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BAUS 2020 Abstracts

ePoster Session 1: Stones, Imaging and Upper Tract Disorders 1 - State of the Art Part I: The Best of Current Practice

P1-1 Defining the inheritance of cystinuria: is it always autosomal recessive?

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Introduction: Cystinuria is a genetic stone disorder, mutations occur in two genes, SLC3A1 (chromosome 2) and SLC7A9 (chromosome 19) which code for two subunits RBAT and b0,+AT of the dibasic amino acid transport system, present in proximal tubule and small intestine. The mutations cause failure to reabsorb cystine and formation of stones. Cystinuria is described as an autosomal recessive disorder, however, some heterozygous patients present with symptoms of the disease. There is controversy about whether these patients are carriers or true cystinurics.
Method: We studied the correlation between genotype and phenotype in a cohort of SLC7A9 heterozygotes. Phenotype recorded included: urine cystine levels, renal calculus analysis, cytology, previous procedures, active/past medications, medical and family history.
Results: Of 184 genotyped cystinuric patients 20(10.9%) were identified as SLC7A9 heterozygote. Most common mutation was c.614dupA in 5(25%) patients. 6(30%) positive cystine stone analysis; 9(45%) cystine crystals on cytology; 5(25%) positive for both. 13(55%) elevated urine cystine. Of these 13(65%) patients with a clinical diagnosis of cystinuria; 12(92.3%) had undergone >1 stone-related procedure, 2(15.4%) taking cystinuric medication, 4(30.7%) have positive family history of stones. 7(35%) patients potentially have a clinical diagnosis of cystinuria, however this is difficult to confirm as they do not have high urinary cystine levels and have no traceable documented stone analysis.
Conclusion: We have demonstrated symptomatic presentation of cystinuria in SLC7A9 heterozygotes which suggests the inheritance is autosomal dominant with incomplete penetrance but recommend further characterisation using in-depth exome sequencing to look for other responsible genes.

P1-2 The challenges and anxieties of pregnancy in patients with cystinuria

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Introduction: The impact of pregnancy in cystinuria has not been well studied. Management is challenging due to regular stone formation, difficulty in imaging and contraindication of thiol binding medication.
Methods: A questionnaire to evaluate the experience of cystinuric patients during pregnancy was developed. Female patients known to have children were identified from a prospective cystinuria database
Results: 37 female patients contacted; 22 responses. Mean age 39. Median age of diagnosis 22 (range 9-40). Median number of children 2 (range 1-4) age range of children 4 months - 22 years. Medications used; 74% alkalinisation; 50% thiol binding. 36% had to cease cystinuria medication 59% reported having to stop breastfeeding or discontinuing medications to be able to breastfeed 37% were anxious about getting pregnant because of cystinuria; only 23% were given specific advice beforehand. Only 27% were offered increased monitoring. Most reported increasing fluids. 68% reported midwife/obstetric team did not know about cystinuria. 32% passed stones and 23% reported needing surgery during pregnancy; 54% felt they formed new stones that subsequently needed treating. 59% reported having to stop breastfeeding or discontinuing medications to be able to breastfeed. Genotype did not correlate with clinical experience during pregnancy (11 SLC3A1 mutation; 8 SLC 7A9; 3 both). 23% think cystinuria is a barrier to pregnancy; 91% were concerned their children could have cystinuria; 77% have sought advice for them and 50% have been tested.

Conclusions: Cystinuria causes significant anxiety to patients considering pregnancy as well as causing problems during and afterwards. Extra support should be offered to reduce anxiety and identify problems early.

P1-3 Nephrolithiasis outcomes post-parathyroidectomy: a single centre study

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Introduction: Nephrolithiasis is more common in patients with primary hyperparathyroidism and is an indication for parathyroidectomy in this population. Parathyroidectomy has been shown to reduce serum and urine calcium levels, with the aim of reducing nephrolithiasis. This study aimed to assess biochemistry and stone episodes pre and post-parathyroidectomy.
Methods: Retrospective review of 113 operations on 109 patients undergoing parathyroidectomy at a single centre July 2010 – March 2018. Data collected included age at time of surgery, gender, episodes of nephrolithiasis, pre and post-operative serum calcium (sCa), serum parathyroid hormone (PTH) and urine calcium (uCa).
Results: Mean age was 60 years (range 13-85), 72% patients were female. Mean time since surgery was 63.3 months (range 21-113). 4 patients required re-operation. Pre-operative sCa, PTH and uCa were not significantly different between pre-operative stone formers (SF) and non-stone formers (NSF). Parathyroidectomy significantly reduced sCa ($p<0.001$), uCa ($p<0.05$) and serum PTH ($p<0.001$) levels in both SF and NSF. 38 patients (35%) had nephrolithiasis (reported past medical history, ultrasound or CT) pre-operatively. This significantly reduced to 15 patients (14%) with new stone formation on ultrasound or CT post-operatively ($p < 0.00001$). Mean time to new stone formation was 15.6 months. 1 patient became a new SF post-operatively.
Conclusion: This study provides further evidence for the premise that parathyroidectomy significantly reduces the burden of renal stone disease in patients with hyperparathyroidism. Nevertheless, the risk is not eliminated and remains above that of the general population even post-operatively.

P1-4 Screening for hyperuricaemia in stone formers: is it worth it?

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Introduction: Recent NICE guidance does not advocate serum uric acid measurement within a basic metabolic screen in contrast to other existing guidelines. Identifying and treating modifiable risk factors is key to reducing the need for intervention in urolithiasis patients. We studied the relationship between serum uric acid levels and stone type, the predictors for hyperuricaemia, and whether the routine measurement of uric acid impacts the use of medical prophylaxis in adult urolithiasis patients.
Methodology: We retrospectively identified urolithiasis patients presenting to our centre who have undergone stone analysis. Patients with uric acid, calcium oxalate, and calcium phosphate stones were compared. We assessed uric acid measurement, the presence of hyperuricaemia, the subsequent effect on management, and risk factors for hyperuricaemia (sex, BMI, diabetes). Statistical analysis was undertaken using Fisher's exact test for categorical data (GraphPad software).
Results: Of 327 patients identified, serum uric acid was measured in 56%. Hyperuricaemia was identified in a significant proportion across a variety of stone types (Table 1). In patients with hyperuricaemia, 19%(n=5) of oxalate stone-formers received medical treatment, compared to 80%(n=12) of uric acid stone-formers. There was a significant association between hyperuricaemia and both BMI>24.9($p=0.014$) and male sex ($p=0.048$).

P1-4 Table 1

Stone composition	Total patients	Patients with Hyperuricaemia
Calcium oxalate	238	21%
Calcium phosphate	50	23
Uric acid	35	50
Mixed calcium oxalate/uric acid	4	75

Conclusions: Contrary to published NICE guidance, hyperuricaemia is a common finding in stone formers and is worthwhile identifying. Many patients can be managed with lifestyle modification, but some require pharmacological intervention. We recommend that patient factors such as high BMI and male sex can be used as predictors for a targeted metabolic screen.

P1-5 Electronic referrals to Endourology MDT: A quality improvement project

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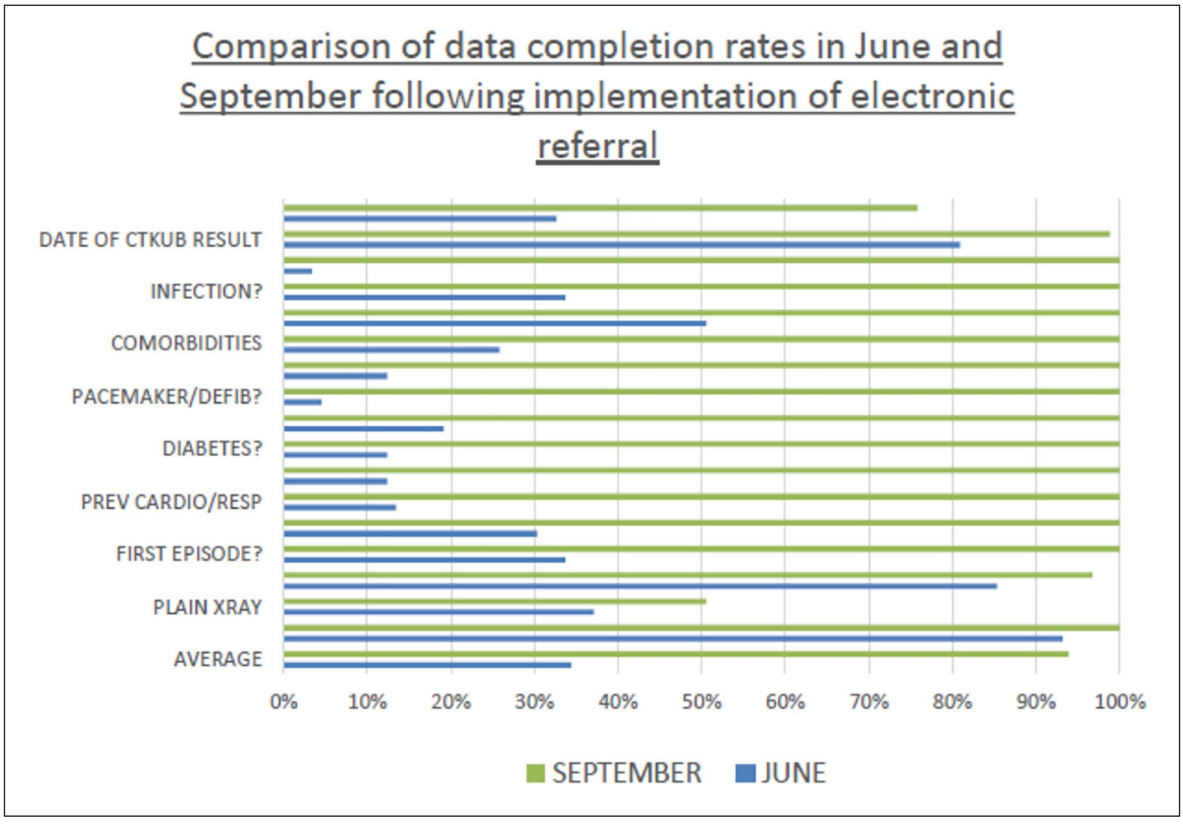
Introduction: Urolithiasis is a common presentation to urology, with a prevalence of 1-20% depending on geographical location and is noted to be increasing over recent years (1). Approximately 100 referrals, not including primary care

are received by this tertiary endourology centre and there is no standardised referral pathway. This results in limited clinical information and incomplete investigations which prolongs the patient's management pathway. This project aims to improve efficiency of endourology services by introducing a standardised electronic referral system. Specific investigations and patient data are required prior to submission, a complete audit cycle has been performed.

Methods: The electronic referral pathway to the endourology MDT was implemented in August 2019, information was provided at hospital inductions. Referrals were reviewed for June and September 2019. Several data points including CT KUB, x-ray and patient history were identified, and the referrals analysed for completeness.

Results: Figure 1 illustrates the comparison between referrals received before and after the introduction of the system. The improvement in information allowed referrals to be vetted in advance of MDT, allowing more time for discussion of complex cases. This provides a more efficient and safer patient journey.



P1-5 Figure 1.

Conclusion: This quality improvement project illustrates the benefits to the introduction of a standardised referral pathway to the Endourology MDT, it also highlights the need to include specific blood tests into the referral form to further improve the service.

P1-6 Enhancing care for patients with ureteric stones with a stone MDT-driven enhanced virtual clinic

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Introduction: Patients with ureteric stones have a higher risk of obstruction, acute kidney injury and sepsis. Most patients are treated symptomatically in the emergency departments and referred to stone clinic. This review reports on the benefit of a Stone MDT driven enhanced virtual clinic (EVC) in providing an accelerated care pathway.

Patients and Methods: EVC involves Stone Multidisciplinary Team (sMDT), review of all ED referrals (<1 week), nurse telephone consult (NTC), evaluating symptoms and planning care. Subsequent Combined radiographer/nurse Clinic (CC) is enabled within 4-6 weeks for clinical review and imaging. Patients requiring emergency treatment are expedited.

Results: Over 13 months, 964 patients were discussed in sMDT. Mean age was 49 years (range 16-92). 36% of patients had a NTC (Av. 7 days). 243 (25%) patients had enhanced care with shock wave lithotripsy, ureteroscopy or sooner consultant review. A third of patients needed urgent

treatment. 36% of patients required Consultant review for radiolucent stones, complex stones, or medical co-morbidities. 27 patients were discharged, with 33 listed for surgery. SMDT occurred within 1.9 days of referral (range 0-7), and NTC within 12 days. >90% of patients (planned for) were reviewed within six weeks (mean 32 days).
Conclusion: EVC reduced treatment delays, evaluating all patients <2 weeks, treating 87% of patients in <6 weeks. Accelerated care in high-risk patients minimised risk of renal dysfunction, sepsis and reduced QoL from on-going pain. All reported greater satisfaction from early NTC, understanding of their care pathway, titration of pain relief and treatment soon after the index event.

P1-7 Comparative study of Tamsulosin, Solifenacin and combination therapy in the treatment of Double –J stent related symptoms

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Introduction: In the modern urological practice ureteral stents play very important role but the patients experience various stent related symptoms, such as pain, frequency and urgency causing significant decrease in patient quality of life in both genders. Thus the pharmacologic management with selective alpha 1 blockers and antimuscarinic agents believed to be simpler and less invasive.
Aims & Objectives: To evaluate the effect of Tamsulosin, Solifenacin and combination therapy of the two agents in improving the lower urinary tract symptoms of patients with double J (DJ) ureteral stents.
Materials & Methods: A total of 248 patients with ureteral stenting were randomly divided into 4 groups, group I no treatment (control group), group II received Tamsulosin 0.4 mg daily, group III received Solifenacin 10 mg and group IV in combination daily for 14 days after stenting. On postoperative day 7 & 14 all patients completed the ureteric Symptom Score Questionnaire (USSQ).
Observations & Results: At 1st and 2nd week after DJ insertion, there was significant difference in scores with minimum score in combination therapy. Total scores at 2 weeks post stenting in group II and III were non-significant. The storage symptom score was less in Group III compared to Group II & the voiding symptom score was less in Group II compared to Group III.
Conclusions: The combination medical therapy appeared to improve the IPSS score and QOL after DJ insertion. Thus combination therapy should be strongly considered for patients who complain of stent related symptoms.

P1-8 "Investigating persistent visible haematuria when all the tests are normal": Renal angiodysplasia causing persistent visible haematuria in young adults

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Introduction: Angiodysplasia is a well-recognised cause of gastrointestinal bleeding, however, urinary tract angiodysplasia is rarely considered as a cause of haematuria. We present a series of patients with renal angiodysplasia.
Patients and Methods: Thirteen patients, from two centres, presented with persistent visible haematuria; 2 had associated flank pain. "Standard" haematuria investigations including CT urogram and cystoscopy were normal. We report patient characteristics and ureteroscopic findings of patients found to have areas of angiodysplasia on flexible ureteroscopy.
Results: Nine patients were male, median age 38 (range 24-47) years. Patients were of black-African or black-Caribbean (n=6), mixed Caucasian/black-African (n=3) or Caucasian (n=4) ethnicity. Median presenting haemoglobin was 147g/dl (range 63-157); two patients required transfusion; four had haemoglobinopathy traits (2 sickle cell trait, 1 thalassaemia trait, 1 both). Median eGFR was 87 ml/min/1.73m2 (range 66-100). All patients had negative urine cultures and cytology. Five patients had active bleeding from a ureteric orifice at initial cystoscopy, five underwent CT angiogram; all with no active bleeding. Twelve patients had angiodysplasia identified at flexible ureterorenoscopy; all were cauterised with diathermy. All patients with angiodysplasia had improvement in symptoms with haematuria resolving completely in ten. One patient required repeat ureterorenoscopy 4 years later and one had persistent mild haematuria not requiring intervention. One patient with multiple haemoglobinopathy traits had papillary necrosis.
Conclusions: Renal angiodysplasia should be considered in patients with persistent visible haematuria when "standard" investigations are normal. Lateralising haematuria should increase suspicion. Haemaglobinopathy traits were disproportionately common in affected patients. Diathermy cauterisation successfully treats renal angiodysplasia.

P1-9 How accurate are ureteroscopic biopsy results in patients with suspected upper tract urothelial carcinoma?

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Introduction: biopsies are often small and difficult to interpret. We set out to assess the accuracy in our centre.
Methods: We retrospectively reviewed ureteroscopic biopsies from Jan 2011-Aug 2019. Patients were identified

using the histopathology database and included all urothelial histology specimens obtained via ureteroscopy. We excluded any non-endoscopic biopsies as well as transplant patients.

Results: We analysed the ureteroscopic biopsies of 144 patients with suspected upper tract TCC. Mean age 68 years (range 32-91). 107 biopsies from the ureter (74%) and 37 renal (36%). 49% (n=70) of biopsies were positive and 43%(n=62). 8% of biopsies (n=12) were equivocal of which 11 were ureteric (10% of ureteric biopsies) and 1 was renal (2.7% of renal biopsies). Half of these equivocal cases had repeat biopsies and/or ureteroscopies which were negative (no subsequent malignancy found); 25% proceeded to surgical excision (based on visual endoscopic diagnosis and CT imaging), which all confirmed malignancy. The remaining 3 patients were monitored and none have had a diagnosis of UTUC on follow-up. For the entire series the sensitivity and specificity were 88.9% and 100% respectively for ureteric biopsies and 95.7% and 100% for renal biopsies.

Conclusion: We have found ureteroscopic biopsies to be highly specific and sensitive. We believe attention to technique, preservation with Bouin's solution, dedicated uropathologists and limiting biopsies to those performing high volume ureteroscopy (all >150 cases per annum) are factors in achieving good outcomes. Correlation in MDT setting is vital to interpret equivocal and negative biopsies as these may require surgical excision in the presence of visible tumour or benign stricture disease.

P1-10 Retrospective analysis of JJ stents in Malignant Ureteric Obstruction (MUO) secondary to prostate cancer (CaP). A single centre experience

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Introduction: Stenting MUO related to CaP can be associated with morbidity without improvement in life expectancy. It is important to identify patients who may benefit and those who will not due to advanced disease and poor prognosis. We evaluated the mode of stenting and clinical parameters to identify patients unlikely to benefit, and potentially harmed, from intervention.

Methods: Retrospective analysis of our stent database (2013-17) was performed. Multivariate Cox proportional hazards regression analysis determined hazard ratios and 95% CIs for the association between cut-off levels of serum biomarkers and risk of death. Multivariate models were adjusted for age, biomarkers, stent type and cancer stage. Kaplan Meier curves were plotted comparing levels of the biomarkers.

Results: 63 of 432 patients had CaP related MUO. Median days alive from stent insertion was 275 days (35 – 2129). 6% of patients died within 3 months of stent insertion, 25% within 6 months, 54% of patients within 1 year. Cox regression analysis showed a normal Hb and albumin were protective in terms of OS (HR:0.15, CI: 0.06-0.37, p=<0.01 and HR: 0.42, CI: 0.21-0.84, p=<0.01, respectively). Creatinine levels were not significantly associated with survival (HR 0.72 CI: 0.29-1.77, p=0.47). Both unilateral (HR: 0.05 CI: 0.01-0.33, p=<0.01) and bilateral retrograde (HR: 0.03 CI: 0.001-0.46, p=<0.01) insertion was associated with better survival.

Conclusions: In this large series, low albumin, low Hb and antegrade procedures were associated with poor survival. These objective parameters need to be considered to guide otherwise subjective clinical decisions related to MUO in CaP.

P1-11 Percutaneous nephrostomy in obstructing pelvic malignancy: Does it facilitate further oncological treatment and what is the associated morbidity?

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Patient quality of life following nephrostomy insertion for obstructing pelvic malignancy, and the proportion of patients undergoing further oncological treatment, remains uncertain. The objective of this retrospective multicentre study was to assess the outcomes of patients following percutaneous nephrostomy for malignancy. We identified all patients who had a nephrostomy inserted for ureteric obstruction due to malignancy at our institution from Jan 2015 to Dec 2018. 105 patients (55 male and 50 female) underwent nephrostomy insertion during this time interval. 51.42% patients (n=54) had urological malignancies (bladder and or prostate cancer) and 40.97% (n=43) had non-urological pelvic malignancies. The average change in creatinine pre- and post-nephrostomy was 190 mmol/L (p< 0.001). The median LOS was 14 days (range 1-104 days) post procedure and 39.04% (n=41) had at least one 30-day readmission to hospital. Only 26 (24.76%) patients were alive (all-cause mortality) at the end of the 4-year period with an average life expectancy of 139 days following nephrostomy. Only 30.47% (n=32) patients underwent further oncological treatment. In our series, most patients who had nephrostomy insertion for ureteric obstruction due to malignancy had no further oncological treatment following insertion. Percutaneous nephrostomy is a procedure not without associated morbidity. Given the associated poor prognosis in cases of advanced malignancy, we advocate multi-disciplinary approaches to decision-making for nephrostomy insertion. This study provides information on

prognosis and complications essential for patients to be fully informed in this decision.

