, t = -1.564). On sub-analysis, significant reduction in 'Physical fatigue' (p = 0.003) and 'Reduced Activity' (p = 0.047) were noted postoperatively. Employment status changed in 3 post-op, but none related to fatigue.

#### Conclusion

The retrospective arm of this first-ever study showed certain elements of fatigue components significantly impacted post RRP but not in overall scores. The prospective study currently undertaken will give more insight into these aspects.



#### ABSTRACTS FROM THE TUF BEST PAPER PRIZE SECTION

## "GREEN UROLOGY"- ARE WE DOING ENOUGH TO MAKE UROLOGICAL PRACTICE SUSTAINABLE?

Mudassir M Wani<sup>1</sup>, Abdullah Al-Mitwalli<sup>1</sup>, Gareth Brown<sup>2</sup>, Ghulam Nabi<sup>3</sup>

#### Aim

To identify different aspects of urological practice that can make urology a sustainable surgical specialty and contribute towards the NHS goal of achieving net zero by 2045.

#### **Material and Methods**

We carried out a scoping review of the reported literature using terms "carbon foot printing" and "sustainable healthcare" relevant to urological practice. We investigated all three types of emissions-Scope 1, 2, and 3 associated with surgical practice in general and urology in particular.

#### **Results**

We found most of studies (8) focused on Scope 1 emissions and Scope 2 emissions. Based on the reported literature, we formulated a framework (Table 1) specifying changes in outpatient and in-patient urology clinical practice. In outpatients practice, more virtual clinic appointments particularly in cases of surveil-lance, streamlining referrals from GP practices, and running concurrent outpatient and investigation clinics. In-patient practice can be improved by appropriate admissions, expediting safe discharges, inculcating and promoting day case surgeries, and most importantly changing practice in operating theatres (anesthetics,

**TABLE 1** Estimated Reduction in Green House Gas (GHG) Emissions

Estimated reduction	in Green House Gas (GHG) emissions	
	missions rganization has direct control over -Direct Emissions. Incluctricity), vehicle tail pipe emissions if the vehicle is owned by	
At organizational	Use of renewable energy	GHG emission reduced by 7%.
Level	Reduction in food waste	
	Switch to a more plant-based diet	
At Departmental	Introduction of digital care pathway redesigns,	GHG emission reduced by 9%.
level	Low carbon models of preventative healthcare	
	Reduced health inequality	
	Interventions around the use of anesthetic gases, low carbon inhalers and the capture of nitrous oxide	GHG emission reduced by 5%.
At Individual level	Change in healthcare related travel to more sustainable models	GHG emission reduced by 11%.

(Continued)

<sup>&</sup>lt;sup>1</sup>Swansea Bay University Health Board

<sup>&</sup>lt;sup>2</sup>Cwm Taff Morganwg University Health Board

<sup>&</sup>lt;sup>3</sup>Nine Wells Hospital, Dundee, Scotland

#### TABLE 1 (Continued)

Reducing Scope 2 en (These are indirect en tion of electricity)	missions missions associated with an organization's electricity use wh	ich are released during the genera-		
National/	National decarbonization of the electricity grid	GHG emission reduced by 20%.		
International	Increase in vehicle efficiency			
Level	International actions			
Reducing Scope 3 emissions (Covers all other indirect emissions. They are a consequence of the activities of an organization but occur from sources not owned or controlled by the organization, for example, emissions which are embedded in the supply chain)				
Supply Chain Modification	Supplier alignment	GHG emission reduced by 23%.		

gowns, trays, instruments). At a personal level, urologists can contribute by using electric cars, carpooling, and using electricity/electrical appliances appropriately.

#### Conclusion

The review of the reported literature suggests that to achieve a goal of Net Zero in urology and make it a "Green Surgical Sub-specialty," a multipronged strategy at individual, team and organizational level is required. We should aim to improve "Triple Bottom Line" and make urology a sustainable health branch delivering high quality care without damaging the environment, is affordable now and in the future and delivers positive social impact.



## THE PROMISE OF PROMIS IN THE 'REAL WORLD WELSH NHS' PROSTATE CANCER (PCA) DIAGNOSTIC PATHWAY

Amir Ali, Harrison Sprague, Owen Hughes, Jon Featherstone, Krishna Narahari

UHW, Cardiff & Vale University Health Board

#### **Introduction & Aim**

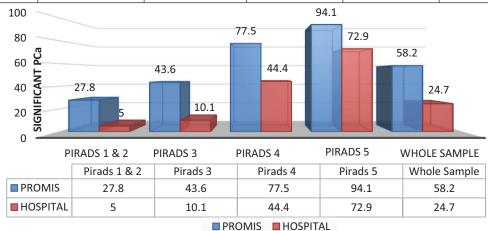
Following a triage MRI scan, men referred with suspected PCa are counselled about the need for a biopsy based on the PROMIS trial. Despite significant advances in PCa diagnostics, there remain concerns about inter observer variability in MRI reporting. Our aim was to assess the diagnostic accuracy of MRI scan in a detecting clinically significant PCa.

#### **Materials and Methods**

A comprehensive analysis of a prospectively maintained PCa database was performed to include all men referred with suspected PCa between October 2020 to October 2022. Inclusion criteria- Raised PSA and/or abnormal DRE, Pre-biopsy MRI and prostate biopsy. Exclusion criteria- PSA > 15 ng/ml, previous prostate biopsy. csPCa(clinically significant prostate cancer) was defined as any Gleason  $\geq 3 + 4 = 7$ .

**Results** A total of 637 patients had an MRI for prostate cancer followed by a biopsy.

MRI	Pirads 1 & 2	Pirads 3	Pirads 4	Pirads 5	Whole Sample
csPca	8 (5%)	26 (10.1%)	56 (44.4%)	67 (72.9%)	157 (24.7%)
Non-csPca	25 (15%)	62 (24.2%)	39 (31%)	8 (8.6%)	134 (21%)
Neg Bx	130 (80%)	168 (65.7%)	31 (24.6%)	17 (18.5%)	346 (54.3%)
Total	163	256	126	92	637



#### Conclusion

Our study suggests that the sensitivity of MRI for detecting csPCa is lower than that reported in the PROMIS trial, regardless of whether primary or secondary definition was used.

It is imperative that men with suspected PCa are counselled based on local data and an ongoing MRI QA exercise be carried out to best inform shared decision making. A similar study across South Wales PCa network has the potential to standardise MRI reporting and improve patient care.

#### OSCAR STUDY: OMICS APPROACHES TO PROSTATE CANCER DIAGNOSIS

Tracy C Knight<sup>1</sup>, Manfred Beckmann<sup>1</sup>, David Rooke<sup>2</sup>, Iqbal Shergill<sup>3</sup>, Stephen F Hughes<sup>3</sup>, Luis AJ Mur<sup>1</sup>

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<sup>2</sup>ProTEM Services Ltd

<sup>3</sup>Maelor Academic unit of Medical and Surgical Sciences, Gwenfro Buildings, Wrexham

#### Introduction

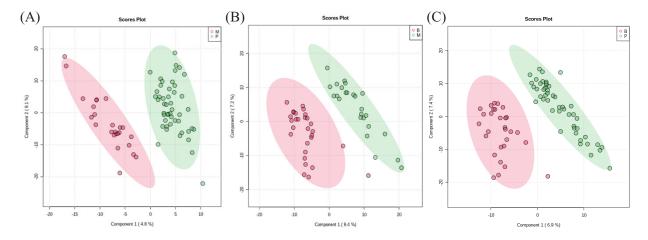
Over 1 million new cases of prostate cancer (PCa) are diagnosed globally every year. Prostate-specific antigen (PSA) level testing, alongside the digital rectal exam, is the mainstay of PCa screening, with abnormalities triggering magnetic resonance imaging and needle biopsy interventions. As the symptoms of early PCa are indistinguishable from those of benign prostatic hyperplasia (BPH) this could lead to unnecessary interventions.

#### **Patients and Methods**

Following ethical approval, a total of 100 urine samples from patients consisting of: 46 PCA, 29 BPH and 25 aged-matched male symptom controls, were assessed by flow infusion electrospray mass spectrometry (FIE-MS). The results were interrogated by principal component analysis (PCA) and area under curve (AUC) values used to indicate putative biomarker accuracies.

#### Results

The results detected key biomarkers which discriminated between both PCa, BPH and symptom controls with high accuracies (Figures 1A, 1B, 1C). Furthermore, relationships have been identified between key urine biochemical and blood PSA levels. Biochemical changes in the urine were also linked to higher Gleason scores and PCa metastasis (Figures 1D, 1E).