P1-12 Long-term outcomes of minimally invasive rendezvous procedures to treat complex ureteric strictures and injuries

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Objectives: The aim of this study is to evaluate peri-operative and long-term outcomes of Rendezvous procedures to treat complex ureteric strictures and injuries.
Materials and Methods: We retrospectively reviewed patients undergoing a Rendezvous procedure for ureteric discontinuities and completing at least a 12 month-follow up. We divided patients into two groups: late oncological/post-surgical stricture (group A) and early post-surgical obstruction, leakage or detachment (group B). If appropriate, we performed a retrograde study after 3 months from the procedure, followed by a MAG3 renogram at 6 weeks, 6 and 12 months, and annually for 5 years.
Results: 43 patients were included, 26 in group A (Mean age 60, range: 28-83), and 17 in group B (Mean age 50, range: 30-78). Success rate was 22 patients (84.6%) in group A, and 15 in group B (88.3%). After successful stenting, with a mean follow up of 6 years, 8/26 in group A (30.7%) required no further interventions and were stent free, 10/26 (38.4%) were maintained with long-term stenting and 1/26 required a Memokath® stent (3.8%). Only 3/26 (11.5%) needed major reconstruction. In the 15 successfully stented patients in group B, 11/17 (64.7%) were stent free with no further interventions, 2/17 patients (11.7%) had a Memokath® stent insertion, and 2/17 patients required reconstruction (11.7%).
Conclusion: With a Rendezvous approach, complex ureteric strictures/injuries can be bridged and stented in above 80% of cases, avoiding major surgery in unfavorable circumstances. Additionally, further interventions later may be unnecessary in up to 64% of patients.

P1-13 The life story of a Memokath 051 stent in the management of ureteric strictures: Success rates, retention rates and complications over twelve-year experience

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Introduction: Memokath 051 are used as an alternative in the management of malignant and benign ureteric strictures as an alternative to Indwelling JJ stents. They are described as permanent stents with easy removal and better tolerance profile. We wanted to explore their life span, complications and final outcomes through our twelve-year experience.
Method: All patients undergoing insertion of Memokath 051 stent between April 2007 and Sept 2019 were identified from theatre records. Indication, complications, post-operative imaging and final outcome were recorded.
Results: 113 Memokaths were inserted in 95 patients. Follow-up ranged from 4 months to 12 years. Mean age was 61.5 years. 38% patients had underlying malignancy. Mean post-operative stay was 1.7 days. 11% had early UTI, Migration occurred in 26% stents and obstruction in 22%. Overall, 52% patients had a good long-term outcome from Memokath stenting.
Conclusion: Memokath stenting has a role in the short and median term management of ureteric strictures, especially in those suffering from Double J stent symptoms. It has a better tolerance profile and insertion technique or removal if needed is easy to learn with low immediate complications. Memokath stents should not be considered permanent option as over time, stents do tend to migrate or obstruct especially those with increased risk of stone formations. Overall cost effectiveness and patient reported outcomes need to be assessed.

P1-14 Allium URS for chronic ureteric obstruction: Initial experience of a single centre

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Introduction: Management of chronic ureteric obstruction (CUO) is challenging. Polymer stents encrust, are prone to occlusion and require regular exchange. Consequently, use of metallic stents (designed to resist obstruction and have longer dwell time) has been explored. Allium URS is a segmental self-expanding stent comprising of a NiTinol mesh covered in a polymeric layer. We describe early outcomes treating CUO with Allium URS.
Methods: Retrospective evaluation of consecutive patients treated with Allium URS for CUO (March 2017 - present). Patients underwent renal biochemistry, abdominal x-ray, and MAG3 renogram at 6 weeks, and clinic review at 3-months and then 6-monthly. Patient and stricture characteristics, operative success rate, functional dwell time (duration between placement and failure/last clinic follow up/death) (per ureteric unit) and causes of failure (migration, obstruction and infection rates) (per stent) were evaluated.
Results: 24 stents were placed in 20 ureters in 15 patients. Aetiology was benign in 50% (10/20). Median stricture length was 8cm (IQR: 6.5-9.6).
Operative successful rate was 95.8% (23/24). Median functional dwell time was 9 months (benign: 20, malignant: 4). Failure occurred in 37.5% (9/24) (migration: 4.17% (1/24),

obstruction: 29.2% (7/24), infection: 4.12% (1/24)) (table 1). 71.4% (5/7) of obstructed stents were in the distal/distal-mid ureter. Only one stent migrated (secondary to progressive retroperitoneal leiomyosarcoma). In those with retroperitoneal fibrosis, median functional dwell time was 31 months (IQR: 20-31.5).

P1-14 Table 1. Allium URS Outcomes.

	Overall	Benign	Malignant
Stents Placed	24	45.8% (11/24)	54.2% (13/24)
Operative Success Rate	95.8%	100% (11/11)	92.3% (12/13)
Functional Dwell Time (months)*	9 (1 – 28.5)	20 (3.5 – 31)	4 (1 – 13.8)
Migration Rate	4.17% (1/24)	0% (0/11)	7.69% (1/13)
Obstruction Rate	29.2% (7/24)	36.4% (4/11)	23.1% (3/13)
Infection Rate	4.12% (1/24)	0% (0/11)	7.69% (1/13)
Failure Rate	37.5% (9/24)	36.4% (4/11)	38.5% (5/13)

*Median (IQR).

Conclusion: When managing CUO, disobstruction with Allium URS provides acceptable outcomes. Careful patient selection based on aetiology and level of obstruction is required to maximise success.

P1-15 The Foley catheter nephrostomy: a novel way of providing long term renal drainage

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Introduction: Our Urology department covers a geographical area the size of Belgium with several island communities. This is a considerable issue for patients requiring long term nephrostomy drainage. We believe we are the only unit in the UK using this technique.
Patients and Methods: A list of all nephrostomy procedures performed between January 2014 and Dec 2018 was generated and patient data was reviewed electronically with follow-up up to 31st Dec 2019. 6fr Pigtail nephrostomy was inserted by the IR consultant. This was upsized to a 16Fr Foley using a seldinger SPC kit. District nurses were asked to check the balloon weekly and were offered training in changing the catheter.
Results: 435 nephrostomy procedures were identified in 213 patients. 29 patients had a long term Foley nephrostomy, 22 of which had an advanced malignancy. 15 patients lived over 40 miles away. 4 district nurses attended for training in the IR procedure. No acute admission resulted from a failed change of catheter in the community. Life expectancy was often short due to advanced malignancy, but one patient has managed his catheter without hospital support for 62 months.
The majority of unscheduled events were related to the catheter being dislodged and a blocked Foley was exceedingly rare.
Conclusions: A Foley catheter is a simple way of maintaining renal drainage. They can be managed in the community with a motivated district nursing team. Life expectancy may be short in patients with progressive malignancy, but a Foley may help avoid some of the issues.

ePoster Session 2: Stones, Imaging and Upper Tract Disorders 2 - State of the Art Part II: This is the Future

P2-1 Comparison of the EDAP-Sonolith I-SYS and Storz Medical Modulith SLX-F2 lithotripters

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Introduction: Extracorporeal shockwave lithotripsy (SWL) is recommended as first line treatment for all stones less than 10mm. Success rate of SWL is dependent on a number of factors including the operator and lithotripter. The aim of this project is to compare two lithotripters the EDAP-Sonolith I-SYS and Storz Medical Modulith SLX-F2.
Methods: A single lithotripsy radiographer delivered SWL on two different lithotripters. A prospective database was kept and patient outcomes recorded. Statistical analysis was performed using chi-squared and the Mann-Whitney U test.
Results: A total of 302 stones were treated using EDAP-Sonolith I-SYS: 212 renal and 90 ureteric stones. A stone free rate of 83% and 74% was achieved for renal and

ureteric stones, respectively. A total of 144 stones were treated using Storz Medical Modulith SLX-F2: 98 renal stones and 46 ureteric stones. A stone free rate of 61% and 65% was achieved for renal and ureteric stones, respectively. The EDAP-Sonolith I-SYS lithotripter resulted in a significantly higher stone free rate for renal stones than the Storz Medical Modulith SLX-F2 ($p<0.05$). There was no significant difference in stone free rates for ureteric stones (p=0.26). There was no significant difference in stone size (6mm versus 6.3mm (p=0.83)) or number of treatment sessions (2 versus 2 (p=0.11)) between the two patient cohorts.

Conclusions: When using the same lithotripsy radiographer, the EDAP-Sonolith I-SYS had a statistically significant higher stone free rate when used to treat comparable renal stones than the Storz Medical Modulith SLX-F2.

P2-2 Emergency versus elective ureteroscopy for ureteric stone – a systematic review and meta-analysis

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Background: Ureteric colic is a major clinico-economic burden on the NHS. The current paradigm shift is to consider definitive surgery as the primary intervention at initial presentation. The aim of this systematic review and meta-analysis is to assess the outcomes of primary ureteroscopy versus elective ureteroscopy.

Methods: A systematic review was performed according to the Cochrane diagnostic accuracy review guidelines. Studies reporting the ureteroscopic treatment of ureteric colic in adult patients with emergent ureteric stones were included.

Results: 2416 studies were identified,12 met inclusion criteria. A total of 1708 patients underwent emergency ureteroscopy for ureteric calculi and 990 underwent delayed ureteroscopy. Meta-analysis showed no significant difference in stone free rates between both groups with primary achieving 85% and delayed 91% ($P = 0.68$). Complications were classified into major and minor. 15 patients (2.9%) in the emergency group had major complications compared to 15 (1.5%) in the delayed URS group. Overall major complications were lower in the delayed group (p=0.003). There was no difference in minor complications (p=0.87). JJ stents or ureteral catheter were used in 71% of delayed URS cases compared to only 46.8% of emergency cases. 6.4% of patients undergoing emergency URS required additional procedures compared to 7.6% in the delayed URS group. One paper found primary ureteroscopy was cheaper than delayed URS ($P <0.001$)

Conclusion: This systematic review confirmed that primary ureteroscopy is feasible and is associated with significantly lower stent usage and potentially more cost effective than delayed URS. However, major complications were higher in primary ureteroscopy.

P2-3 Surgical and radiological predictive factors for ureteric stricture formation after ureteroscopic treatment of impacted ureteric stones

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Introduction: Ureteric stricture is a potential complication of impacted ureteric stone. In this study, we studied the surgical and radiological factors that could potentially predict ureteric stricture formation after ureteroscopy for impacted ureteric stones.

Material and method: Intraoperative and radiological data for patients who underwent ureteroscopy for impacted ureteric stone were reviewed retrospectively in the last 5 years. Patients who had previous ureteroscopic treatment were excluded.

Results: Between 2014 and 2019, 1340 patient presented as an emergency renal colic secondary to ureteric stone. A total of 297 ureteroscopy procedures were performed. The mean age was 52 years. 42% of stones were in the lower ureter. The average stone size was 8 mm and the stricture rate was 3.3%. Analysis of radiological factors including stone size, site of impaction, degree of hydronephrosis, ureteric oedema, and perinephric stranding revealed that degree of hydronephrosis and residual fragments are significant predictors for stricture formation (p=0.04 and 0.024 respectively). Intraoperative factors including mucosal damage, ureteric perforation, and duration of impaction did not contribute significantly to the formation of ureteric stricture.

Conclusion: Our study suggests that the presence of severe hydronephrosis and residual stone fragments after surgery significantly predict ureteric stricture formation.

P2-4 Development of a risk calculator to predict spontaneous stone passage in patients with acute ureteric colic

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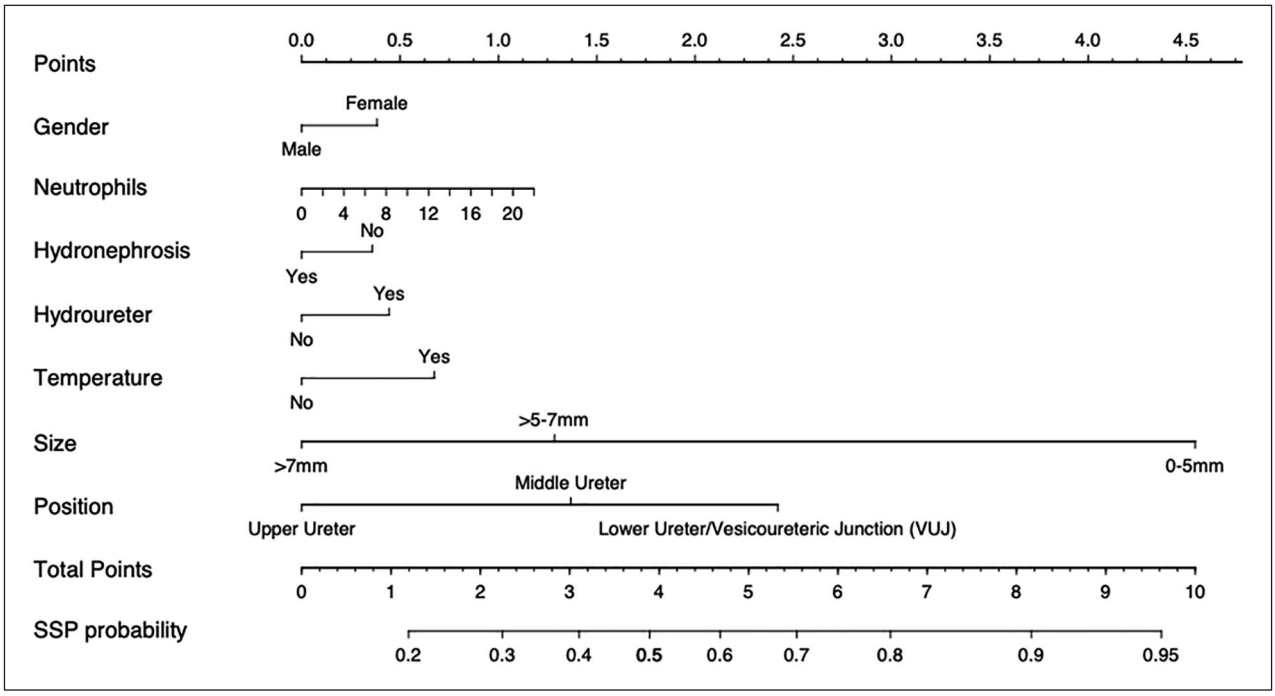
Introduction & objectives: Renal colic is a common urological problem in the population. The MIMIC Study was a 4171 patient cohort study assessing the most important predictors of spontaneous stone passage (SSP) in patients with renal colic and a CT-confirmed obstructing ureteric calculus. In this report, we present a risk calculator developed from the MIMIC study data for use when a patient is admitted with ureteric colic.

Materials & methods: Using the MIMIC Study results, the influence of hydronephrosis, hydroureter, perinephric stranding, stone size and stone position on computed tomography on SSP were assessed. Logistic regression was used to obtain the set of variables with the highest predictive ability for SSP and the corrected β-coefficients after internal validation was used to create a nomogram.

Results: An online risk calculator which informs clinicians and patients of the chances of SSP was created. 2518 patients were included in the modelling process, of which 1874 had SSP (74.4%). The most important predictive factors for SSP were stone size ($p<0.0001$), stone position ($p<0.0001$) and neutrophil count ($p=0.06$). The model was internally validated in a subset of patients from 2009-2015 (n=1728) with an apparent C-statistic of the uncorrected model of 0.77 indicating good discrimination and the nomogram (Figure 1) was externally validated on a subset of patients from 2016-2017(n=789) confirming that the model was insensitive to temporal trends.

Conclusion: We present a risk calculator developed that can aid clinical decision-making by determining an individual patient's likelihood of spontaneous stone passage when admitted with ureteric colic.



P2-4 Figure 1:

P2-5 A mathematical model of renal temperatures during laser lithotripsy

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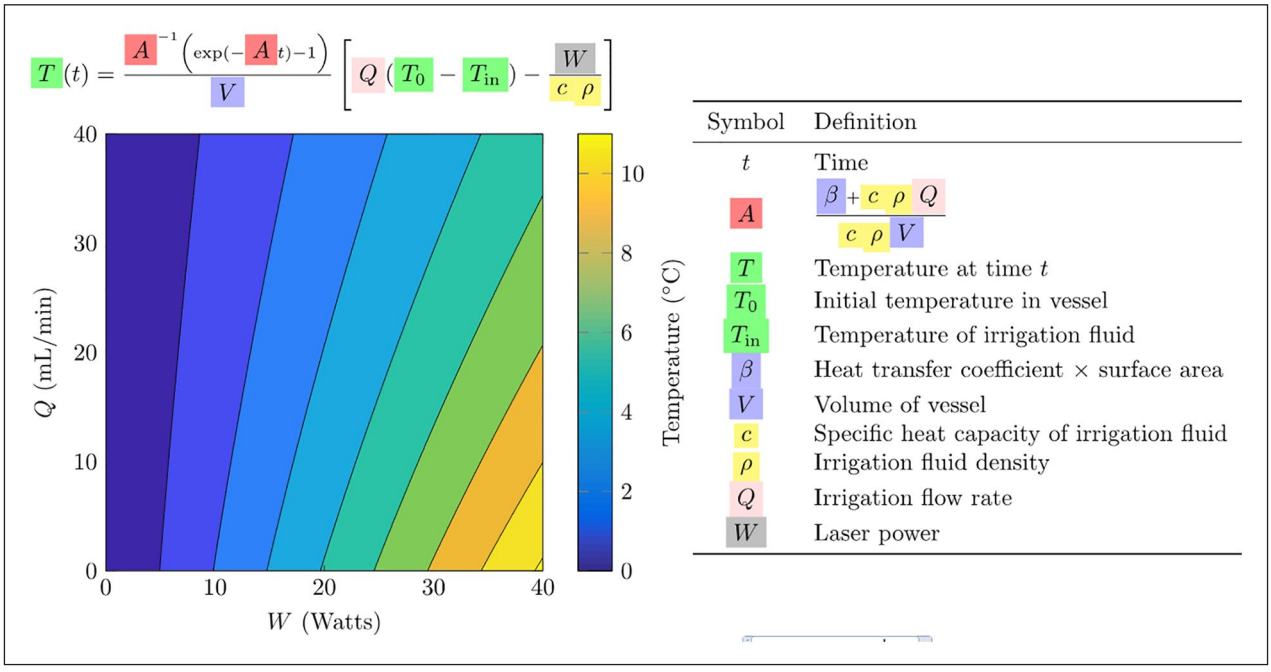
Introduction: Holmium laser lithotripsy carries a risk of thermal tissue damage. In vitro and in vivo studies have demonstrated temperature elevation sufficient to cause

thermal tissue damage can occur with certain laser and irrigation settings. Through mathematical modelling we aimed to predict and mitigate against such temperature increases.
Methods: We constructed a mathematical framework, based on energy conservation principles, relating temperatures within the kidney over time to laser wattage, kidney volume, irrigation flow rate, and irrigation temperature. We validated this theoretical model via comparison with wet-lab experiments.
Results: The model consists of a formula for quantitative predictions of temperature, Figure 1, subject to specified conditions, requiring minimal computational cost. The model demonstrates excellent correlation with wet-lab findings. The model agrees with experimental data of Maxwell et. al. (2019). Temperatures increase with increasing laser wattage, duration, and irrigation temperature, and decrease with increasing flow rate and kidney volume. Peak temperature rise after 60 seconds of lasering at 40 W with no irrigation is 12 C in our experimental results, whereas in the Maxwell et. al. (2019) study, at the same settings, is 32 C. The cause of the difference between the two temperatures, predicted by the mathematical model, is the comparatively larger volume of the vessel in our wet-lab experiments. Highlighting the importance of estimations of kidney volume for accurate temperature predictions.
Conclusions: Validated mathematical models negate the need to check every experimental condition, therefore improving efficiency and safety in industry and research application



P2-5 Figure 1. A contour flow of flow rate vs. laser power for $V = 10$ mL, $T_{in} = T_0 = 22$ °C. All other parameters taken as properties for water. Heat transfer coefficient obtained by fit to experimental data.

P2-6 Outcome audit of ureteroscopic stone surgery: Does longer operative time >90mins result in higher risk of sepsis?

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Introduction: As ureteroscopic technology and techniques continue to improve, larger and more complex stones are being treated endoscopically by the endourologist. As such, a longer operative time could potentially result in increased risk of post-operative sepsis.

Methods: All ureteroscopies performed for stone management by a single surgeon were included and follow-up procedures were excluded. Retrospective analysis of the patient, stone, treatment and stent data were obtained. The cases were sub-grouped according to Short(<90mins) and Long (⩾90 mins) of operative time.
Results: Out of 272 cases, the Short(n=182) vs Long(n=90) groups were comparable in terms of mean age, BMI and ASA scores. Target stone site distribution in Short vs Long groups was Renal (35.8% vs 56.7%), staghorn (0.5% vs 20%), calyceal diverticulum (3.3% vs 4.4%) and ureteric (60.4% vs 18.8%) respectively. The Short group had lower positive pre-operative MSU rates (7.6% vs 21.1%), higher pre-operative stent rates

(36.2% vs 43.3%) and smaller mean stone size (8.4mm vs 18.1mm).
The Short group had a mean operative time of 46mins vs 117mins, used less flexible ureteroscopy as primary instrument (52.7% vs 91.1%) and lower post-operative stent rates (20.3% vs 98.8%). The mean length of hospital stay were similar 1.2 days vs 1.5 days. The Short group had 4 patients vs 3 patients who developed sepsis post-operatively, and this was not found to be statistically significant.
Conclusion: Although the Long group had expectedly larger and more complex stones with higher pre-operative UTI, the post-operative sepsis risk was not increased despite longer operative time.