**FIGURE 1** OSCAR Study - Partial Least Squares Discriminant Analysis (PLS-DA) of urine metabolomes. Analyses suggest biomarkers which (A) distinguish between prostate cancer [P] and symptom controls [M] with an accuracy of 87.5% (B) between benign prostatic hyperplasia [B] and symptom controls with an accuracy of 87.5% (C) discriminate between the benign (BPH = [B]) and malignant prostate cancer of the prostate with an accuracy of 87.5% (D) suggest relationships have been identified between urine biochemicals and blood PSA levels and (E), show associations higher Gleason scores.

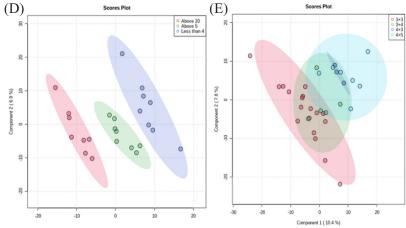


FIGURE 1 (Continued)

#### Conclusions

We have tentatively identified biomarkers that could provide signatures in identifying benign and malignant prostate disease, alongside correlations with urine biochemical and PSA levels in the blood. These signatures can potentially be developed into a point-of-care test using urine. OSCAR is continuing to recruit patients across the UK to further validate our observations with larger sample sets and blinded controls.



## PSMA PET/CT VERSUS CONVENTIONAL IMAGING: THE SOUTH WELSH EXPERIENCE WITH HIGH-RISK PRIMARY PROSTATE CANCER

M Mubarak¹, A Al-Mitwalli¹, M Rashid¹, A Powles², J Rees³, J Tanguay⁴, S Yadav⁵, M Jefferies¹, G Kanda Swamy¹, K Narahari⁵

#### **Introduction & Objectives**

PSMA PET/CT (PSMA) scans is a newly developed imaging modality used in the staging of prostate cancer. The Pro-PSMA trial has already demonstrated the advantages of PSMA over conventional imaging (CI). In this study we showcase the role and impact of PSMA scans on staging newly diagnosed primary high risk prostate cancer in South Wales.

#### **Materials & Methods**

All PSMA scans performed in South Wales between January 2020 and September 2022 were reviewed. High risk primary disease was characterised by one of the following:

- 1. T3 disease
- 2. Gleason score  $\geq 8$
- 3. PSA > 20 ng/L

All of the patients included had preceding CI in the form of a mpMRI/CT scan and a bone scan.

#### **Results**

422 PSMA scans were reviewed. [Table 1]. Nodal disease detection was higher in PSMA scans compared to CI (37.0% vs. 18.2%, p < 0.05). Similarly, detection of metastatic disease was higher in PSMA (26.5% vs. 4%, p < 0.05). [Table 2]

**TABLE 1** Baseline Characteristics

Total Number	422
Median PSA (Range)	20.1 (1.2-619.0)
Stage cT3	340 (80.5%)
ISUP Grade 3+	289 (68.4%)
D'Amico High Risk	408 (96.7%)

**TABLE 2** Nodal and Metastatic Disease Detection

Nodal Disease	N0s	Nx (Equivocal)	N1	
Conventional Imaging	294 (69.7%	50 (11.8%)	77 (18.2%)	
PSMA	252 (59.7%)	14 (3.3%)	156 (37.0%)	
Metastatic Disease	M0	Mx (Equivocal)	M1	
Conventional Imaging	358 (84.8%)	45 (10.7%)	17 (4.0%)	
PSMA	298 (70.6%)	12 (2.8%)	112 (26.5%)	

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Commercial 4.0 International License.

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Furthermore, the agreement between CI and PSMA findings was poor for both nodal (k = 0.298, p < 0.001) and metastatic disease (k = 0.183, p < 0.001). Equivocal findings decreased 3.5x and 3.75x for nodal and metastatic disease detection with PSMA.

Overall, more than half of the patients (50.9%) of the patient were re-staged after PSMA.

#### Conclusion

In contrast to CI, PSMA PET/CT scans have a higher detection rate and for both nodal and metastatic disease. This impacts staging and accordingly treatment intent. PSMA should be offered to patients with high-risk primary disease to aid in treatment planning.



## URACHAL CANCER: EXPERIENCE OF A HIGH-VOLUME BLADDER CANCER CENTRE

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#### Introduction

Primary urachal cancer (UrCa) is rare. Although preferred treatment is surgical, there is no consensus on best approach. Our approach included radical cystoprostatectomy (1) and partial cystectomy (13) of which 3 and 1 patients had robotic and laparoscopic surgery, respectively. We present our experience managing 14 cases of primary UrCa.

#### Materials and Methods

Operative records of a high-volume UK bladder cancer centre were retrospectively interrogated (May-2013 to June-2022). 14 patients with primary UrCa were identified. (Male = 9, female = 6, age: 30–85 years). Pre- (demographics, mode of presentation, cystoscopy, imaging findings), peri- (surgical method, histopathology results, complications) and post-operative (recurrence, mortality) outcomes were extracted.

#### **Results**

Most frequently, diagnosis was made via flexible cystoscopy for haematuria, and tumour location was bladder dome.

- Four patients presented with metastases.
- Most common histological subtype was mucinous adenocarcinoma.
- Two patients experienced recurrence.
- Two patients have died a 9-year average after presentation.
- Umbilectomy and lymph-nodes dissection did not improve oncological outcomes.

#### **Conclusions**

UrCa can occur at any age and can be advanced at presentation. This series demonstrates that bladder sparing surgery is feasible; this approach spares the patient the morbidity of cystectomy. Routine umbilectomy and lymph nodes dissection do not ameliorate oncological outcomes.

UrCa is rare and aggressive. Prompt recognition and diagnosis enables timely intervention. Bladder-sparing management is increasing, with chemotherapy reserved for local recurrence or metastasis.



## DO URINARY TRACT STONES AFFECT THE MANAGEMENT OF RECURRENT UTI PATIENTS?

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#### Introduction

Recurrent urinary tract infection (rUTI) is a common urological condition. Twenty to thirty percent of women who have had a single UTI will have a recurrence. We provide a nurse-led UTI clinic, reviewing approximately 250 new patients per year. Urinary tract stones were identified in 15% of abnormal ultrasound scans of our rUTI patients. We asked whether urinary tract stones affect the management of rUTI patients.

#### **Patients & Methods**

We reviewed our prospective database for all patients attending rUTI clinic between 2014 and 2021. Patients with findings of urinary tract stones on USS or CT were included. We reviewed patients' demographics, investigations done, stone characteristics, management provided and the overall outcome.

#### **Results**

46 female patients (median age of 64) were identified. The majority had a single small stone, with 89% being in the kidneys. 30 patients received conservative management: 28 patients with renal stones, 1 patient with a non-obstructing ureteric stone, and 1 patient with a bladder stone unfit for any intervention. The other 16 patients received treatment with ESWL (13) or ureteroscopy and stone fragmentation (3). rUTI got better in 97% of patients with renal stones <1cm and distal ureteric stones with conservative management alone. rUTI got better in 94% of patients with renal stones >1cm and proximal ureteric stones after stone treatment.

#### Conclusion

Urinary tract stones can be the triggering factor for rUTI. However, it is appropriate to manage non-obstructing small renal stones and distal ureteric stones conservatively initially, as 97% improve without interventional stone treatment.



## FLUORODEOXYGLUCOSE POSITRON EMISSION TOMOGRAPHY (FDG PET) CT FOR THE INVESTIGATION OF BLADDER CANCER

Sarah Prattley<sup>1</sup>, Alice Thompson<sup>2</sup>, Mohamed Youssef<sup>3</sup>, Gokul Kanda Swamy<sup>3</sup>, Nicholas Gill<sup>3</sup>, Jon Featherstone<sup>2</sup>, John Rees<sup>2</sup>, Jim Wilson<sup>1</sup>, Adam Bennett<sup>1</sup>

<sup>1</sup>Aneurin Bevan University Health Board

<sup>2</sup>Cardiff & Vale University Health Board

<sup>3</sup>Swansea Bay University Health Board

#### Introduction

NICE guidelines recommend consideration of FDG PET CT for patients with muscle-invasive bladder cancer (MIBC) or high-risk non-muscle-invasive bladder cancer (HRNMIBC) for indeterminate findings or high-risk of metastatic disease before radical treatment. Application of PET in accordance with guidance is variable, we sought to review use throughout South Wales.

#### Methods

Data was collected for FDG PET CT scans pertaining to patients with a diagnosis of MIBC or HRNMIBC from April 2019 to July 2022 across South Wales prior to definitive management.