P2-7 Impact of routine pre-operative urine checks on significant urinary tract infections following ureteroscopy procedure at Derriford Hospital

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Introduction: Treating asymptomatic bacteriuria (ASB) remains an important issue; overuse and misuse of antibiotics have contributed to the growing problem of resistance amongst uropathogenic bacteria.
There is emerging evidence that ASB may have a protective role in reducing the risk of urinary tract infection thus treating ASB prior to ureteroscopy (URS) paradoxically increase the risk of significant post operative infection.
Practice varies among UK centres and untreated bacteriuria is a common reason for same day cancellation of URS procedures.
Usual practice at Derriford Hospital is to not routinely assess urine dipstick or urine culture prior to URS in asymptomatic patients. All patients attending for URS during a 12-month period from March 2019 were asked to provide a urine sample for dip and culture and 30-day readmission rates were assessed.
Method: All patients during the study period provided a midstream urine sample (MSU) for urine dipstick test and culture prior to URS. The surgical team were blinded to results and all patients received standard gentamicin prophylaxis at anaesthesia induction in line with usual practice at this Trust.
All patients were retrospectively followed up to evaluate 30-day post-operative readmission.
Results: 128 patients were included, 26 had a positive MSU of which two patients were readmitted with sepsis or assumed UTI (11.53%). 102 patients had a negative preoperative MSU and two were readmitted with urine infection (1.96%).
All patients who were readmitted with sepsis or assumed UTI had a negative nitrite test on urine dip. None of the 9 patients with a positive nitrite test were readmitted with sepsis.
Conclusion: Practice in other trusts of cancellation in context of positive urine dip or culture would have resulted in 20.3% annual same-day procedure cancellations.
Positive urine dip and MSU prior to ureteroscopy failed to predict patients more likely to develop significant urinary tract infections (Positive Predictive Value 0.07) and negative urine dip and MSU did not exclude post-operative readmission with infection.
Nitrite presence on urine dip was shown to fail to predict any case of readmission with infection and all patients readmitted with significant infection had pre-operative negative nitrites.
As a result, the benefit of routine urine testing prior to URS should be considered particularly in view of potential procedure cancellation with associated morbidity and low rate of post-operative complication in urine dip positive patients.

P2-8 Increased infective complications from manual hand held irrigation verses low pressure gravity flow during endoscopic lithotripsy

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Introduction & Objectives: This study compared patient outcomes following irrigation applied using a manual pressure handheld system versus a 'gravity only' continuous flow system, in endoscopic lithotripsy procedures.
Methods: We did a retrospective chart analysis to evaluate endoscopic lithotripsy outcomes and complication rates for these two variations. Procedures in which irrigation was applied by a manual handheld system were compared to those with no manual irrigation used (gravity assisted continuous flow). Statistical analyses included chi-squared tests and Student's t tests. We analysed 234 procedures completed at a single institution between 2011 and 2018.
Results: The two groups had no statistically significant difference in gender, age or stone size, $p > 0.05$. Post-operatively hypotension and fever in the first 48 hours after surgery was significantly higher in the manual irrigation group, compared to the continuous flow group 11 versus 1 ($p = 0.032$). Emergency presentations in general were significantly greater in the manual handheld irrigation group (46 versus 12, $p = 0.002$). Furthermore, the risk of post-operative UTI in the 60 days following ureteroscopic surgery, given by fever (13 versus 1, $p = 0.011$) and dysuria (15 versus 4, $p = 0.053$), was greater in the manual handheld irrigation group. No statistical difference was found between the two groups with respect to stone clearance and subsequent procedures required ($p=0.123$).
Conclusions: This retrospective analysis suggests that manual pressure irrigation applied during endoscopic procedures is associated with adverse outcomes compared to continuous irrigation, however stone clearance rates were not affected.

P2-9 International consensus on classification and standardised reporting of Percutaneous Nephrolithotomy (PCNL) to study and compare different types of PCNLs worldwide

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Aim: To reach a consensus of 'speaking the same language' for the different types of PCNLs when designing clinical trials, comparing outcomes, publishing, reviewing papers and presenting.

Materials and Methods: The consensus was carried out as per the RAND/UCLA appropriateness methodology. Two rounds of PCNL statements were modified and scored. In the third round, the panel met to discuss each statement ranking and to decide which statements to include. Any disagreement or suggestion was noted, debated and discussed until resolution was obtained.

Results: The statements scoring above 80% were strongly agreed by the panel. The consensus scoring shows that the size of the sheath used (in Fr) should be stated (99.1%). Conventional PCNL is defined as sheath size of greater than 22 Fr. Mini PCNL is defined as sheath size of less than or equal to 22 Fr. The position for PCNL and name of the procedure should be stated (93.5%).

In terms of outcome measures, the post-operative hospital length of stay (94.4%), blood loss and blood transfusion

P2-9 Table

Score	Rank	Statement
99.1%	1	The size of sheath used (in Fr) should be stated.
93.5%	2	Position for PCNL must be mentioned (prone/supine/lateral).
92.6%	3	Access time includes all the time from the first attempt of needle puncture to the beginning of nephroscopy.
92.6%	3	Total nephroscopy time should be calculated as the time spent on both fragmentation and retrieval of fragments.
92.6%	3	The end point of the procedure is the time of closure of the nephrostomy site or when the nephrostomy tube is secured.
91.7%	4	Size and name of drainage tubes (nephrostomy or stents), or whether the procedure was tubeless should be mentioned.
90.7%	5	The name of the procedure should be mentioned (standard, super-mini PCNL etc).
90.7%	5	Radiation exposure is obtained from the dose summary noted in the fluoroscopy machine at the end of each procedure.
88.8%	6	Modality of imaging used to perform access should be mentioned i.e., fluoroscopy only, ultrasound only or combination.
88.8%	6	Access time should be included in the overall operating time.
87.9%	7	Energy source used for stone breakage should be stated.
82.4%	8	Standard PCNL is defined as sheath size of greater than 22Fr.
82.4%	8	Mini PCNL is defined as sheath size of less than or equal to 22Fr.
82.4%	8	Beginning of PCNL should be measured from the moment of initiating access into the collecting system using a nephrostomy needle.
78.7%	9	Nephroscope size and name should be stated.
78.7%	9	Feasibility of stone retrieval for analysis should be mentioned.
77.8%	10	Method of stone removal should be mentioned. e.g. grasping forceps, suction of fragments through ultrasound probe channel, active suction, vortex etc.
67.6%	11	Irrigation pressure (in cm H_2O) of normal saline used should be stated
61.1%	12	Suction pressure (in cm H_2O) used during PCNL should be stated.

(Continued)

Score	Rank	Outcome Measures
94.4%	1	Post-operative hospital length of stay must be defined as LOS between end of procedure and clinical decision to discharge.
93.5%	2	Blood loss estimated by drop in hemoglobin (Hb) or requirement for blood transfusion (due solely to the procedure at a preset cut off) must be stated.
92.6%	3	The imaging modality used to investigate this and the timing of this post procedure must be mentioned.
92.6%	3	Complications should be classified using the Clavien Dindo classification specified for PCNL.
87.9%	4	Pain post op should be measured using a Visual Analogue Scale. This should be assessed at 12 hours, 24 hours and 48 hours after end of procedure.
87.9%	4	Urine leakage should be defined as the presence of urine draining from the flank incision more than 48 hours after removal of all tubes (nephrostomy/drain) from the kidney.
86.1%	5	Hemoglobin should be measured pre-operatively and 24 hour post-operatively
86.1%	5	Analgesic requirement can be used as a surrogate only if there is a standardized post op pain escalation pathway. The dose and duration of analgesia used should be mentioned.
83.3%	6	Hospital stay less than 24 hours after surgery = 0 day/day case.
82.4%	7	Treatment success will be defined as the absence of clinically significant residual fragment of $\geqslant$ 2mm.
81.5%	8	QOL assessment using EQ-5D-5L value set before, one day post op and 6 weeks after surgery must be used.
78.7%	9	Change in renal function due to PCNL should be measured by the difference in estimated GFR before and one month after PCNL.
63.9%	10	Treatment success will be defined as the absence of any stone fragment irrespective of size.

(93.5%), imaging modality and timing post procedure must be stated (92.6%). Treatment success will be defined as the absence of clinically significant residual fragment of greater than or equal to 2mm (82.4%) rather than absence of any stone fragment (63.9%).

Conclusions: The consensus statements provide recommendations for classification and standardisation of reporting. Size of PCNL sheath, position for PCNL, definition of post-operative hospital length of stay and blood loss by drop in the haemoglobin are the most important statements.

P2-10 The efficacy and safety of the EMS Swiss LithoClast® Trilogy for PCNL: a European multicentre prospective study on behalf of ESUT

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Introduction: PCNL requires a lithotrite to efficiently clear stones. We aim to determine the efficacy and safety of a new lithotrite, the EMS LithoClast® Trilogy. We compare the stone clearance rates based on surface area with other lithotrites (24-32mm2/min), and using the 3D calculated stone volume, with the single published series for the LithoClast® Trilogy (591mm3/min).

Materials and Methods: 10 European centres took part in this prospective non-randomised study. Objective measures included stone-clearance efficiency, stone-free rate, complications and device malfunction. Each surgeon evaluated subjective parameters, ergonomic and device effectiveness, on a 1-10 scale (10=extremely ergonomic/effective) and compared it to the commonly used lithotrite on a 1-10 scale (10=extremely effective). Results: 157 patients undergoing PCNL were included. The mean stone clearance rate was 65.55mm2/minute or 945mm3/minute (calculated 3D stone volume). Stone-free rate on fluoroscopy was 83%. The subjective surgeon feedback for ergonomic score was 8.1. Highest feedback was for suction effectiveness at 9.0, with 9.1 for combination effectiveness and 9.0 for overall effectiveness compared to lithotrite most commonly used. 13(8.2%) Clavien Grade II and 2(1.3%) Grade III complications were reported.

Device malfunction included probe breakage in 9(5.7%), none of which required switching lithotrite. Conclusions: This study has demonstrated that the new LithoClast® Trilogy is highly efficient at stone clearance compared to other lithotrites. It is perceived by surgeons to be highly effective overall and compared to the most commonly used lithotrite. Probe breakage rate may represent the learning curve with a new device or may suggest that manufacturing parameters require modifications.

P2-11 PCNL in the elderly

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Introduction: An aging population and rising prevalence of stone disease has resulted in an increasing number of elderly patients with large stone burden requiring intervention. We review the results of percutaneous nephrolithotomy (PCNL) in this population group at one high-volume centre over a 10-year period to determine its safety and efficacy.
Patients and Methods: Retrospective analysis of 43 PCNL procedures in 40 patients aged over 70 years. Patient and stone characteristics were recorded. All patients had follow-up imaging to assess stone clearance. Measured outcomes included stone-free rate, length of stay, complications and overall survival.
Results: Median age was 76 years with a median ASA grade of 2 and median Charlson Comorbidity Index of 4. Median Guy's stone score was 2 (range 1-4) with a mean combined stone diameter of 3.1cm (range 1-6cm). Miniaturised PCNL was performed in 38 cases (88%). Stone clearance was achieved in 28 cases (65%). 91% required no further stone treatment, two patients underwent planned second stage PCNL and two underwent further shockwave lithotripsy. Median length of stay was 2 days. 8 patients (19%) were treated for post-operative UTI, one patient received blood transfusion and one patient required subsequent antegrade stent insertion. 77% of patients had no complication. 6 patients overall died of other causes during the follow up period, after a median interval of 5.7 years following surgery.
Conclusions: PCNL is a safe an effective treatment modality and should be offered as a treatment option for fit elderly patients with large volume stone disease.

P2-12 Comparison of super-mini (14 F) Percutaneous Nephrolithotomy (PCNL) and standard PCNL for kidney stones up to 70mm by Patient and Public Involvement (PPI), and Quality of Life (QOL) data for super-mini (14 F) PCNL

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Introduction: Super-mini PCNL (SMP) uses a small 14 F access sheath with a novel suction arm, which provides continuous low-pressure suction to keep the intra-renal pressure low and controllable high-pressure suction to remove stone fragments.
Materials and Methods: Patients with kidney stones not suitable for ESWL or RIRS were offered SMP. Quality of life (QOL) EQ-5D-5L questionnaires were filled in by patients before, within 24 hours after operation and 3 months later. The EQ-5D index can take values between 0 (dead) and 1 (perfect health). Patients who have had both standard (28/30 F) and Super-mini (14 F) PCNLs attended a Patient and Public Involvement (PPI) round table discussion.
Results: Fifty patients underwent SMP between January 2016 and December 2018. The mean stone Hounsfield unit was 1053 +/- 299 with stones sizes up to 70mm (8-70mm). 78% of patients (39/50) were totally tubeless. 66% of patients (33/50) had < 24 hours admission and the median hospital stay was 1 day. The mean HB drop was 14g/dl and no patient required a blood transfusion.The EQ-Index showed that the operation significantly improved the quality of patients' lives. The stone free rate was 88% (44/50). PPI showed that 70% of PPI patients who had undergone both standard and Super-mini PCNL preferred SMP because they experienced less pain, did not require a kidney drainage tube and went home faster.
Conclusion: SMP is well like by patients with good QOL, little blood loss, high complete tubeless rate, short hospital stay and quick recovery.

P2-13 A single centre's early experience of mini percutaneous nephrolithotomy using the 12Fr MIP-M nephroscope in the treatment of renal calculi

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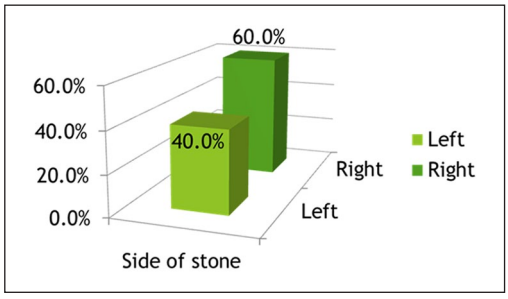
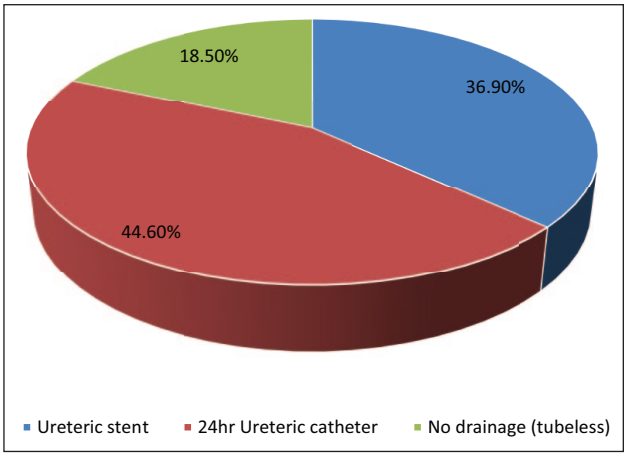
Introduction & Objectives: Despite good stone clearance, conventional percutaneous nephrolithotomy (cPNCL) is associated with significant morbidity such as blood loss, increased transfusion, length of stay and analgesic requirements. This study was aimed at documenting and evaluating the early experience of mini-percutaneous nephrolithotomy (mPCNL) using the 12Fr MIP-M nephroscope & 16. 5/17. 5Fr sheath (Storz) in the treatment of renal calculi by two surgeons in a single centre.
Patients and Methods: We enrolled consecutive patients who underwent mPCNL from March 2016 to September 2019. The Galdakao-modified Valdivia supine position was

used. Data on number of punctures (NP), puncture location, stone clearance, post-operative drainage (POD) and length of hospital stay (LOS) was analyzed.
Results: Sixty-five mPCNL procedures were performed over 42 months. Mean age was 57.5 years with mean stone size being 14. 1 (7–24.8) mm. Mean NP was 1. 2 (1-3). Most punctures were made in the lower pole calyx (88.9%). Twelve patients had completely tubeless procedures, twenty -four were stented while the rest had ureteric catheters which were removed within 24 hours. No transfusion was recorded. Mean LOS was 1.3 (0-4) days and 88.4% were documented as being stone free after treatment.
MINI PCNL Supporting document

P2-13 Figure 1. Mini PCNL kit.



P2-13 Figure 2. Side of stone treated.



P2-13 Figure 3. Post- operative drainage.

Conclusions: In our experience with the MIP system performed in the supine position, we achieved good stone free rates with minimal morbidity whilst also preserving the ability to perform flexible nephroscopy. Anaesthetic, patient and surgeon benefits were noted. It's been shown here to be a safe, useful and effective alternative to cPCNL or to flexible ureterorenoscopy.

P2-14 Foley catheter nephrostomy post-PCNL – a simple way to reduce in-patient hospital stay, radiation exposure and cost to the NHS

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Introduction: With growing concerns of availability of in-patient hospital beds and increasing NHS costs, the use of Foley catheters as nephrostomies rather than standard single J-nephrostomies was identified as an area in our trust where improvement could be made. Patients awaiting nephrostomy removal under fluoroscopy due to an indwelling JJ stent often had unnecessary discharge delays due to availability of fluoroscopy slots, highlighted by our GIRFT review. Foley catheters were first utilised in 2018 in place of standard single-J nephrostomies.
Methods: A retrospective audit of patients undergoing PCNL prior to and after implementation of new Foley catheter nephrostomy policy. The type of nephrostomy, requirement for removal under fluoroscopy, and length of stay were audited.
Results: PCNL pre-Foley catheter nephrostomy = 89 over 2 years. PCNL post-Foley catheter nephrostomy = 64 over 18 months. 53 of 64 (83%) had a Foley catheter inserted as nephrostomy. Median time from operation to single-J nephrostomy removal was 3 days. Median inpatient length-of-stay for single-J nephrostomy was 3 days and Foley catheter was 2 days. No patients with a Foley catheter and JJ stent in situ required fluoroscopy for removal of the nephrostomy.
Conclusion: The change to Foley catheter nephrostomy usage has reduced inpatient hospital stay by at least 1 day, overall cost per treatment and radiation dose for fluoroscopic removal in patients with both a Foley catheter nephrostomy and JJ stent. Foley catheters are now used as a first option for nephrostomy in all PCNL cases locally.

P2-15 Ultra-low dose CT KUB - is it the new gold standard for follow up of ureteric calculi?

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Introduction: Ultra-low dose CT of the kidney, ureter, bladder (ULD CTKUB) is used to reduce radiation dose

for patients with nephrolithiasis. The risk of fatal cancer is 0.05% (1/2000) for every 10 mSv of ionizing radiation. Effective dose estimates a risk of malignancy of 5.7% per Sv. Our local CT scanner software was calibrated to deliver an ultra-low exposure of 1.9 mSv or less.
Methods: Prospective audit of 128 patients having a primary low-dose CT KUB (LD CTKUB), followed by ULD CTKUB. The ULD CT KUB group included patients where KUB radiograph could not confirm stone passage, surveillance and pre and post intervention.
Results: Total number (128) 78 male and 50 female. Stone size range 2 to 14mm (mean 5mm), index stone mean Hounsfield unit density 688. 105 patients had full ULD CTKUB, 23 had pelvis only (for distal ureteric calculi). The mean LD CTKUB dose (mSv) was 4.4mSv and 0.73 mSv for ULD CTKUB. The mean dose reduction between the LD CT KUB and ULD CTKUB was 80%. 3/128 (2%) of ULD scans were sub-optimal for interpretation due to body habitus or artefact from joint-replacement surgery.
Conclusion: ULD-CTKUB significantly reduced radiation exposure. The development of a new protocol subdividing ULD-CTKUB into ULD - CTKUB and ULD - CT pelvis has further reduced radiation dose. Nephrolithiasis patients often require ongoing imaging over many years, and steps to ensure the overall radiation dose is limited are essential to reduce the long - term risk of possible radiation-induced malignancy.

ePoster Session 3: Female Urology and Bladder Dysfunction 1

P3-1 Comprehensive baseline investigations underpin bladder management of babies with myelomeningocele

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Introduction: Myelomeningocele (open spina bifida) accounts for 85% of babies with congenital neuropathic bladder, a condition frequently leading to renal failure in years gone by. Early detection and management of neuropathic bladder is crucial. The International Children's Continence Society (ICCS) published guidelines for diagnosis and management in 2012; this study reviews practice at a tertiary children's hospital against these guidelines.
Methods: All babies who underwent closure of myelomeningocele at Alder Hey hospital between 2012 and 2018 were identified. Electronic medical records were reviewed for demographics, baseline urinary tract imaging, bladder management and urodynamic findings.
Results: 47 babies underwent back closure at a median of 2 days (IQR 0). Clean intermittent catheterisation (CIC) was commenced routinely after birth, 1 required an indwelling catheter due to difficult CIC. Newborn KUB Ultrasound scans were normal other than non-significant findings in 5. Video urodynamics were undertaken at a median age of 3.9 months, neuropathic bladder was confirmed in 44 (94%). CIC continued in 42, the indwelling catheter was converted to suprapubic and 2 required a vesicostomy; 29 (62%) required anticholinergics. Routine DMSA at time of urodynamics revealed scarring/dysplasia in 9 (21%) only 4 of whom had vesicoureteric reflux.
Conclusion: Compliance with ICCS guidelines was excellent. As expected, most babies with myelomeningocele had a neuropathic bladder requiring active management. ICCS guidelines recommend DMSA only in those with reflux. However, our practice of routine DMSA identified scarring in a notable cohort (5, 12%) without this risk factor.

P3-2 Intermittent catheterisation confers immunity against urethral stricture. Fact or fallacy? Incidence of urethral stricture in Indian SCI patients being treated with clean intermittent catheterisation

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Introduction: Clean intermittent catheterisation (CIC) is the gold standard for bladder evacuation in individuals with neurogenic bladder. The occurrence of stricture urethra in patients with neurogenic bladder varies from less than 10 to 25 % in different series. It is a popular misconception that patients of Spinal cord injury (SCI) do not develop stricture urethra as they are employing CIC for emptying their bladder. We present our data showing a high occurrence of stricture urethra in Indian SCI patients using CIC.
Methods: Patient database of SCI men who attended OPD from 2014 -2017 was assessed. Male patients who employed CIC to manage their bladder were included. Urethral stricture was suspected in those patients who complained of recent difficulty in doing CIC with 14 Fr Nelaton catheter in whom previous CIC was easy. Urethral stricture was defined as inability to introduce 14 Fr catheter. The diagnosis was confirmed by flexible cystoscopy and by retrograde urethrogram.
Results: A total of 1200 SCI patients on CIC were included. 612 (51%) were identified to have stricture urethra. Mean age was 40 years (15-64) and mean duration of self-catheterisation at diagnosis of stricture was 3 years. All patients were doing CIC with 14/12 Fr Nelaton catheter with Xylocaine jelly as the lubricant.
Conclusions: Occurrence of urethral stricture in Indian SCI men employing CIC is almost 50%. This number is much higher than reported in world literature and onset of stricture from start of CIC to development of stricture is much earlier than previously reported.

P3-3 Anticholinergic drugs and risk of cognitive impairment or dementia in patients with overactive bladder syndrome: a systematic review and meta-analysis

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Introduction: Overactive bladder syndrome (OAB) is one of the most common medical conditions referred to urologists. Anticholinergic medications are commonly used as to treat such patients. The relationship between cognitive impairment or dementia and anticholinergic medications remains uncertain. The aim of our study is to evaluate the reported relationship between using anticholinergic drugs for patients with OAB and the risk of cognitive impairment or dementia.
Methods: A literature search was conducted to identify relevant studies published until December 2018. Studies included used the mean change of Mini-Mental State Examination (MMSE) as a scale for assessment of the cognitive status, comparing anticholinergic agents with placebo or other active treatments.
Results: Three cohort studies and six RCTs with a total of 2,594 participants were included in the analysis. The longest follow up duration was 6 months. Meta-analysis of the primary outcome showed that Darifenacin was slightly more significant in lowering MMSE Score compared to Trospium. This is the only study that showed dementia as a side-effect. There was no significant difference in MMSE between Oxybutynin Extended and Immediate-Release. The pooled estimate of two studies did not favour either Fesoterodine or Placebo to reducing MMSE Score. No significant differences were observed between other anticholinergic drugs when compared to each other or to Placebo.
Conclusion: The present meta-analysis has demonstrated that anticholinergic medications do not impair cognitive functions according to the MMSE scores in patients with OAB. Further RCTs with larger number of patients and longer follow-up period are needed to confirm our findings.

P3-4 Can pre-operative urodynamic results predict the outcome of intravesical injections of Onabotulinum Toxin A for overactive bladder and the risk of post-operative urinary retention?

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Introduction: Intravesical Onabotulinum Toxin A (Botox A) injections are a common third-line therapy option for treatment of refractory overactive bladder (OAB) symptoms in adults. We have assessed whether pre-operative urodynamic findings can predict patient's outcomes and the need to catheterize (intermittently or indwelling) after Botox A injections.
Methods: A retrospective review of all 418 patients (median age 61 years, range 22-90, 128 men) having intravesical Botox A injections for refractory OAB symptoms between 2006 and 2018 was conducted. The outcome of treatment was categorized using a 5 point Patient Global Impression of Improvement (PGII) scale at the last follow up appointment or when contacted by telephone if last review was over 6 months ago. Outcome was correlated with the pre-operative urodynamic findings. The need to self-catheterize (ISC) or have an indwelling urethral (IDC) or suprapubic (SPC) catheter was noted and correlated with the urodynamic parameters.
Results: Urodynamic results were available for review on 311 (74%) patients, 97 men (age range 27-94, median 69) and 214 women (age range 22-90, median 59) having Botox A during this time period under the care of 4 consultant surgeons. 49% of patients had had previous significant pelvic surgery. Urodynamically proven idiopathic detrusor overactivity (IDO) was demonstrated in 215 patients (69%). Catheterization post-Botox A injections was required by 131 (46%) of women and 76 (41%) of men. Statistical analysis was by Students T-Test and Chi Square Test.
The outcomes are listed in Table 1.

P3-4 Table 1

	Failure (PGII>=3)	Partial Success (PGII=2)	Success (PGII=1)	Catheterization	No Catheterization
Women # traces	62	24	128	104	110
Men # traces	39	11	47	42	55
Women IDO	36	13	**96***	66	79
Women no DO	26	11	32	40	31
Men IDO	28	8	36	28	43

(Continued)

	Failure (PGII>=3)	Partial Success (PGII=2)	Success (PGII=1)	Catheterization	No Catheterization
Men no DO	11	3	11	14	12
OAB Wet Women	20	7	54	**45****	37
OAB Wet Men	17	7	20	12	27
Median peak DO pressure Women (cmH2O)	33	62	34	30	40
Median peak DO pressure Men (cmH2O)	50	61	60	53	60
Volume at 1st DO Women (ml)	255	125	240	240	252
Volume at 1st DO Men (ml)	215	190	210	175	240
Women with BOO	3	4	10	15	12
Men with BOO	7	3	7	10	7
Voiding detrusor contraction duration Women (s)	**63*****	107	86	85	70
Voiding detrusor contraction duration Men (s)	74	97	93	97	91

*P=.02.
**P=.007.
***P=.03.

Conclusions: Intravesical Botox A was significantly more successful in women with urodynamically proven IDO (75%) comparing with men (60%) and women with no DO (62%). Successful outcomes were significantly associated with increased duration of voiding detrusor contractions. ISC or catheterization was required in 46% and was significantly more likely in women with DO wet (p=0.007). Other urodynamic parameters were not predictive of the outcomes or the need to ISC.

P3-5 Mast cells express the mast cell related G-protein Coupled Receptor X2 (MRGPRX2) in the urinary bladders of interstitial cystitis/bladder pain syndrome patients: Potential role in the pathogenesis of neurogenic inflammation

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Background: Mast cells numbers and activity are significantly elevated in the bladders of patients with interstitial cystitis (IC/BPS). This condition is associated with an increased density of the bladder sensory nerve endings, which release neuroactive substances, e.g. substance P (SP), thereby inducing mast cell degranulation and tissue inflammation. However, the responsiveness of mast cells to SP is variable between different tissues depending on the local cellular micro-environment.

MRGPRX2 is a recently identified G-protein coupled receptor involved in mast cell responsiveness to SP in different chronic inflammatory conditions, and its expression is associated with increased tissue inflammation.

Problem: The responsiveness of the urinary bladder mast cells to SP has not yet been explored, which makes theories related to neurogenic inflammation in the pathogenesis of BPS/IC uncertain. In the current study, we investigated the potential responsiveness of the bladder mast cells to the neuropeptide SP. For such purpose, urinary bladder biopsies, from 32 consented BPS/IC patients, were serially sectioned and stained with antibodies for the mast cell-specific proteases (Tryptase and Chymase), in addition to MRGPRX2.

Outcome: 30 out of 32 BPS/IC biopsies consistently co-expressed MRGPRX2 as well as Tryptase and chymase, in the lamina propria and detrusor layers of the bladder wall, indicating positive responsiveness of the bladder mast cells to SP.

Learning: Neurogenic inflammation caused by the SP-induced mast cell degranulation is a potential driving engine for the chronic tissue inflammation in BPS/IC patients. Blocking SP- MRGPRX2 signalling could potentially alleviate longstanding bladder inflammation and pain in this group of patients.

P3-6 Medical-Grade Manuka Honey inhibits mast cell degranulation by downregulating Protein Kinase-B (Akt) Phosphorylation: Potential role as intravesical agent in the treatment of interstitial cystitis/bladder pain syndrome

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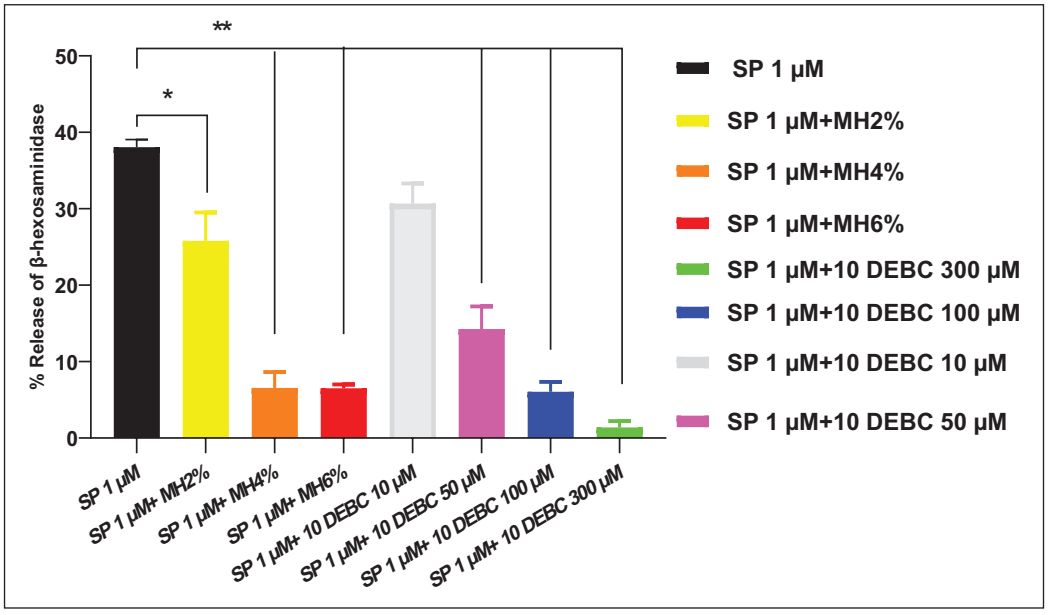
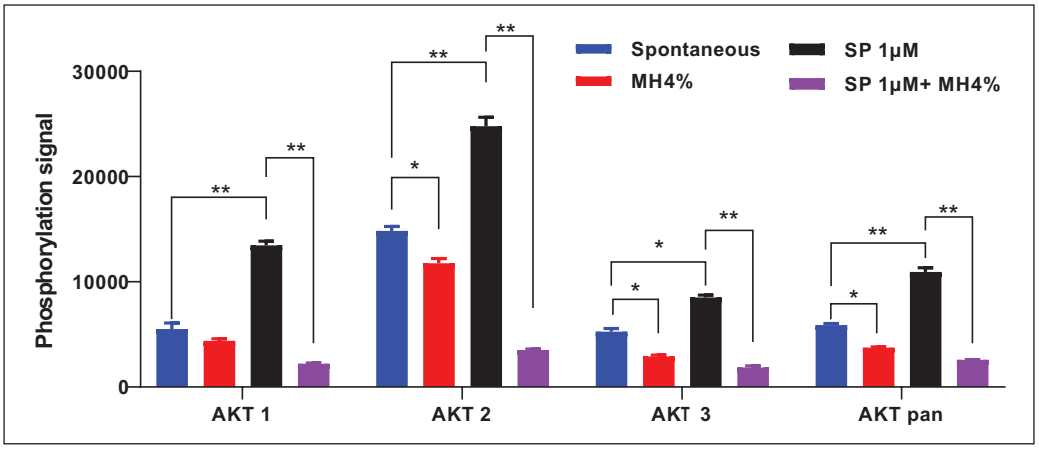
Background: Mast cells numbers and activity are significantly elevated in several inflammatory conditions including interstitial cystitis (IC/BPS). This condition is associated with the release of neuroactive substances, e.g. substance P (SP), which induces mast cell degranulation and tissue inflammation. Medihoney® (MH) is a medical grade Manuka honey with strong anti-microbial properties. Recent reports also highlight its anti-inflammatory properties through inhibition of histamine release by mast cells.

Problem: We investigated the anti-inflammatory effect of MH against neurogenic inflammation by studying its effect on mast cell degranulation induced by SP. LAD-2 human mast cells were activated by SP (1μM) for 40 minutes with or without 30-minute pre-incubation with MH. Degranulation was assessed by the release of the lysosomal enzyme β-hexosaminidase (β-hex.). The cells were lysed and the levels of phosphorylation of several protein kinases, involved in the cell signalling pathways underlying mast cell activation, were measured.

Outcome: MH (4% and 6%) significantly inhibited mast cell degranulation by approximately 90%. MH (4%) pre-treatment inhibited SP-induced phosphorylation of Akt 1, 2 and 3. 10-DEBC Hydrochloride, a selective Akt inhibitor, significantly inhibited mast cell degranulation in a dose-dependent manner, starting from 87% at a concentration of 30 μM.



P3-6 Figure 1. Effect of MH and 10 DEBC on the SP-induced LAD-2 cell degranulation (* P value <0.01 and ** P value < 0.005) (Experiment was repeated three times and each condition was represented in triplicates per experiment).



P3-6 Figure 2. Effect of MH on SP-induced Akt phosphorylation (* P value <0.01 and ** P value < 0.005) (Experiment was repeated twice and each condition was represented in duplicates per experiment)

Learning: intravesical MH could potentially be useful as an anti-inflammatory agent against neurogenic inflammation which might be implicated in the pathology of ICBPS.

P3-7 Efficacy of intravesical Botulinum Toxin A as a treatment to relieve symptoms in adult patients with interstitial cystitis: a systematic review

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Background: Interstitial cystitis/bladder pain syndrome (IC/BPS) is an inflammatory condition of unknown aetiology. Many treatments show limited efficacy in this condition. However, botulinum toxin A (BTX-A) given by intravesical sub-mucosal injection has been used to treat IC/PBS. It has been suggested that BTX-A affects afferent neurons in addition to its well-known effects on the neuromuscular junction improving both urinary symptoms and pain seen in IC/PBS.

Aim: To review the published data relating to the efficacy of BTX-A used in IC/PBS with respect to pain and symptom relief.

Method: A comprehensive search was done on six databases including: Embase, Medline OVID, Scopus, CINAHL, Web of science and the Cochrane library. Risk of bias analysis on included papers was carried out using the appropriate CASP checklist and the Cochrane collaboration tool.

Results: Of the 1438 papers found, 17 papers were included after screening. Analysis of the randomised controlled trials (n=9) suggests BTX-A improves pain control as well other symptoms compared to either placebo or alternative treatments such as hydrodistension and pentosan polysulfate and that trigonal injection was not inferior to body wall injection. Analysis of cohort studies (n=8) found that BTX-A improved pain and other symptoms when compared to baseline readings.

P3-7 Table 1

Table 1. Summary of the RCT Findings

Intervention group vs control group	Number of Papers with this comparison	Conclusion
Botulinum toxin VS Placebo (normal saline)	Two Papers	BTX-A group showed significantly greater improvement in patients with interstitial cystitis than the placebo group receiving saline injections
Botulinum toxin VS Pentosan Polysulfate instillation	One Paper	BTX-A had significantly greater improvement in all parameters when compared PPS instillation.
Botulinum toxin VS Hydrodistension	One Paper	BTX-A showed to have similar efficacy as hydrodistension as there was no significant difference (P>0.05)
Botulinum Toxin + Hydrodistension VS hydrodistension alone	Four papers	Three papers confirmed that BTX-A injection + hydrodistension was more effective than hydrodistension alone. However, one paper identified that BTX-A injection showed to be very effective in a small minority of the patients

Conclusion: BTX-A injection in the bladder has been shown to be a safe and relatively effective treatment for patients with IC/BPS who have failed other conventional therapies. However, more detailed research is needed to determine the efficacy of BTX-A in IC/BPS especially when considering doses used, outcomes measured, and injection protocols.

P3-8 The efficacy of Onabotulinim toxin A in patients with augmentation cystoplasty

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Introduction: Onabotulinum toxin A(BTX) is often employed to try to limit further surgery in patients who fail respond to augmentation cystoplasty.
Methods: This is a retrospective review of all cystoplasty patients who underwent BTX injection at a tertiary centre between 2008-2019. A positive clinical response was considered improvement of overactive symptoms (incontinence) sufficient to merit repeat BTX injections.
Results: 30 patients were identified (11 men and 19 women). Indications for augmentation, urodynamic findings and outcomes are shown in Table 1. The interval between cystoplasty and initial BTX was 98 months (range 3-271). Mean DO pressure was 43 (range (11-91). The overall response rate was 44% (8/18) for patient with IDO and 58% (7 /12) for NDO. 24/30 patients had persistent DO as a cause of their leakage. The response rate in this group was 46%. 13/30 patients had poor compliance with the majority (10) having associated DO. The response in this group was 8/13 (62%), all with DO/compliance loss, but it is not clear whether this was in response to DO or reduction in compliance pressures. In patients that failed BTX, 1 patient was managed with an SNM implant and 11/30 (37%) required further surgical intervention. The 15 patients who went on to have regular BTX experience a persistent benefit, with a mean 7.6 injections (range 2-16) over a period of 6.2years (range 0.3–13.1 years)

Indications for cystoplasty	Video-urodynamic characteristics following cystoplasty	Response rate	Further management
IDO (18)	DO (11)	4/11	Regular Botox (8/18, 44%)
	Both non-compliance and DO (4)	2/4	SNM for IDO with success (1/18, 6%)
	Sensory urgency /pain (3)	2/3	Revision of cystoplasty (1/18, 6%)
			Urinary diversion (7/18, 39%)
			Ileal neobladder (1/18, 6%)
NDO (12) spinal bifida (5) spinal injury (4) sacral agenesis (1) radiotherapy (1) Charcot-Marie-Tooth disease (1)	DO (3)	1/3	Regular Botox (7/12, 58%)
	Non-compliant bladder (3)	2/3	AUS implant for mixed pattern incontinence (2/12, 17%)
	Both non-compliance and DO (6)	4/6	Conservative management (3/12, 25%)

P3-8 Figure 1.

Conclusions: Forty-four percent of IDO-cystoplasty patients responded well to BTX therapy, and 58% of NDO-cystoplasty patients.

P3-9 Voiding dysfunction and sacral nerve stimulation in men: a ten year follow up review

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Introduction: Men with voiding dysfunction (VD) and chronic urinary retention are challenging to treat. Sacral nerve stimulation (SNS) provides an alternative for patients with this condition. We reviewed our institution's ten-year experience with SNS for the treatment of refractory VD, (grouped into HTNRS, Acontractile bladder and both) in adult men.
Materials and Methods: A retrospective review of our prospectively collected database was conducted. Between 2009 and 2019 N= 37 men had a SNS evaluation

[6 Percutaneous Nerve Evaluation/31 First Stage Tined Lead]. Mean age 48 years old.
Success was evaluated by frequency volume charts, quality of life questionnaires and subjective evaluation. We recorded the midurethral closure pressure (MUCP) +/- Urethral pressure profile (UPP). We assessed the number of electrodes giving motor and sensory response intraoperatively to predict success. We assessed bladder emptying prior to the trial to predict success. Our longest follow up was 10 years and shortest 15 months.
Results – see table.

P3-9 Table 1. 37 patients were evaluated with FSTL, 18 (49%) converted to second stage implant after a successful trial. Of these 18 (49%) 15 (83%) are still currently successful.

Diagnosis	Number of pts	Successful trial: Conversion to SNS	Persistent success at follow up in 2019
Acontractile bladder	18/37	9 (50%)	7 (39%)
High Tone Non-Relaxing Sphincter (HTNRS)	13/37	8 (62%)	7 (54%)
BOTH	6/37	2 (33%)	1 (17%)

P3-9 Table 2. The results of MUCP or UPP were correlated with success or failure.

Diagnosis	Number of pts	MUCP/UPP<100 (success)	MUCP/UPP >100 (success)	MUCP/UPP not done (success)
HTNRS	13/37	2 (2)	5 (4)	6 (2)
Both HTNRS & Acontractile	6/37	3 (2)	1 (0)	2 (0)

P3-9 Table 3. Patients voiding habits were correlated to success or failure.