#### **Results**

In total 65 patients were reviewed, median follow-up seven months. Median time from recommendation to PET was 12 days, and time to definitive decision 21 days. In 51 cases PET informed the MDT decision. In 6 cases decision was unaffected by PET, either due to patient being unfit for radical intervention (n = 3), treatment already commenced (n = 1), non-high-risk patient (n = 1) or completed prior to redo TURBT (n = 1). In 9 cases PET actively changed MDT decision due to diagnosis of new metastatic disease. 22 patients underwent radical cystectomy, nine of which did not correlate with PET findings (41%), all due to inaccurate nodal staging. Outcomes for all patients undergoing PET included 49% deceased, 23% receiving palliative treatment, 15% on routine surveillance, and 12% commencing potentially radical management.

#### Conclusion

It remains unclear which patients benefit from FDG PET CT when accuracy is relied upon to make informed decisions and use varies widely. Overall patient outcomes are poor, with the majority either deceased or receiving palliative treatment.



## THE ROLE OF PSMA PET/CT IN RE-STAGING BIOCHEMICALLY RECURRENCE OF PROSTATE CANCER

Mubarak M¹, Al-Mitwalli A¹, Rashid M¹, Powles A², Rees J³, Tanguay J⁴, Yadav S⁵, Jefferies M¹, KandaSwamy G¹, Narahari K⁵

#### **Introduction & Objectives**

The use of PSMA PET/CT (PSMA) scanning in the staging of prostate cancer is an emerging trend in urological oncology. Furthermore, Bashir et al (2019) elucidated its utility in re-staging cases of biochemical recurrence (BCR). We present our regional experience with PSMA PET/CT as an adjunct to conventional imaging (CI) in the form of mpMRI/CT scans and bone scans over 2.5 years.

#### Materials & Methods

All PSMA PET/CT scans done across the health boards of South Wales between January 2020 and September 2022 were included. Patients who fit the following criteria were reviewed retrospectively:

- 1. BCR following either radiotherapy or surgery.
- 2. CI performed prior to PSMA.

#### **Results**

378 patients with BCR were reviewed. Our sample's baseline characteristics is described in Table 1. PSMA detection of nodal involvement was higher by five folds (p < 0.05). It also had a 3.8-fold higher detection rate of metastatic disease (p < 0.05). PSMA was more accurate as equivocal findings decreased by 50% and 61.5% in nodal and metastatic disease detection. [Table 2]

**TABLE 1** Baseline Characteristics

Total Number	378
Median Age (Range)	69 (40–89)
Median PSA (Range)	Overall: 1.2 (0.2–51.5) ng/mL • Post-RP: 0.6 (0.2–51.5) ng/mL • Post-RT: 3.9 (0.2–39.5) ng/mL
Stage cT3	235 (62.2%)
ISUP Grade 3+	216 (57.2%)
PSA Doubling Time	• <6 months: 186 (49.2%) • 6–12 months: 108 (28.6%) • >12 months: 84 (22.2%)

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<sup>&</sup>lt;sup>4</sup>Velindre Teaching Hospitals, Oncology, Cardiff, United Kingdom

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**TABLE 2** Nodal & Metastatic Disease Detection

Nodal Disease	N0	Nx (Equivocal)	N1
Conventional Imaging	321 (84.9%)	22 (5.8%)	34 (9.0%)
PSMA	201 (53.2%)	11 (2.9%)	166 (43.9%)
Metastatic Disease	M0	Mx (Equivocal)	M1
Conventional Imaging	328 (86.8%)	26 (6.9%)	23 (6.1%)
PSMA	242 (64.0%)	16 (4.2%)	120 (31.7%)

Scan findings were poorly concordant between PSMA and CI on assessment of N (k = 0.186, p < 0.001) and M (k = 0.203, p < 0.001). PSMA scanning lead to the restaging of 70.9% of the patients.

#### Conclusion

PSMA has a higher detection rate of nodal and metastatic disease and is more accurate. Therefore, it has a significant role in re-staging BCR in prostate cancer. Given it is an evolving imaging modality, we still require further prospective studies to define its value in prognostication.