Mode of emptying	No of patients (%)	Success (%)	Failure (%)
ISC	19/37 (51)	7 (37)	12 (63%)
SPC	5/37 (14)	1 (20)	4 (80)
Valsalva void	9/37 (24)	6 (67)	3 (33)
Not documented	4/37	1 (25)	3 (75)

Discussion: SNS is effective for treating male voiding dysfunction in the long term. It is almost comparatively effective for patients with voiding dysfunction of any etiology. We did not demonstrate a correlation between UPP/MUCP or success. SNS appears more effective for valsalva voiders versus those doing ISC. SPC users do less well. We found that the number of electrodes giving a positive motor response intraoperatively and the amplitude strength of that response was not predictive of a successful outcome. SNS is an effective option for this group of patients when other methods have failed.

P3-10 The long-term durability and presence of complications of ileal conduit and ileal neobladder urinary diversion post cystectomy: A systematic review and meta-analysis

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Introduction: Urinary diversion is a surgical procedure conducted following removal of the urinary bladder. The aim of this study is to review the literature relating to long-term durability and incidence of complications of ileal conduit and orthotopic neobladder.
Materials and Methods: A systematic electronic literature search was performed in Medline, Embase, Cochrane Library and Scopus. Using MeSH and free text search terms "Urinary diversion" AND "Ileal conduit" AND "Neobladder" concluded 29th June 2018. Inclusion criteria were those patients who had a cystectomy and required urinary diversion by either ileal conduit or neobladder.
Results: In total, 32 publications met the inclusion criteria. Data were available on 46,787 patients (n=36,719 for ileal

conduit and n=10,068 for orthotopic neobladders). Meta-analyses showed that ileal conduit urinary diversions performed less favourably than orthotopic neobladders in terms of re-operation rates, Clavien-Dindo complications and mortality rates; Odds Ratios (ORs) and 95% Confidence Intervals (CIs) were 1.76 (1.24, 2.50) $p<0.01$, 1.16 (1.09, 1.22) $p<0.01$ and 6.29 (5.30, 7.48) $p<0.01$, respectively. Ileal conduit urinary diversion performed better than orthotopic neobladder in relation to urinary tract infection rates and ureteric stricture rates OR and 95% CI 0.67 (0.58, 0.77) $p<0.01$ and 0.70 (0.55, 0.89) $p<0.01$, respectively.

Conclusions: There is no significantly increased morbidity with orthotopic neobladder compared to ileal conduit. Selection of either urinary diversion technique should be based on patient factors such as tumour stage, comorbidities, surgical experience and patient acceptance of post-operative sequalae

P3-11 The fate of the remnant bladder following ileal conduit urinary diversion for benign aetiology

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Objective: To assess the fate of the remnant bladder in patients having frequency of ileal conduit urinary diversion for benign causes.

Methods: A retrospective review was performed on all 106 patients (27 men) having ileal conduit urinary diversion for benign cause between 1998 and 2019. The mean age of patients was 52 years (range 20-83). Median follow up was 44 months (range 0 – 233 months). Notes were reviewed and data retrieved on patient demographics, aetiology, any remnant bladder related complications, treatment and outcomes of these complications.

Results: The indications for ileal conduit formation, numbers developing pyocystis and numbers requiring cystectomy are detailed in the table below. Treatment for pyocystis progressed through; antibiotics, remnant bladder ISC, remnant bladder washout and finally simple cystectomy. 40 patients develop pyocystis of whom 24 required a simple cystectomy. 2 developed intractable bladder pain/spasm and required a simple cystectomy. 1 developed a TCC in their remnant bladder and required a radical cystectomy.

P3-11 Table 1

Indication for conduit	All cases (%)	Pyocystis Group (N = 40)	Cystectomy Group (N = 27)	Cystectomy for intractable bladder pain (N = 2)	Radical cystectomy for bladder TCC (N = 1)
MUI	32 (30.2%)	9	7		1
BPS	12 (11.3%)	4	4	2	
VVF (post DXT)	11 (10.4%)	2	1		
OAB	10 (9.4%)	2	2		
MS	9 (8.4%)	6	4		
Atonic bladder	8 (7.5%)	5	1		
Congenital spinal disorder	5 (4.7%)	3	2		
Cerebral palsy	4 (3.8%)	1	1		
SCI	4 (3.8%)	3	2		
SUI	2 (1.9%)	2			
Ureteric stricture	2 (1.9%)				
HTNRS	2 (1.9%)	1	1		
Diabetic neuropathy	2 (1.9%)	1	1		
Autonomic dystrophy	1 (0.9%)	1	1		
High pressure bladder (post DXT)	1 (0.9%)				
Ketamine bladder	1 (0.9%)				

Conclusions: Remnant bladder complications developed in 47 (44.3%) including TCC bladder in 1 (0.9%). Cystectomy was required in 27 (25.5%) of patients. Routine simple cystectomy is not required in patients having ileal conduit for benign aetiology. They must however be warned of a 25.5% need for subsequent cystectomy and the need for life-long follow-up because of the risk of TCC.

P3-12 Iliac fossa or umbilical stoma for Mitrofanoff channel formation – Which is the best site?

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Introduction: The best site for the exit stoma of a Mitrofanoff or Monti channel remains unknown. In children there is evidence that the iliac fossa may be a superior site. We have evaluated the best exit stoma site in adults.
Methods: We performed a retrospective case note review of 176 consecutive adult patients (median age 42 years) having Mitrofanoff channel formation a median of 142 months (range 54-386) ago. We evaluated outcome in terms of stoma site revision, channel revision, continued use and continence for each stoma exit site. Statistical analysis was by Chi Squared analysis.
Results: The 176 patients had a median of 51.5 months (range 2-339) follow-up (FU) available. At time of this review 165 (93.8%) patients were alive. At time of last FU 76% of channels were in use and 69% were continent. Outcomes at last clinic FU are listed in Table 1. One stoma exit site could not be determined from the notes and the patient had died during follow up.

P3-12 Table

Channel Exit Site	N (%)	Median Age (Range)	Median FU (Range)	In Use at Last FU	Dry at Last FU	Skin Level Revision
Umbilicus	121* (69%)	44 (18-73)	57* (2-235)	90/121 (74%)	82 /121 (68%)	66/121* (55%)
Right Iliac Fossa	50 (29%)	36* (18-66)	67.5* (4-293)	39/50 (78%)	34/50 (68%)	36/50 (72%)
Left Iliac Fossa	4 (2%)	24 (19-39)	282 (228-339)	4 /4 (100%)	4/4 (100%)	3/4 (75%)

Conclusion: Umbilical stomas for Mitrofanoff channels are formed significantly more often than other stomas. Site of Mitrofanoff exit stoma does not affect channel usage and continence at last follow up. There is a significantly lower rate of skin level revision at an umbilical exit site and this may be the better exit site in adults.

P3-13 Are Mitrofanoff channel outcomes better when made in bladder or neobladder in adults?

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Introduction: The effect of urinary reservoir type on Mitrofanoff outcomes has not been evaluated in adults. We have assessed the effect of type of urinary reservoir on channel usage and requirement for revision.
Methods: We performed a retrospective case note review of 176 consecutive adult patients (median age 42 years) having Mitrofanoff channel formation a median of 142 months (range 54-386) ago. We evaluated outcome in terms continued use, continence and need for revision surgery for continence (UI) or catheterisation (ISC) issues. We correlated these outcomes with urinary reservoir type. Statistical analysis was by Chi Squared analysis and Students T-Test.
Results: The 176 patients a median of 60 months (range 2-365) follow-up (FU) available. Outcomes at last FU are listed in Table 1.

P3-13 Table 1

	Native Bladder	Neobladder	Clam Cystoplasty
N (%)	39 (22%)	69 (39%)	68 (39%)
Mean Age (Range) Years	36 (17-61)	46 (18-71)*	39 (18-73)
Mean FU (Range) Months	70.6 (6-293)	85.9 (2-365)	77 (2-339)

(Continued)

	Native Bladder	Neobladder	Clam Cystoplasty
In Use at Last FU (%)	25* (64%)	59 (85%)	50 (73%)
Dry at Last FU (%)	25 (64%)	52 (75%)	45 (66%)
Channel Bulking for UI (%)	7 (18%)	7 (10%)*	18 (26%)
Open Channel Revision for UI (%)	14 (36%)	22 (32%)*	36 (53%)
Revision for ISC (%)	14 (36%)	20 (29%)	17 (25%)

*$P < 0.05$.

Conclusions: Mitrofanoff channel formation into a neobladder is associated with a significantly lower need for endoscopic or open revision for UI than when formed into a clam cystoplasty and a significantly higher rate of continued usage than when formed into a native bladder.

P3-14 Robotic-Assisted Bladder Diverticulectomy (RABD): A safe alternative to open approach

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Introduction: Open and Laparoscopic bladder diverticulectomy are established treatment options for symptomatic bladder diverticulum, with few RABD reports. We reviewed the surgical and functional outcomes, and quality of life (QoL) of patients treated at a tertiary centre.
Method: All patients who underwent RABD between 2015 and 2019 had data collected prospectively. Data includes patient demographics, operative parameters, QoL and functional outcomes.
Results: 14 male patients, average age of 61 years (43-82), underwent RABD. 3 patients had previous TURPs, 1 patient had simultaneous Millen's procedure.
The mean operative time was 178 minutes (120–262), estimated blood loss 123mls (0-250) and hospital admission 2 days (1-7). 1 patient experienced a grade 4 Clavien-Dindo complication (laparotomy for haematoma evacuation), 1 an electively repaired port-site hernia, 2 conservatively managed urinary leaks and 1 UTI. Mean diverticula volume was 686cm^3, diverticula neck diameter 8mm, detrusor wall thickness 7mm, and mean prostate volume 49cm^3. The average follow up was 24 months (1–56).
Functionally: 1 patient was SPC dependent pre-operatively and none post-operatively, with 67% and 18% reporting recurrent UTIs respectively. Mean IPSS improved from 21 + 5 to 7 + 2 and PVR from 438mls to 164mls. Patient self-reported satisfaction is 2.5/3 suggesting good benefit on a simple Likert scale.
Conclusion: RABD is a feasible treatment option for bladder diverticula. This is the second largest reported series to date. This can offer the advantages of a minimally invasive approach over open surgery. Larger study numbers and longer follow up is required to identify prognostic information.

P3-15 Cystodistension injuries and long-term bladder functional outcomes: a unique case series from medical malpractice

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Introduction: Bladder over-distension injuries are rare but can have devastating effects on patients and can lead to litigation. We report on a unique series of 18 cases of over-distension injuries following episodes of acute urinary retention. We aimed to (a) test the hypothesis that individuals with larger distension volumes and longer distension times are more likely to develop acontractile bladders long-term (b) determine long-term prognostic factors and (c) guide protocols aimed at preventing over-distension injuries.
Patients and Methods: The series is derived from individuals pursuing medical malpractice claims in the UK Courts. Each Claimant won their case. Retrospective data collection was performed.
Results: The cohort comprised 17 females and 1 male. Mean age was 31 years (range 17-69). Precipitating events included 6 surgical procedures, 11 vaginal deliveries and 1 episode of back pain. Median retention volume was 1450 ml (range 1000-3800) and median duration of retention was 1200 minutes (range 470-10365). Patients regaining spontaneous voiding had median retention volumes and durations of 1500ml and 1749 minutes. Patients remaining catheter dependent had median values of 1200ml and 1440 minutes. No statistically significant difference in retention volume ($p=0.37$) or duration ($p=0.14$) in spontaneous voiders versus those remaining catheter dependent.
Conclusions: Long-term outcomes are unpredictable, 50% will void spontaneously, 33% will void spontaneously but will require ISC, and 17% remain catheter dependant. Though a small series, given the rarity of overdistension

injuries, it provides useful prognostic information for patients. And highlights the need for better bladder care guidelines that monitor post-void residual urine volumes.

ePoster Session 4: Renal Cancer, Testis and Sarcoma

P4-1 Predictors of non-diagnostic renal mass biopsy

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Introduction: Use of renal mass biopsy (RMB) in the diagnosis of renal cancer is increasing. One of the limitations of RMB is the non-diagnostic rate, reported between 4 and 30%. We report the predictive factors for non-diagnostic biopsy from a large cohort study.

Materials and Methods: Between 2014 and 2018 all patients with small renal masses attending a network referral centre were offered biopsy as part of the standard care pathway. Data was collected on patient demographics, tumour characteristics, pathology and clinical outcomes. A standard biopsy protocol with 2x 18G core biopsy was followed. Patient and tumour characteristics for diagnostic and non-diagnostic groups were assessed using t-test, Chi-squared test, or Fischer's exact test for each characteristic as appropriate.

Results: 645 patients underwent RMB. Mean patient age was 63 (SD12.8). 87.1% were ultrasound guided, the remainder (12.9%) CT guided. CT guided biopsy was significantly less likely to yield diagnosis, however this is likely due to selection bias. Tumour diameter was the strongest predictive factor for non-diagnostic biopsy. Non-diagnostic rates by size are shown in Fig 1. Cystic nature of lesions also trended toward significance, despite the small number of cystic lesions biopsied.

Characteristic	Diagnostic biopsy *Median (IQR) or Number (%)*	Non-diagnostic biopsy *Median (IQR) or Number (%)*	
Number	513	132	
Age	65 (55-73)	62 (51-72)	P=0.05
BMI	29 (26-32)	30 (26-36)	P=0.80
Gender			
Male	337	86	
Female	176	45	
Side			P=0.55
Left	244	67	
Right	264	64	
Guidance			**P=0.006**
US	454	106	
CT	59	28	
Diameter (mm)	30 (24-40)	23 (16-33)	**P<0.0001**
Cystic	23	12	P=0.05
Renal Score	7	7	P=0.33

P4-1 Figure 1.

Conclusion: Size is a reliable predictive factor of non-diagnostic result in percutaneous renal mass biopsy. Tumours <2 cm had a 42% non-diagnostic rate, >2cm this drops to 14%. RMB is a reliable diagnostic test in tumours >2cm.

P4-2 Image guided biopsy in oncocytic small renal masses (<4cm): Improving diagnostic performance using copy number variation analysis, a moleculecular inversion genetic technology

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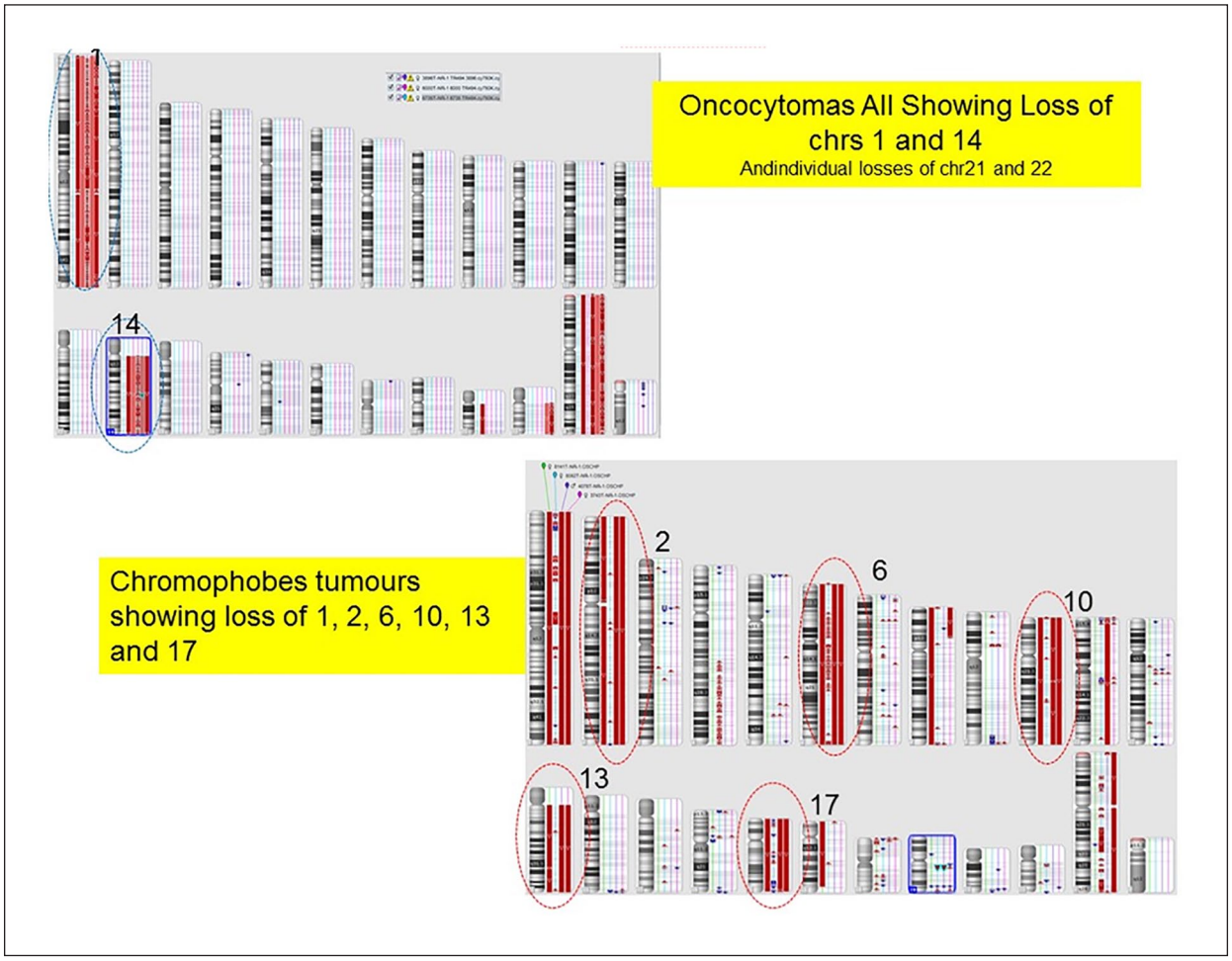
Purpose: To identify copy number variation (CNV) chromosomal characteristics in renal oncocytomas and chromophobe masses.

Methods: 190 patients with small renal masses underwent image guided biopsies at two centres. 15 cases were selected with diagnosis of oncocytoma or chromophobe on biopsies. DNA extracted from FFPE blocks and

challenge of fragmented gDNA was addressed using molecular inversion technology (MIP) also known as ONCOScan. Briefly, gDNA isolated and was quantified, then, the DNA was processed by use of Oncoscan (Affymetrix Inc) assay, and array fluorescence intensity data. Using OncoScan® Console software OSCHP files were generated. The OSCHP files were analyzed and displayed by the software Nexus Express for Oncoscan 3.0 6. Finally, the visible data and whole genome CNA landscape were used to calculate copy number variations by Nexus Express for Oncoscan 3.0. Copy number variations, loss or gain of chromosomes were analysed.

Results: There were significant differences in copy number variations between oncocytoma and chromophobe cancers as shown in Figure 1. Loss of chromosome 1 and 14 was seen in oncocytomas whereas 1, 2, 6, 10, 13 and 17 were commonly lost in chomophobe tumours.



P4-2 Figure 1.

Conclusions: Significant differences exist in copy number variation of chromosomes between oncocytomas and chomophobe renal tumours as seen using molecular inversion genetic technology. This can be used to distinguish these two entities on biopsies.

P4-3 Selection of renal tumours for robotic partial nephrectomy

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Introduction: Renal biopsy remains one of the most controversial areas in the management of small renal masses. Enhancing small renal masses are often biopsied prior to partial nephrectomy in order to identify benign lesions and avoid surgery. In our practice we biopsy minimal patients prior to surgery and have evaluated our results.

Methods: This was a retrospective audit of all robotic partial nephrectomies performed by a single surgeon between July 2015 and December 2019.

Results: There were 210 robotic partial nephrectomies performed in patients aged 25-79 years old. Median length

of stay was 1 day. There was a 5% post-operative complication rate; the most common of these being minor bleeding or chest infection. 17 (8%) of the partials had positive margins. Only 9 (4%) underwent a renal biopsy pre-operatively; 7 (78%) of these were diagnostic. For tumours <2cm, 25% were benign. For tumours 2-<4cm 24% were benign. For those 4cm or larger, 9% were benign. The most common benign finding was an oncocytoma.

Conclusion: We have demonstrated a low rate of benign histology in a large series of partial nephrectomy cases where biopsy is not utilised routinely. This may be due to selection of patients based on CT scanning, as many patients with masses <2cm undergo a period of surveillance initially rather than having immediate treatment or biopsy. Although renal biopsy still has a role to play, these results suggest other approaches may achieve good results.

P4-4 Microwave ablation for T1 renal masses – a safe and effective treatment in a UK cohort of 113 patients

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Introduction: Microwave ablation (MWA) is a less frequently used ablative technique compared to radiofrequency ablation and cryoablation. There is limited data describing MWA tolerability and efficacy to inform practice and patient selection. Understanding of long-term outcomes compared with partial nephrectomy is limited.

Objectives: To report a tertiary referral centre's experience of MWA for suspected renal cell carcinoma (RCC), describing complications and oncological outcomes.

Methods: 113 consecutive MWA procedures for renal masses (October 2016 to September 2019) were maintained on a prospective database. Data describing patient, disease, procedure, complications and oncological outcomes were analysed.

Results: Median age was 68 (33-85) and 73% were male. Median Charlson Comorbidity Index was 0. Table 1 describes disease characteristics. Before ablation 41% had biopsy proven RCC. 57% had immediate pre-procedure biopsy. Median ablation time was 6 minutes. Median LOS was 1 day. Clavien-Dindo complication grades I, II, IIIb and IV occurred in 18%, 1.8%, 0.9% and 0.9% respectively. Median follow-up was 12 months. Median renal function change was -4% (IQR -18-0%). One patient (0.9%) had local recurrence, treated with re-ablation. Two developed metastatic progression. Six (5%) had indeterminate findings on follow-up, managed with ongoing protocolised CT-surveillance.

	Laterality	n	%
	Left	61	54%
	Right	52	46%
	Max tumour diameter		
	Median (IQR)	25	(20 - 32)
T1a	<10mm	1	1%
	10-20mm	32	28%
	20-30mm	45	40%
	30-40mm	24	21%
T1b	40-50mm	11	10%
	Position		
	Upper pole	27	24%
	Interpolar	43	38%
	Lower pole	42	37%
	PN scar	1	1%
	Pre-MWA radiological characterisation		
	RCC	87	77%
	Bosniak 3	5	4%
	Bosniak 4	2	2%
	Oncocytoma	4	4%
	Indeterminate	15	13%
	All Morphology and Grade info (pre and post MWA)		
	Total with biopsy	**107**	**95%**
	No biopsy	6	5%
	Total clear cell	**60**	**53%**
	G1 clear cell	7	6%
	G2 clear cell	42	37%
	G3 clear cell	8	7%
	G4 clear cell	2	2%
	Clear cell, no grade	1	1%
	Total papillary	**13**	**12%**
	Chromophobe	7	6%
	Oncocytoma	11	10%
	Oncocytoma / Chromophobe	2	2%
	Eosinophilic	1	1%
	Mucinous tubular / Spindle cell	1	1%
	RCC NOS	1	1%
	Indeterminate	2	2%
	AML	1	1%
	Benign tissue	**6**	**5%**
	Histology not reported	2	2%

P4-4 Figure 1.

Conclusion: We describe the largest UK series of MWA treatment for T1a/small T1b renal masses to date. MWA was well tolerated, with 95% discharged the following day and low complication/readmission rates. Current follow-up demonstrates favourable disease control. MWA appears to be safe and effective and should be considered in future prospective comparisons of treatments for T1a/small T1b renal masses.

P4-5 Outcomes of renal tumours treated by image-guided percutaneous cryoablation: immediate, 3- and 5-year outcomes at a regional centre

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Introduction: The purpose of this study was to evaluate the immediate, and 3- and 5-year outcomes of patients with clinical stage T1 (cT1) biopsy-proven renal cell carcinoma (RCC) treated by image-guided percutaneous cryoablation at a regional interventional oncology center.
Patients and Methods: We interrogated a prospectively maintained local interventional radiology database and identified 180 patients in whom 185 separate cT1 RCC lesions were treated by percutaneous cryoablation. Technical success, procedural complications (graded using the Clavien-Dindo classification system), and the residual unablated tumor rate were collated. Local tumor progression-free survival was estimated using Kaplan-Meier methodology.
Results: Mean patient age was 68.4 years (range 34.1-88.9) and 52 (28.9%) were female. There were 168 (90.8%) and 17 (9.2%) cT1a and cT1b lesions, respectively, with a mean lesion size of 28.5 mm (range 11-58 mm). Technical success was achieved in 183/185 (98.9%). The major complication rate (Clavien-Dindo≥III) was 4/185 (2.1%). Residual unablated tumor on the first follow-up scan was identified in 3/183 (1.6%). Estimated local tumor progression-free survival at 3 and 5 years were 98.3% and 94.9%, respectively. No distant metastases or deaths attributable to RCC occurred. Mean eGFR pre procedure was 72.4 ml/min per 1.73m2 (SD±18.5) and this was not significantly different post-procedure (69.7, SD±18.8), at 1 year (70.7, SD±16.4) or 2 years (69.8, SD±18.9) (P>0.05).
Conclusion: These data add to the accumulating evidence that image-guided cryoablation is an efficacious treatment for selected cT1 RCC with a low complication rate and robust 3- and 5-year outcomes.

P4-6 A Comparison of EAU Guidelines and the EuRECA cryoablation registry: Do the guidelines reflect contemporary practice?

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Introduction and Objectives: EAU Guidelines recommend thermoablation of small renal masses (SRM, <3cm) only for cases where medical comorbidity or advanced age make surgical resection undesirable, based on a 'weak' evidence base. Other Guidelines (AUA, ASCO) state that ablation should be considered as an alternative to partial nephrectomy in all cases, with NICE guidance (2011) suggesting cryotherapy is accepted in masses unto 4cm in size. **We** wished to establish the nature of the practice recorded in the multinational European Renal CryoAblation registry (EuRECA) in respect of the co-morbidity status of patients and the size and complexity of tumours treated, to see if this reflects current guidance.
Methods: The EuRECA registry was interrogated for demographic and co-morbidity details of the patients receiving cryoablation at 11 European Centres.
Results: The total number of patients entered into the database spanned December 2014 to September 2019 (n=1,134) of which the average age of treatment is 69. Mean pre-treatment eGFR was 80. Metastasis at diagnosis was 4.14%.

P4-6 Table

Comorbidity Parameter	Number of patients in % (where applicable)
Charlson Comorbidity Index 0-1	33.25
Charlson Comorbidity Index 2-3	44.44
Charlson Comorbidity Index 4+	20.29
ASA Score 1	10.67
ASA Score 2	48.06
ASA Score 3	37.75
ASA Score 4	2.38
Tumour <3cm	59
Tumour >3cm	41
Mean tumour diameter in cm (range)	2.9 (0.7-8.0)
Median RENAL Nephrometry Score	6
Renal Complexity Score Median	2 ('Intermediate Complexity')

Conclusions: Our data show that many patients treated with cryoablation have little or no co-morbidity and the average treatment age was 69 years. Although the average tumour size treated was <3cm, 41% of patients were above this threshold, and the tumours size range extended to 8cm. Furthermore, the complexity of the lesions being treated were of an intermediate nature. This reflects advancing technical skill in treating larger and complex tumours in younger, less co-morbid patients. We feel this reflects contemporary practice which differs significantly from published guidance.

P4-7 Cost analysis of renal mass biopsy in cT1 renal cancer

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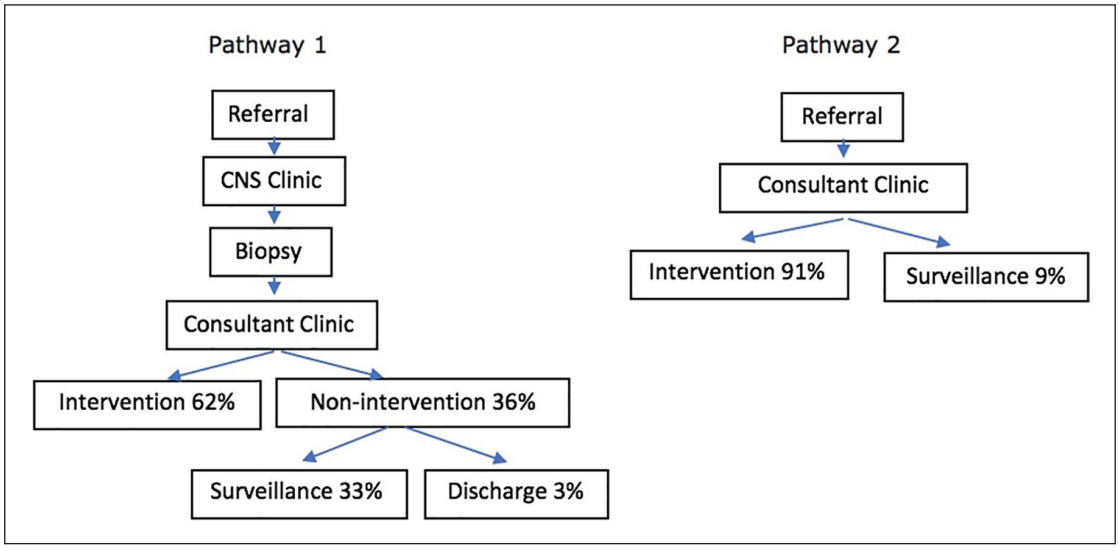
Introduction: The role of renal mass biopsy in renal cancer management has been revisited in recent years to aid with clinical decision making. We have conducted a cost analysis of the renal biopsy pathway at a high-volume UK network referral centre.

Materials and Methods: Between September 2014 and April 2018 677 patients with T1 renal lesions suitable for intervention were offered biopsy. Retrospective analysis was performed to delineate outcomes. Comparison was made to an imputed non-biopsy pathway. Patient pathways are shown in Fig 1. Pathway 1 incorporates RMB as a diagnostic aid and pathway 2 does not. For comparative costs, we identified the NHS tariff costs for the procedures as per the 2019-2020 reference costs, accounting for market force factor.

Results: Of 677 patients who underwent biopsy, 57 (8.4%) underwent second biopsy due to non-diagnostic initial biopsy. 39% underwent surgery, 23% ablation and 36% of patients were enrolled in surveillance or discharged. 2% were lost to follow-up. The total costing of Pathway 1 was £3,335,044, with in per-index-patient cost of £4926. The per-index-patient cost of providing biopsy and CNS clinic was £564. For 677 patients the total costing of Pathway 2 was £4,269,138, per-index-patient cost of £6306.

The per-index-patient cost saving of a pathway using renal mass biopsy was £1380.



P4-7 Figure 1.

Conclusion: In this cohort, performing renal mass biopsy routinely on T1 renal lesions is associated with cost savings. Upfront costs of biopsy are offset by cost savings from avoidance of intervention

P4-8 Assessment of the lower ureteric excision technique associated oncological outcomes for upper tract urothelial carcinoma: retrospective, interim analysis from the Scottish Renal Cancer Network

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Introduction: Nephroureterectomy remains the standard surgical option for management of upper tract urothelial carcinoma (UTUC). Controversy exists regarding the optimal technique for management of the distal ureter. We sought to compare recurrence across the Scottish Renal Cancer Network (SRCN).
Methods: Patients were identified who underwent nephroureterectomy for UTUC across the SRCN 2012-2019. Primary outcome was recurrence-free survival. The impacts of T-stage, tumour-grade, pre-operative diagnostic ureteroscopy, administration of mitomycin C, tumour location, surgical technique for both the upper-end and distal ureter on tumour recurrence were assessed by Kaplan-Meier and Cox regression.
Results: 255 patients were included in this interim analysis from 5 centres. 157(61.6%) individuals were male and 66(25.9%) had a past-history of bladder cancer. Median follow up was 29 months (IQR 15-53). The lower ureter was managed with transurethral dissection and pluck in 77 patients, combined transurethral and laparoscopic dissection in 66, laparoscopic extravesical excision in 30, open extravesical excision in 30, open transvesical excision in 48 and other in 4 patients. 110 patients had a tumour recurrence during follow up. There was no difference between lower end techniques in recurrence-free survival (p=0.98). When all factors above were taken into account by multivariable Cox-regression, higher tumour grade (HR 2.09,95%CI 1.32-3.30,p=0.002), diagnostic ureteroscopy (HR 2.03,95%CI 1.17-3.52,p=0.01) and lower ureteric tumour location (HR 2.78,95%CI 1.55-5.01,p=0.001) were associated with increased risk of tumour recurrence.
Conclusions: The interim data suggest in appropriately selected patients, distal ureteric management technique does not affect tumour recurrence rate. Diagnostic ureteroscopy was however associated with higher recurrence rate following nephroureterectomy

P4-9 Robotic Retroperitoneal Lymph Node Dissection(R-RPLND) and single dose adjuvant carboplatin for low volume clinical stage 2 seminoma (CS2S) – 3-year outcomes

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Introduction: We have previously described the use of R-RPLND and adjuvant carboplatin(x1) in CS2S. The extended follow-up outcomes of patients undergoing this treatment strategy is reported.
Materials and Methods: Forty patients with CS 2a seminoma underwent R-RPLND with adjuvant single dose carboplatin (AUC 7) with pathological confirmation of nodal disease. Patients were followed with a standardised surveillance protocol including cross-sectional imaging to monitor for disease recurrence.
Results: Histology downstaged 3 patients to pN0 who received no further treatment. The 37 patients with pathological stage 2 disease received adjuvant chemotherapy. 33 received adjuvant carboplatin. In 2 cases the involved node contained embryonal carcinoma despite primary histology of pure seminoma. These and 2 patients who had small foci of embryonal carcinoma in their primary lesions received a single cycle of BEP. One patient relapsed at 18 months for which he received BEP x 3 and remains disease free 24 months later. No chemotherapy related side effects were reported apart from transient tiredness/lethargy. Median follow-up is now 41 months (6-84 months) with 28 patients $>$ 3 years following treatment.
Conclusions: R-RPLND appears a safe option as the initial management of CS 2a seminoma. This approach identifies a subset of patients clinically overstaged using standard cross-sectional imaging who otherwise would have received unnecessary cytotoxic therapy. With adjuvant single dose carboplatin the risk of relapse at 3 years is $<$ 5% - compared to 28% in series reporting RPLND alone for stage 2 seminoma.

P4-10 Non-germ cell testicular tumours: the 22-year experience of a Tertiary Centre

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Introduction: Non-germ cell tumours of the testicle are a rare entity, with sex-cord stromal tumours (SCST) accounting for 5% of testicular neoplasms. There is therefore a lack of consensus on the optimal management and follow-up of these patients. We report the experience of our tertiary centre, providing a regional service for organ-sparing surgery.
Methods: A search of the histopathology database for our centre was carried out for non-germ cell tumours diagnosed between January 1998 and December 2020. Operative notes, histology, staging, and follow-up of these patients were reviewed.
Results: Twenty-three patients with non-germ cell tumours were identified, of which 21 were SCSTs. These comprised Leydig cell (76%), Sertoli Cell (19%), and unclassified sex cord stromal tumours (5%). Overall, 57% of SCSTs were managed with partial orchidectomy, of which 92% were carried out within the last 10 years. One patient underwent a subsequent completion orchidectomy due to high risk histological features. There were no recurrences within follow-up to date, and no mortality.
Conclusion: SCSTs are frequently a benign entity, and many can be managed safely with organ-sparing surgery. Our data reflects an evolution in our practice towards this approach. High risk features on histology from partial

orchidectomy would direct the need for completion orchidectomy where required, to avoid the risk of developing metastatic disease for which prognosis is poor. Small volume intraparenchymal lesions may therefore be best managed by a tertiary centre offering organ-sparing surgery to maximise tissue preservation in these patients.

P4-11 Comparison of computed tomography and magnetic resonance imaging to classify Bosniak cysts during surveillance

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Introduction: The Bosniak classification stratifies renal cysts using radiological findings to evaluate malignancy risk and the need for surveillance. The chosen imaging modality often interchanges between computed tomography (CT) and magnetic resonance imaging (MRI) throughout the surveillance period. The effect of this change on cyst characterisation is unclear. We aimed to identify the agreement rate between CT and MRI when classifying renal cysts.
Method: Retrospective data collection for patients with renal cysts (January 2009 to December 2019) was performed in a university teaching hospital. Renal cysts that were followed up using both CT and MRI were evaluated. The reported Bosniak classifications from each imaging modality were compared and the time between scans was recorded. Small renal masses were excluded from analysis.
Results: Images of 373 renal cysts in 346 patients (66% Male; median age, 67 years) were found. 32 cysts underwent surveillance with both CT and MRI and there were 39 transitions between imaging modalities (median separation time, 6.2 months; range, 0 - 553 days). The weighted kappa of cyst classification between CT and MRI was 0.747. No cysts underwent surgical intervention as a result of an upgrade in classification after changing imaging.
Conclusions: Our data suggests substantial agreement between CT and MRI when characterising renal cysts and supports the use of MRI during surveillance. There is no significant risk of surgical intervention as a result of interchange between CT and MRI.

P4-12 Nephrometry Scores: a validation of three systems for peri-operative outcomes in retroperitoneal robotic partial nephrectomy

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Background: A new simplified nephrometry scoring system (SPARE) was designed last year but has not yet been externally validated. Additionally, no major scoring systems have been validated for the retroperitoneal approach to robotic partial nephrectomy (RAPN).
Objective: To externally validate the R.E.N.A.L., PADUA and SPARE nephrometry scoring systems for use in retroperitoneal RAPN.
Design, Setting and Participants: Nephrometry scores were calculated for 322 consecutive patients receiving retroperitoneal RAPN at a tertiary referral centre from 2017. Patients with multiple tumours were excluded.
Outcome Measurements and Statistical Analysis: Scores were correlated with peri-operative outcomes including the Trifecta both as continuous and categorical variables. Comparisons were performed using Spearman Correlation and ability to predict the Trifecta assessed using binomial logistical regression.
Results and Limitations: All three scoring systems correlated significantly with the main variables (operative time, warm ischaemia time and estimated blood loss) both as continuous and categorical variables. Only PADUA and SPARE were able to predict achievement of the Trifecta as a categorical variable. We did not assess impact upon renal function.
Conclusions: This study validates the RENAL, PADUA and SPARE scoring systems to predict key intra-operative outcomes in retroperitoneal RAPN. Only PADUA & SPARE were able to predict achievement of the Trifecta. As a simplified version of the PADUA scoring system and with comparable outcomes, we recommend using the SPARE system.

P4-13 Complications after radical nephrectomy for renal cell carcinoma according to age: analysis from the British Association of Urological Surgeons Nephrectomy Audit

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Introduction: There is a growing ageing population and an increasing number being diagnosed with localised kidney cancer. The aim was to compare outcomes of radical nephrectomy (RN) in different age groups.
Methods: A retrospective analysis of the BAUS nephrectomy audit dataset between 2012 and 2017 was performed. All patients undergoing RN for renal cell carcinoma were identified and divided into groups by age: <60, 60-79 and $\geqslant 80$.
Results: 18438 patients were included: 6128 (33.2%) aged <60, 10785 (58.5%) aged 60-79 and 1525 aged $\geqslant 80$. Patients $\geqslant 80$ had a significantly higher Charlson co-morbidity index ($p<0.001$). There was significant variability in the approach to RN ($p<0.001$): laparoscopy was most common (68.8% vs. 69.3% vs. 75.0%). There were significant differences in T stage between groups with patients aged $\geqslant 80$ having a higher T stage ($p<0.001$).

The incidence of intra-operative complications was 4.8%, 5.4% and 5.4% and post-operative complications was 15.7%, 18.2% and 20.5% in patients <60, 60-79 and ⩾80, respectively. The most common complication in all groups was blood transfusion: 7.6% (<60), 8.6% (60-79) and 9.1% (⩾80). Adjustments for gender, TNM stage, technique and Charlson co-morbidity index found no significant difference with age for intra-operative complications. However, there was a significantly higher risk of post-operative complications in patients aged 60-79 and ⩾80 compared with <60 (OR 1.12, 95% CI 1.00, 1.25 and OR 1.37, 95% CI 1.14, 1.65, respectively p=0.003).

Conclusions: The risk of post-operative complications after RN increases with age even when adjusted for patients' co-morbidities suggesting an independent importance of age

P4-14 Ace in the hole: Managing intractable chylous ascites following laparoscopic nephrectomies

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Introduction: Chylous ascites is an uncommon complication after laparoscopic nephrectomies for various indications. Intractable ascites is rare and can cause complications like malnutrition, infection, and respiratory embarrassment. We emphasize early surgical management of intractable chylous ascites seen at our center in laparoscopic nephrectomies for various indications.

Materials and Methods: 2378 laparoscopic nephrectomies were done since 2008 at our Center. Chylous ascites was seen in 118 patients, of which 6 patients had intractable ascites. All these patients had post-operative abdominal drain in situ draining chylous fluid but was removed due to reducing amount and have received conservative treatment initially including dietary management, somatostatin analogues, repeated paracentesis and TPN. Surgical treatment was done after failure of conservative treatment in 2 to 4 weeks.

Results: All 6 patients were men. Of 6 patients with intractable chylous ascites, 2 patients settled with conservative treatment for 4 weeks. 4 patients underwent laparoscopic reexploration via same port sites as previous surgery. Intraoperatively on reexploration 2 patients had single leaking channel requiring clip placement and 2 patients had >2 leaking channels requiring closure with fine Vicryl sutures. Mean duration of hospital stay after reexploration was 2.5 days and mean time to drain removal was 4 days. All patients with surgical management had their ascites resolved.

P4-14 Table.