## A CLOSED LOOP AUDIT OF FUNCTIONAL AND ONCOLOGICAL OUTCOMES OF THE REGIONAL ROBOTIC PARTIAL NEPHRECTOMY (RPN) SERVICE IN SOUTH WALES

Karan Mann<sup>1</sup>, Rose Rivera<sup>1</sup>, Novelita Alzate<sup>1</sup>, Matthew Jefferies<sup>2</sup>, Krishna Narahari<sup>1</sup>

#### **Introduction & Aim**

RPN is an established standard of care for surgical management of patients presenting with small renal masses (SRM). Following the development of a collaborative regional pathway and business case, a regional RPN service was introduced in South Wales in 2018. Using national outcomes as a comparator, we assessed whether regional RPN is safe and effective.

#### Methods

A comprehensive analysis of a prospectively maintained RPN database was carried out from its inception to date, including all patients who underwent RPN in South Wales. Peri-operative, oncological, and functional outcome measures were analysed using previously presented South Wales RPN Audit and BAUS RPN audit data as a comparator.

**Results**To date 215 patients, have undergone RPN of which 182 patients were analysed as of May 22.

Outcome		SW RPN 2021 (n = 125)	SW RPN 2022 (n = 182)	BAUS 2019 (n =1184 RPN)
Peri-Operative				
	Post Op transfusion	0%	0%	0.8%
	Median LOS	1 day	1 day	2 days
	Conversion to open	0%	0%	1%
	Conversion to radical	0.8%	1.1%	N/A
	Complications (Clavien ≥3)	1%	0.5%	1.9%
Oncological				
	Pre-op biopsy	5.7%	8.2%	15%
	Tumour size T1a(<4cm) T1b(>4cm)	68% 25%	68.1% 29.2%	53% 21%
	Positive surgical Margins	3%	2.2%	2.4%
	Benign pathology rate	10%	15.9%	15%
	Recurrence – Local Distant	0.8% 2.4%	0.5% 1.6%	0.7% 6.4%
Functional	Median eGFR drop	9%	7.5%	-

#### Conclusion

South Wales regional RPN service is safe and effective with results highly favourable compared to national data. This audit should enable appropriate counselling of patients in South Wales based on local outcomes.

<sup>&</sup>lt;sup>1</sup>Cardiff & Vale University Health Board

<sup>&</sup>lt;sup>2</sup>Swansea Bay University Health Board

#### THE TUF BEST PAPER WINNING ABSTRACT & PRESENTATION

# IS REMOTE FOLLOW-UP USING PATIENT REPORTED OUTCOME MEASURE (PROM) FEASIBLE IN PATIENTS WITH UROLITHIASIS?: A PROSPECTIVE FEASIBILITY STUDY USING URINARY STONES AND INTERVENTION QUALITY OF LIFE (USIQOL) MEASURE

RJ Jarvis<sup>1</sup>, P Pallman<sup>2</sup>, H Joshi<sup>3</sup>

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<sup>3</sup>Consultant Urological Surgeon and Honorary Sr Lecturer, University Hospital of Wales and Cardiff University

#### Introduction

Patients with urolithiasis undergo regular follow-up. PROM based follow up using the USIQoL would be innovative and resource friendly, if matches traditional outcomes. We undertook a study to assess the feasibility of using the USIQoL as a tool for virtual follow-up.

#### **Materials & Methods**

The study involved 2 phases. The 1<sup>st</sup> phase was developing the USIQoL based model using existing data. The 2<sup>nd</sup> phase involved prospective, single-blind application of the model specifically for outpatient follow-up, over a 12-month period. Based on clinical and radiological data, the outcomes were either need for intervention or not. We assessed correlation between the USIQoL scores and clinical outcomes, and also formulated potential USIQol cut-off scores which could be used to discriminate between intervention or no intervention (i.e., follow-up only). This was done using Binomial Logistic regression (BLR), ROC curves and Youden Index.

#### Results

441 patients included [average age group 46–64, M = 298, F = 143]. The relationship between USIQoL scores and clinical outcome was statistically significant [BLR: PPH exp(B) 1.148, p < 0.001, 95% CI 1.063–1.240; PSH exp (B) 1.179, p 0.025, 95% CI 1.020–1.363]. The chosen cut-off scores were PPH 8 and PSH 10. Application of the model with the cut-offs to the  $2^{nd}$  phase data demonstrated appropriate sensitivities and specificities [PPH sensitivity 0.861, specificity 0.400; PSH sensitivity 0.861, specificity 0.420].

#### **Conclusions**

This novel feasibility study demonstrates the potential of the USIQoL to aid virtual follow-up using the proposed cut-off scores. This could transform outpatient care of patients with urinary calculi. Further larger scale study will confirm our findings.