		Study population
Median age(yrs)		45
Chylous ascites (n)		118
Intractable chylous ascites(n)		6
Ethnicity (n)	African	2
	Northern Indian	4
Primary surgery	Lap Radical nephrectomy	4
	Lap converted to open partial nephrectomy	1
	Lap donor nephrectomy	1
Mean drain output after primary surgery (ml)		250
Conservative management (n)		2
Laparoscopic management (n)		4
Mean duration of hospital stay after second surgery (days)		2.5

Conclusions: Intractable chylous ascites is a rare but devastating complication after nephrectomy. Early surgical intervention after failure of conservative treatment for 2 weeks will minimise malnutrition and other morbidities. Surgical treatment can be done laparoscopically with good results.

P4-15 Validation of GRANT score within US population-based cancer database to predict the survival in surgically treated renal cell carcinoma

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Introduction: Grade, Age, Nodes and Tumor (GRANT) score was developed based on these four parameters. This prognostic score has been developed to estimate the probability of survival after surgery for renal cell carcinoma (RCC). Patients were given one point for each parameter: age $>$ 60 years, Fuhrman grade $>$ 2, pathologic T-stage, and N-stage.
Aim: This study aimed to assess the GRANT score using surveillance, epidemiology, and end results (SEER) database and to evaluate its possible application as a predictive tool of survival.
Method: All patients diagnosed with renal cell carcinoma from 2004 to 2015 were identified in the SEER database. Those with incomplete data were excluded. The survival analysis was estimated using the Kaplan-Meier method, and the univariate comparison was performed using the log-rank test. Multivariate Cox-proportional hazards regression survival model was created using the dataset to validate the GRANT score.
Results: The overall population included 84245 cases; 69140 with clear cell carcinoma RCC and 15105 with papillary adenocarcinoma. Of them, 25809 (30.6%), 40279 (47.8%), 15690 (18.6%), 2205 (2.6%) and 262 (0.3%) patients had a GRANT score of 0, 1, 2, 3 and 4, respectively. At 5-year follow up, overall survival according to the GRANT score were 89.5% (score 0) vs. 74.4% (score 2) vs. 61% (score 2) vs. 34.9% (score 3) vs. 14.1% (score 4), respectively. There was no significant difference between both clear-cell and papillary RCC in terms of survival.
Conclusion: The GRANT-score can be a reliable risk stratification score for RCC patient's prognosis and survival outcomes.

ePoster Session 5: Female Urology and Bladder Dysfunction 2

P5-1 Patient-reported urinary incontinence following radical prostatectomy for prostate cancer and its association with undergoing incontinence surgery: a national population-based study

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Objectives: To investigate whether patient-reported satisfaction and incontinence scores after prostate cancer surgery were associated with subsequent incontinence procedures.
Methods: We identified all men diagnosed with prostate cancer in the English NHS between April 2014 and January 2016. We used the National Prostate Cancer Audit database to identify 5044 men treated with radical prostatectomy who completed post-treatment questionnaires, including Expanded Prostate Cancer Index (EPIC-26). We used administrative data to identify urinary incontinence procedures within 6 months of the survey. We generated receiver operating characteristic (ROC) curves and positive predictive values (PPV) for urinary incontinence scores and incontinence procedures. We also assessed relationships between "good" ($\geqslant$75) and "bad" ($\leqslant$25) urinary incontinence scores with patient satisfaction, urinary bother, and subsequent incontinence procedures.
Results: Less than 1% of men (0.7%, n = 35) had an incontinence procedure after prostate cancer surgery. All men having incontinence procedures reported a "bad" urinary incontinence score. However, 85.5% of men with a urinary incontinence score of zero did not have incontinence surgery (PPV: 14.5%). Of 468 men with "bad" urinary incontinence scores, 286 (61.1%) were not satisfied, and 399 (85.3%) had at least a moderate problem with their urinary function. Area under the curve for incontinence scores and procedures was 0.973 (95% CI 0.965 to 0.981; P $<$0.001).
Conclusions: We found urinary incontinence procedures were used in men with low EPIC-26 urinary incontinence scores. While the majority of men with low scores also had low satisfaction and problematic urinary function, they did not receive incontinence procedures.

P5-2 5-year experience on the Adjustable Transobturator Male System (ATOMS®) in UK men with stress urinary incontinence

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Introduction: Male Stress Urinary Incontinence (SUI) can be a debilitating complication of radical prostatectomies. Conventional slings cannot be easily adjusted post-op. Artificial sphincters involve major surgery. ATOMS (A.M.I.,Austria) is an adjustable sling consisting of a balloon mechanism inflated via a buried port-catheter allowing ongoing pressure adjustments in an outpatient setting, without needing anaesthetics. We present the first 5-year experience in the UK of using ATOMS in treating men with SUI.
Methods: 70 men (average age 70.3, range 50 - 81) with SUI post-surgery underwent insertion of ATOMS. 66(94%) had radical prostatectomy. 25 had failed previous surgical therapies. Follow-up was for up to 5-years.
Results: 51/70(73%) post ATOMS are dry (defined as using up to a maximum of one pad for reassurance only). 30/51(59%) achieved dryness within 6 months. Average

pad usage decreased from 3.3 to 0.8. 13/19 non-dry patients are currently undergoing ongoing adjustments. 4/6 failed ATOMS patients had previously undergone radiotherapy. These patients had a 60% reduction in pad usage. Average pain levels 2-3 weeks post-op was 2.5/10. This decreased to 0.5/10 by 6-8 weeks. There were 8(11%) complications: 4 cases of retention, 2 wound infections treated medically, 1 balloon mechanism erosion requiring re-implantation and 1 case of infected device requiring removal.

Conclusions: ATOMS appears effective in treating men with SUI, including when other surgical therapies have failed. Its efficacy is hindered by radiotherapy, but still reduced overall pad usage. Further studies on ATOMS in larger numbers with longer follow-ups are required to confirm these positive outcomes.

P5-3 The treatment of Urorectal Fistulation (URF) due to Crohn's disease

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Introduction: We describe our experience of treating a small number of patients with URF due to Crohn's disease in whom the process and outcome was altogether different to fistulae following treatment of prostate or rectal cancer (usually repaired successfully in one stage).

Patients and Methods: Between 2006-2016 we treated 13 men with Crohn's disease fistulae (excluding vesicocolic fistulae). All presented with anorectal fistula initially and eventually URF into the proximal bulbar/prostate-membranous urethra. All were repaired transperineally.

Results: There were no deaths or serious complications and overall 8(65%) patients remain well with minimum 3 years follow-up. 3 patients (20%) eventually had a successful result, requiring 2, 3 and 5 procedures respectively to achieve that. In these it was necessary to do a conduit urinary diversion and faecal diversion, then continue treatment with biological agents, particularly Infliximab or Adalimumab, before fistula repair, and finally to un-divert them having ensured a satisfactory result from the repair. 2 patients (15%) failed despite at least two attempts and have not had further surgery. In most failures the problem was a new fistula or previously unidentified fistula rather than recurrence of the fistula at the same site.

Conclusions: Whereas routine diversion is not performed in URF due to pelvic cancer, these results suggest that it should always be done in Crohn's disease. The first step in treatment should indeed be urinary and faecal diversion followed by anti-TNFα biological agents to get maximum possible benefit from both treatments, before attempting repair of the fistula. Then results appear satisfactory, allowing subsequent un-diversion.

P5-4 Urosymphyseal Fistulation (USF) after the treatment of prostate cancer

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Introduction: USF is increasingly recognised as a cause of chronic/severe pain after radiotherapy for prostate cancer. This report describes our recent experience.

Patients and Methods: 40 patients have been treated between 2011-2018. All underwent some form of energy treatment: external beam radiotherapy and focal therapy (n=17); salvage radiotherapy after radical prostatectomy (n=15); external beam radiotherapy monotherapy (n=8). All patients complained of extreme pain uncontrolled by standard analgesia and all were diagnosed after urethrography and MRI. All had had some form of instrumentation for "bladder outflow obstruction" before onset of the symptoms of USF, usually within three months.

Results: 3 patients were controlled with long-term antibiotic treatment. 11(28%) were deemed reconstructable usually requiring augmentation/substitution cystoplasty. 9 were successful and 2 were initially successful but an artificial sphincter in both subsequently eroded. These remain pain-free but incontinent. 26(65%) were deemed unreconstructable and had an ileal conduit diversion. Again pain relief has been achieved and in all instances it is immediate and striking.

Conclusions: USF often causes severe uncontrollable pain and is precipitated by intervention to treat bladder outflow obstruction, even if only catheterisation or dilatation within a short period of the onset of symptoms. A high degree of suspicion should lead to an early MRI scan. Surgery is major and usually requires an ileal conduit but it is striking how dramatic the pain relief is thereafter. Those having had previous prostatectomy tend to be less likely to be reconstructable than those having had radiotherapy alone although generally the post-surgical group are younger and healthier.

P5-5 Managing female stress urinary incontinence in a meshless world

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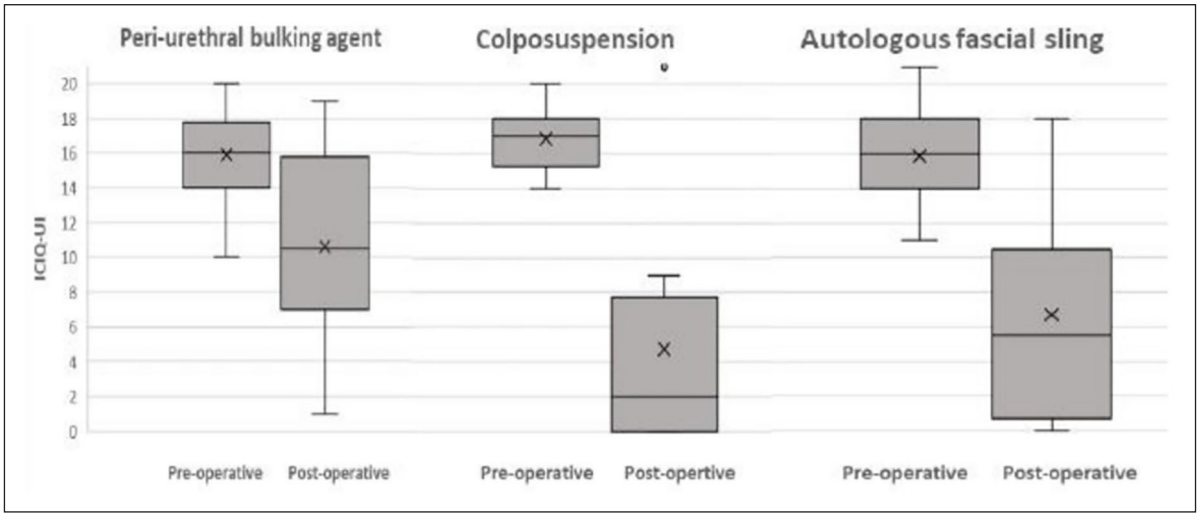
Introduction: The "high vigilance pause" introduced by NHS England has stopped the use of mesh in prolapse and continence surgery. Subsequently, there has been a slow resurgence in procedures that were largely superseded by the mid urethral tape. Colposuspension, autologous fascial slings and periurethral bulking agent are efficacious and safe surgical procedures that should be available managing stress urinary incontinence (SUI). In this retrospective study, we present our 3-year experience of managing female SUI.

Materials and methods: We reviewed the case notes of all women that underwent surgical treatment for urodynamic proven SUI from 2016 to 2019 at our institution. Data was collected on patient demographics, surgical outcomes, pre and post-operative patient-reported outcome measures (ICIQ-SF), pad use and general satisfaction with procedure.
Results: 80 women underwent SUI procedures in that duration, 64 were primary procedures. The mean age of patient at the time of surgery was 54.7 years (range: 28-83). There was significant improvement in the average number of pads from 3.3 to 1 pads/day ($p<0.001$, paired t-test). The average ICIQ-UI score improved from 16 to 7.9 ($p<0.001$, paired t-test). 86.25% of cases were performed as a day case. Of those remaining in hospital, the average length of stay was 2.7days. 3.6% developed de novo incontinence managed successfully with anticholinergics, with only 9.1% were dissatisfied with their treatment.
Analysis per treatment arm is shown in the box plot.

P5-5 Box Plot



Conclusion: This study shows female SUI can be successfully managed using mesh alternatives with good surgical and patient-reported outcomes.

P5-6 "Mesh free" mid urethral sling for female stress urinary incontinence: a prospective study

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Introduction: Mid-urethral synthetic sling is currently recommended for management of female SUI. But mesh related complications and increasing litigation have stimulated the search for non-mesh alternatives. This study was done to evaluate the efficacy and safety of mid-urethral autologous rectus fascia sling as an alternative to a foreign body mesh.
Materials and Methods: This was a prospective cohort study and included patients ⩾18 years of age who had predominant SUI. Patients who had previous incontinence surgery, neurological disease, UV prolapse, PVRU >100cc, max free flow <15ml/sec, ALPP<60 cm H2O, BMI >40 were excluded from the study. At baseline, demographic data, history [ICIQ-FLUTS score and FSFI score], cough stress test and investigations [PVRU, uroflowmetry, Invasive Urodynamics] were recorded. Included patients underwent an autologous transobturator mid urethral sling procedure using rectus fascia. Patients were followed up 3-monthly. Primary objectives: efficacy and impact on quality of life; secondary objectives: a) Impact on sexual function. b) Safety.
Results: Study included 30 patients with mean age of 44.5 years. All patients were continent, reported significant improvement in the total score as well as in the frequency and incontinence sub scores of ICIQ-FLUTS at 3 and 6 months. The FSFI scores at 6 months revealed significant improvement in the total score and in subscores related to desire, lubrication and arousal. None had immediate perioperative complications. Two patients developed voiding dysfunction, one of whom required a single dilatation.
Conclusion: Autologous mid urethral sling is efficacious and safe for the treatment of women with predominant SUI.

P5-7 Autologous mid-urethral fascial sling for stress urinary incontinence: Long-term outcomes

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Aims: There is increasing interest in mesh-free surgical options for stress urinary incontinence (SUI). Traditionally

autologous slings were placed at the bladder neck, but more recently the autologous mid-urethral sling (aMUS) has been developed, where rectus fascia is placed without tension as a 'sling on a string', We assessed the long-term outcomes of aMUS.

Methods: A retrospective analysis of patients undergoing aMUS between 2009-2014 by a single surgeon for primary SUI was performed. All patients had pre-operative multichannel urodynamics. Patient reported outcomes were collected via postal questionnaires and phone calls, using the ICIQ-UI short-form questionnaire, 7-point Global Impression of Improvement score, questions on pad usage, self-catheterisation, overactive bladder treatment and re-operation rates.

Results: Data was obtained from 31 patients (response rate 63.8%). Median age for surgery was 49 years. Median BMI was 27. 27% had mixed urinary incontinence (MUI) pre-operatively. Median follow-up was 8 years (5-11), where 60% of patients were dry and pad free. 77% found the surgery lead to much/very much improvement in quality of life overall. 13% of patients reported a deterioration in quality of life. Median ICIQ-UI short form score was 5.5. 16.7% of patients were taking medication and 1 patient had botulinum toxin treatment for overactive bladder symptoms. All of these patients had MUI on pre-operative urodynamics. 4/31 (13.3%) had further incontinence surgery. 1 patient was self-catheterising. 3/31 (10%) had pelvic pain to some degree, with 2/31 (6%) experiencing dyspareunia.

Conclusions: Mid-urethral tension-free autologous slings have good long-term continence outcomes. There are low rates of de-novo overactive bladder symptoms and voiding dysfunction.

P5-8 The incidence and management of urinary incontinence in patients with urethral diverticulum

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Introduction: We report our series of patients undergoing urethral diverticulum excision focusing on post-operative urinary incontinence management.

Patients and Methods: All consecutive patients undergoing urethral diverticulectomy with Martius fat pad interposition between 2005-2018 were identified and data retrospectively reviewed.

Results: 122 patients with a minimum 12month follow-up were identified. Mean age was 45.2years (range 19-73). 4 patients had malignancy and were excluded. The first 7 patients didn't have video urodynamics (VUDs). n=3 reported symptomatic stress urinary incontinence and n=1 urge urinary incontinence. n=111 had pre-operative VUDs demonstrating urodynamic stress urinary incontinence (USUI) in 25.2% (n=28) and detrusor overactivity incontinence (DOI) in 1.8% (n=2). Mixed urinary incontinence (MUI) was found in 2.7% (n=3). 37.2% (n=44) had post-operative USUI - persistent pre-operative USUI in 16.1% (n=19) and de novo in 22.5% (n=25). Post-operative DOI was found in 3.6% (n=4) with persistent pre-operative DOI in 1.8% (n=2) and de novo in 1.8% (n=2). De novo MUI was found in 2.7% (n=3). Conservative management was successful in 50% (n=22) of USUI and 50% of DOI (n=2). In those requiring surgical intervention, USUI resolved in 79% (15/19) and DOI in 100% (2/2). MUI required surgical intervention (either for DOI alone or both USUI and DOI) in all cases (n=3) with success in 66.7% (2/3).

Conclusion: Urinary incontinence is found at presentation in 31.4%. After urethral diverticulectomy incontinence rates are 43.2% but 35.3% of pre-operative USUI will have resolved. Post-operative urinary incontinence responds to conservative management in 47%. In those requiring surgical intervention 79.2% achieve continence.

P5-9 A tertiary experience of genito-urinary fistula repair in women

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Introduction: Genito-urinary fistulae (GUF) are relatively uncommon in the developed world and are more commonly associated with iatrogenic aetiology. In the UK GUF are increasingly treated in high volume centres. We report on the outcomes of GUF repair in a single high-volume tertiary referral centre.

Patients and Methods: We performed a retrospective review of patients records and radiology systems of all female patients who underwent GUF repair.

Results: A total of 95 patients were identified; all tertiary referrals. Of these 35 (36.8%) had at least one prior repair attempt at another centre. Mean age was 49.9 years. Median time from creation to repair was 12 months (range 1 week – 27 years). Most fistulas occurred following transabdominal hysterectomy (46.3%) followed by obstetric complications (12.6%). The majority of patients underwent a transabdominal approach (72.6%); of these 94.2% had an omental interposition graft and the remainder peritoneum. 96.2% of patients who underwent transvaginal repair had a Martius graft. One patient had a persistent GUF post-operatively and two developed a recurrence >2 years after initial repair. Twenty-two patients developed stress urinary incontinence; more commonly following transvaginal approach. There were no Clavian-Dindo complications >Grade 3.

Conclusions: In our centre the success rate of surgical repair of GUF was 98.9%. There were two recurrences of fistulae after two years. Stress urinary incontinence is the most common post-operative complication, particularly after the transvaginal approach. It is important that patients with GUF are treated in a centre with appropriate expertise and preferably a high volume of cases

P5-10 The learning curve for vesico-vaginal fistula (VVF) repair

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Introduction: Learning curves have been demonstrated for many urological procedures but yet have not been identified and/or calculated for vesico-vaginal fistula repair.
Methods: The 1st 100 women having surgery for VVF under the care of 1 surgeon between January 2002 and March 2019 were reviewed by quartile and in total for; surgical procedure (diversion or VVF closure), route of VVF closure, % of 'true' vaginal closures (assuming only absolute indications such as need for simultaneous ureteric re-implant or closure of associated bowel fistulae into the urinary tract or skin would result in abdominal repair), % anatomical closure at 1st attempt and overall (after additional attempt(s)) closure. Statistical Analysis was by Fishers Exact Test and Students T-Test. Significance was $P<0.05$.
Results: The 100 women had a median age of 50 years (range 22-88). Their outcomes are as detailed in Table 1. There were no significant differences in patient or fistula demographics.

P5-10 Table 1.

	Q1 N=25	Q2 N=25	Q3 N=25	Q4 N=25
Time Period	2004-2010	2011-2014	2014-2016	2016-2019
Diversion N (%)	2 (8)	1 (4)	2 (8)	1 (4)
Abdominal Repair N (%)	5 (21.7)	5 (20.8)	4 (17.3)	4 (16)
Vaginal Repair N (%)	18 (78.3)	19 (79.2)	19 (82.6)	20 (83.3)*
True Vaginal Repair N (%)	18/23 (78.3)	19/23 (82.6)	19/22 (86.3)	20/20 (100)*
Primary Closure Vaginal Repairs N (%)	15/18 (83.3)	18/19 (94.7)	18/19 (94.7)	20/20 (100)**
Primary Closure All Repairs N (%)	20/23 (86.9)	21/24 (91.6)	20/23 (91.3)	24/24 (100)
Overall Closure N (%)	23/23 (100)	24/24 (100)	23/23 (100)	24/24 (100)

*P=0.0511
**P=0.0967
***P=0.1092

Conclusions: VVF closure rates are excellent in experienced hands. There is a learning curve in VVF repair, which appears to be about 75 cases. Vaginal repair utilisation increases with experience.

ePoster Session 6: Andrology, Penile Cancer and Reconstruction

P6-1 Penile necrosis requiring total phallic reconstruction following insertion of penile prosthesis

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Background: The most catastrophic complication of penile implant surgery results in either total/partial loss of the penis or severe fibrosis with loss of penile tissue to such an extent that phalloplasty is required to regain urinary and sexual function. This series assesses the risk factors involved in this group of patients and their outcomes following reconstruction.
Methods: All patients following phalloplasty for penile necrosis were identified from a comprehensive prospective database. Potential risk factors for penile necrosis were identified and the type and outcomes of reconstruction summarised. Functional outcomes were assessed by questionnaire.
Results: Fifteen patients (mean age 53.9 +/- 13.9 years) required phalloplasty following penile necrosis (53% by radial forearm free flap) with no flap loss. Reasons for

erectile dysfunction were diabetes (40%), Peyronie's disease and pelvic trauma (20% each). All patients had identifiable risk factors - most commonly found was diabetes (60%), followed by smoking (53%), adjunctive procedures like sliding technique or grafting (40%), revision surgery (27%) and infection with delayed explantation (27%). Following phalloplasty, all responders had sensation (and could orgasm if tried) and 86% were able to void standing. The questionnaire response rate was 67%.
Conclusions: Penile necrosis following IPP insertion is rare and occurs in the presence of risk factors, particularly diabetes and smoking. IPP surgery should be considered carefully in this population of patients especially for revision surgery or where adjunctive procedures are planned. Infection requires immediate explant of the device. Phalloplasty has good surgical and functional outcomes should reconstruction be required.

P6-2 Corpora cavernosa reconstruction for penile prosthetics surgery using a lightweight mesh: a viable alternative? A single centre experience

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Introduction: Options for reconstruction of the corpora cavernosa are limited. Synthetic grafts like Dacron™ and GORE-TEX™ are used but have high infection rates. Lightweight macroporous mesh is a promising alternative due to better integration and surrounding tissue ingrowth. We present the first experience using a lightweight mesh for this indication.
Materials and Methods: The medical records of all patients undergoing insertion or revision of penile prosthesis between May 2016 and November 2019 were reviewed retrospectively. Patient characteristics, management and outcomes were extracted.
Results: Fifteen patients required corpora cavernosa reconstruction during penile prosthesis surgery (median age 56, range 18 to 74 years). Reasons for reconstruction included severe corporal fibrosis (n=7), impending erosion (n=5), congenital corporal agenesis (n=2) and aneurysm of Peyronie's disease plaque grafting (n=1). All but two patients (with corporal agenesis) presented for revision penile prosthesis surgery. Coloplast Titan® OTR inflatable penile prostheses were used in all patients. Two patients (13%) required explant after a mean follow-up period of 7.4 months (+/-2.6 SEM). The first experienced erosion of the prosthesis through the distal corpora 6 months after surgery while the other required explant due to debilitating chronic pain after 3 months. There was no other complication (including infection). All other patients were satisfied with their penile prosthesis and are currently sexually active.
Conclusions: Our results suggest that a lightweight macroporous mesh may be an alternative synthetic graft for corporal reconstruction. The poliglecaprone-25/polypropylene mesh (ULTRAPRO®, Ethicon LLC, USA) is ideal because it is partially absorbable, easy to handle and not bulky.

P6-3 Penile length loss during Nesbit-type surgery – A prospective study

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Introduction: Nesbit's-type procedures (tunical plication+/-excision) for Peyronie's disease curvature shortens the convex side. The BAUS information leaflet states there is 1cm penile length loss (PLL) per 15° curvature correction. In our experience, this PLL seemed excessive. The aim of this study was to determine PLL after correction and whether there were any predictive factors.
Patients and Methods: A 3-year prospective single centre cohort study included all patients undergoing Nesbit's procedures. Variables recorded included pre and post-operative curvature, pre and post-correction erect length, mode of correction and number of incisions / plications. Data was plotted with line of best fit to determine PLL per degree of curvature correction. Multivariate regression analysis was used to determine causal relationships between PLL and pre-operative factors.
Results: 100 patients underwent surgery. Mean pre-operative curvature was 46° (IQR 34-54°, range 20-91.6°). Mean post-operative curvature was 1.7° (0-5°). Mean PLL was 9mm (IQR 6-10mm, range 0-20mm). Mean PLL per 15° of curvature correction was 3.3mm +/- 1.3mm SD. Multivariate regression analysis revealed that none of the recorded variables (number of plications / degrees of curvature / direction of curvature) were significant factors in affecting PLL.
Conclusion: PLL during penile curvature correction is significantly less than previous literature and guidelines suggests. There is weak correlation between preoperative degree of curvature and PLL. This may be due to variable plaque densities resulting in variable elastic remodelling during correction. Further analysis is required to ascertain a theoretical model predictor of PLL to enable counselling pre-operatively.

P6-4 UK practice for penile prosthesis surgery – baseline analysis of the BAUS Penile Prosthesis Audit

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Objectives: To present the results of a prospective multicentre national audit of penile prosthesis practice in the UK over a 3-year period.
Patients and Methods: Data were submitted as part of the BAUS Penile Prosthesis Audit. Patients undergoing a prosthesis (inflatable or malleable) were included as part of a prospective registry for the period January 2016 – December 2018. Data was validated and then analysed using Tableau software.
Results: A total of 1071 penile prosthesis procedures were included from 22 centres. The number of centres performing the procedure reduced from 22 to 13 over the study period. The commonest aetiologies were diabetes followed by prostate surgery and then Peyronie's disease. Inflatable prostheses were the commonest device implanted with 665 devices used (62.1%) whereas malleable prostheses accounted for 14.2% of the implants. Reported intraoperative complications included urethral injury (0.7%, n=7), corporal perforation (1.1%, n=12) and cross over (0.6%, n= 6). Known post-operative complications were recorded in 9.8% of cases (74/752) with the 2 most frequently reported being post-operative penile pain (n=11) and scrotal haematoma (n=14).:
Discussion: This baseline analysis is the largest prospective registry of penile prostheses procedures to date. The data shows that during the collection period, the number of surgeons performing the procedure has reduced as well as the number of centres offering the surgery. Perioperatve complications are infrequent with the complications leading to implant abortion such as urethral injury is very low. Further follow up data will include long term outcomes and patient satisfaction.

P6-5 Surgical management of adult acquired buried penis with concurrent lichen sclerosus: 10-year experience

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Introduction: Patients with adult acquired buried penis (AABP) and lichen sclerosus (LS) face a dismal future as the condition progresses relentlessly with chronic moisture and urine trapping due to their body habitus. Penis unburying surgery in these cases aims to expose the glans and halt the disease. We aimed to outline the operative outcomes of a single surgeon series of men with buried penis and LS undergoing penis unburying surgery.
Patient and Methods: Cases were identified from a prospectively maintained operative database of patients undergoing buried penis surgery. Those with indications other than LS were excluded. Case notes were reviewed and details such as demographics, procedural details and complications were documented.
Results: 44 patients underwent surgery for AABP with concomitant LS from 2009 to 2019. They had median age 56yrs (32-82) and median BMI 37 (IQR 35-40). 15 patients had concurrent urethral stricture disease. All patients underwent suprapubic lipectomy, 41 had redo circumcision, each requiring graft coverage with split thickness skin graft. Median operative time was 188min (IQR 180-210) and median length of stay was 5 days (IQR 4-5). Biopsy revealed penile intraepithelial neoplasia in two patients. 16 patients had wound dehiscence. At median follow up of 4 months (IQR 3-10), the glans penis was successfully exteriorised in all patients with inactivation of LS.
Conclusions: Penis unburying in men with LS has a high rate of success for arresting the LS process, but at the expense of wound complications.

P6-6 Survival of node positive penile cancer patients who relapsed following definitive treatment

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Introduction: Survival of node positive penile cancer (SCCp) patients who relapse on surveillance has not been widely reported. We recognise that patients who relapse tend to be early in surveillance and progress quickly. The aim of this study is to quantify time to nodal/distant relapse and survival.
Patients and Methods: A retrospective analysis was performed on a prospectively collected database of all SCCp cases from 2005 to 2017. Patients with node positive disease on surveillance were included. Relapse free survival was calculated from last nodal surgery to evidence of relapse and survival from time of relapse to death. Kaplan Meier curves were plotted with log-rank test to assess differences in survival curves.
Results: 244 men with node positive disease of 1110 SCCp were identified. 73 relapsed. 10 pN1 disease, 9 pN2 and 54 pN3. Median relapse free survival for pN1 was 5 months, pN2 5 months and pN3 6 months. Median survival following relapse was pN1 6.5 months, pN2 8 months and pN3 6 months. Treatment of relapse data was available for 65 patients. 45 patients received treatment, predominantly chemotherapy/radiotherapy; their median survival was 8 months. 20 patients who relapsed were unsuitable for treatment and palliated; their median survival was 2.5 months.

Conclusions: Relapse in node positive SCCp has a highly unfavourable prognosis, with no difference between the initial nodal staging and overall survival. Palliative treatments may have a role for symptomatic control only. Surveillance strategies may need optimisation to reflect the rapidity and progression within the first 12 months.

P6-7 Investigating the use of Indocyanine Green (ICG) to detect sentinel lymph nodes in penile cancer – an eUROGEN feasibility study

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Introduction: Dynamic sentinel lymph node biopsy (DSNB) currently uses a combination of 99mTc nanocolloid and blue dye followed by an inguinal exploration and detection using a hand-held gamma probe. Although sentinel lymph nodes (SLN) are found to have radioactivity, they often do not take-up the blue dye. The aim of this feasibility study was to investigate the concordance of 99mTc/ICG/blue dye.

Patients & Methods: A prospective study of 19 patients diagnosed with primary penile SCC (cN0) at presentation. Median age, site of primary lesion, pT stage, grade, type of primary surgery and post-surgical complications were assessed. All patients were injected with 99mTc, blue dye and ICG. Preoperative imaging with lymphoscintigram and SPECT/CT was performed. Radioactivity in the SLN was considered the gold standard. ICG fluorescence was detected using a hand-held detector (Hamamatsu, Japan). The presence of blue dye and ICG fluorescence was recorded. Descriptive statistics was used to compare detection rates between 99mTc/blue dye/ICG.

Results: Median (IQR) age at presentation was 67 (57-74). All patients had primary penile SCC at presentation. In total, 36 inguinal basins and 57 nodes were assessed. There were no reported post-operative complications. (Tables 1 & 2)

P6-7 Table 1. Breakdown of pT stages for all patients.

pT stage	No. of patients
pT1a/b	14
pT2	3
pT3	2

P6-7 Table 2. DSNB visualisation technique detection rate (%).

DSNB detection technique	Detection rate (%)
99mTc only	100%
Blue dye	35.08%
ICG	96.49%
99mTc + blue dye + ICG	100%

Conclusions: Using a combination of 99mTc and ICG improves the detection rate of the SLN, compared to 99mTc and blue dye during DSNB. ICG also has the advantage that there is no residual tattooing of the penile skin. In this study ICG has a superior detection compared to blue dye and represents a useful alternative in combination with 99mTc.

P6-8 Predictive Factors for Local Recurrence (LR) and Cancer-Specific Survival (CSS) – an eUROGEN risk stratification for Grade 2 and Grade 3 tumours

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Introduction: The 8th edition of the unified TNM staging for penile SCC considers G2 disease as intermediate risk. The aim was to analyse and compare predictors for LR and CSS between G2 and G3 tumours.

Patients and Methods: A retrospective analysis of 494 patients treated for penile SCC between 2008 and 2019 was performed. Univariate and multivariate Cox proportional hazards regression models were used to identify predictors for LR and CSS in grade 2 and grade 3 penile SCC. Kaplan-Meier analysis displayed CSS and recurrence free survival.

Results: Median follow-up for LR and CSS was 58 months (IQR 25-93) and 35 months (IQR 25-93) respectively. At Cox regression univariate analysis, the only predictor for LR was lymphovascular invasion (LVI) p=0.003. Predictors for CSS included LVI, perineural invasion (PNI), inguinal lymph node disease, extracapsular spread, distant metastatic disease, pathological T-stage (all $p<0.0001$) and G2 vs. G3 (p=0.003). On multivariate analysis for CSS, only ECS, LVI,

pathological T-stage and metastasis were found as independent predictors for CSS (all $p<0.005$). At multivariate analysis for CSS, G2 vs. G3 showed a p-value of 0.48 indicating that tumour grade does not contribute significantly compared to other independent predictors for CSS and LR.

P6-8 Table 1. Grade-2 and Grade 3 penile Squamous Cell Carcinoma (SCC) - descriptive statistics (No. = 494).

	Grade 2	Grade 3	Total
Total N.	122 (24.64%)	372 (75.36%)	494 (100%)
Age (Median IQR)	61 (53-71)	65 (56-74)	64 (55-74)
Tumor Stage No. (%)			
T1/T2	99 (81.14%)	255 (68.54%)	354 (71.66%)
T3/T4	23 (18.86%)	117 (61.46%)	140 (28.34%)
Histology n. (%)			
Common SCC	66 (54%)	183 (49.19%)	249 (50.40%)
Basaloid	2 (1.64%)	73 (19.62%)	75 (15.18%)
Warty	10 (8.20%)	8 (2.15%)	18 (3.64%)
NOS	44 (36.07%)	108 (29.03%)	152 (30.76%)
LVI Positive No. (%)	17 (13.93%)	159 (42.74%)	176 (35.62%)
PNI Positive No. (%)	10 (8.20%)	94 (25.26%)	104 (21.05%)
Extracapsular spread No. (%)	11 (9.02%)	87 (23.38%)	98 (19.83%)
Lymph node status No. (%)			
pNx	32 (26.23%)	77 (20.69%)	79 (15.99%)
pN0	68 (55.74%)	188 (50.53%)	256 (51.82%)
pN1	3 (2.46%)	23 (6.18%)	26 (5.26%)
pN2	11 (9.02%%)	58 (15.59%)	69 (13.69%)
pN3	8 (6.56%%)	26 (6.98%)	34 (6.88%)
Metastasis Total No. (%)	17 (13.93%)	100 (26.77%)	117 (23.68%)
Skin	3 (2.46%)	2 (0.53%)	5 (1.01%)
Lung	3 (2.46%)	35 (9,40%)	38 (7.69%)
Liver	1 (0.82%)	8 (2.1%)	9 (1.82%)
Bone	0 (0%)	20 (5.37%)	20 (4.04%)
Pelvic Lymph Node	10 (12.5%)	35 (9.40%)	45 (9.10%)
Follow-up months for CSS (Median IQR)			38 (25-93)
Follow-up months for LR (Median IQR)			58 (25-93)
Dead Total No. (%)	18 (14.75%)	120 (32.25%)	138 (27.93%)
Penile Cancer	12 (9.83%)	80 (21.50%)	92 (18.62%)
Other causes	6 (4.92%)	40 (10.75%)	46 (9.31%)
Local Recurrence	6 (4.92%)	32 (8.60%)	38 (7.69%)

Keys: LVI = Lymphovascular Invasion; PNI = Perineural invasion; NOS = Not Otherwise Specified.

P6-8 Table 2. Univariate and multivariate Cox proportional hazard regression analysis for local recurrence (LR).

Univariate			
Variable	Exp(b)	95% CI of Exp	p-value
Grade 2 vs. Grade 3	1.77	0.74 – 4.24	p=0.2
T1/2 vs. T3/4	1.60	0.82 – 3.13	p=0.2
PeIN	1.69	0.89 – 3.20	p=0.1
LVI	2.46	1.29 – 4.69	**p=0.006** **
PNI	1.31	0.63 – 2.70	p=0.5
ECS	1.61	0.80 – 3.25	p=0.2
Metastasis	1.53	0.78 – 3.00	p=0.2
Groin pN+	1.04	0.52 – 2.06	p=0.9
Clinical groin palpable LN	0.93	0.48 – 1.78	p=0.8
Basaloid	0.77	0.30 – 1.98	p=0.6
Location (Glans vs. Foreskin)	1.09	0.51 – 2.31	p=0.8
Multivariate			
LVI	2.31	0.43 – 1.1.8	**p=0.014** *
Grade 2 vs. Grade 3	1.32	0.53 – 3.28	p=0.54

Keys: PeIN= Penile Intraepithelial Neoplasia; LVI = Lymphovascular Invasion; PNI = Perineural invasion; ECS = Extracapsular Spread; NOS = not otherwise specifie.

P6-8 Table 3.

Variable	Exp(b)	95% CI of Exp	p-value
Age ⩾ 64 vs. age < 64	3.21	1.15-4.21	p=0.2
LVI	5.15	0.22-7.15	**p<0.0001** ***
PNI	3.36	2.25-5.09	**p<0.0001** ***
Groin pN+	6.19	3.87-9.91	**p<0.0001** ***
ECS	8.59	5.64-13.09	**p<0.0001** ***
Metastasis	24.04	13.86-41.7	**p<0.0001** ***
Pathological T stage	5.62	3.70-8.52	**p<0.0001** ***
Grade 2 vs. Grade 3	2.53	1.37-4.64	**p=0.003** **
Location (Glans vs. Foreskin)	0.91	0.57-1.45	p=0.7
Local Recurrence	2.23	1.30-3.84	**p=0.003** **
Multivariate			
ECS	2.22	0.33-2.39	**p=0.016** *
LVI	1.89	0.29-2.19	**p=0.028** *
PNI	0.76	0.24-1.08	p=0.27
Groin pN+	0.54	0.39-1.56	p=0.11
Pathological T stage	2.16	0.23-3.28	**P=0.001** ***
Metastasis	13.31	0.36-7.02	**p<0.0001** ***
Grade 2 vs. Grade 3	1.32	0.39-0.70	p=0.48

Univariate and multivariate Cox proportional hazard regression analysis for Cancer Specific Survival (CSS)
Keys: PeIN= Penile Intraepithelial Neoplasia; LVI = Lymphovascular Invasion; PNI = Perineural invasion; ECS = Extracapsular Spread.

Conclusion: G2 penile SCC outcomes are similar to G3 tumours and should be managed in the same way. Dynamic sentinel lymph node biopsy should be offered to all patients presenting with grade 2 penile SCC with clinically impalpable inguinal nodes (cN0) regardless of their T stage and histological parameters.

P6-9 One approach three techniques: The ventral approach to the bulbar urethra in a high-volume UK tertiary referral centre

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Introduction and objectives: Urethroplasty offers the best chance of long term benefit for patients presenting with urethral strictures. The aim of this study was to review the surgical outcomes of the ventral approach to substitution urethroplasty in a high volume tertiary centre.
Method: A prospective database of all men undergoing single stage penobulbar, full-length
and bulbar urethroplasty between Jan 2013 and December 2016 was reviewed. Preoperatively men had a flexible urethroscopy and where indicated ascending/descending urethrogram studies. All operations were performed by a single surgeon. The urethra was opened ventrally in all cases- a graft was either placed as a ventral onlay, or a dorsal inlay, or a combination of the two in the case of very tight strictures. Post-operatively men received outpatient assessment which included a flexible urethroscopy at 24months.
Results: 143 patients had a graft augmentation urethroplasty with a mean age of 47. The mean length of follow-up was 27.3months. 83 men had a ventral onlay urethroplasty, 43 men had a dorsal inlay, 17 men had a combination with both a ventral onlay graft and dorsal inlay. At 2 year follow-up 10 patients had graft narrowing, but only 2 patients required intervention with a total of 3 procedures.
Conclusion: The ventral approach to the urethra allows for 3 techniques with no significant difference in success rates. Freedom from intervention at 2 years was 98% with only 2 patients requiring further surgery. The ventral approach offers excellent outcomes for management of bulbar/penobulbar strictures whilst avoiding full urethral mobilisation.

P6-10 Two-year outcomes of a paclitaxel-coated balloon for treatment of male bulbar urethral stricture

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Introduction: Urethral stricture disease is a common problem for all urologists. This multicentre, single-arm, open-label study assesses the safety and efficacy of urethral dilatation using an innovative paclitaxel drug-coated balloon (DCB) at 2-year follow up.
Patients (or Materials) and Methods: Men with bulbar urethral strictures <= 2cm with 1-3 prior endoscopic treatments were enrolled at 4 study sites following Ethics Committee approvals. The DCB was inflated under cystoscopy/fluoroscopy guidance. International Prostate Symptom Score (IPSS) was documented at 3, 6, 12 and 24 months. Cystoscopy was documented at 6 and 12 months. Primary efficacy endpoint was improvement in IPSS and primary safety endpoint was serious complications through 3 months. We also report updated results of our composite definition of success: (1) no retreatment; (2) no recurrence on cystoscopy; and (3) IPSS<=11 at last follow-up.
Results: Fifty-three subjects were enrolled, and all successfully treated. Average subject age was 51 years (range 22-81). Average number of prior treatments was 1.8 per subject (range 1-4). There were no serious or unexpected device related adverse events. Mean IPSS decreased from 25.2 $\pm$4.5 (baseline) to 7.3 $\pm$ 8.10 ($p < 0.001$) in 41 men with 24-month data. Two-year success based on the composite definition was 30/45 (67%), compared to 32/46 (70%) at 1 year. No man was retreated in year 2.
Conclusions: Two-year data indicate that men with short bulbar urethral stricture refractory to standard endoscopic management, the paclitaxel DCB is safe and produces a durable improvement in IPSS.

P6-11 Implantation of an Artificial Urinary Sphincter (AUS) In patients with Bladder Neck Contracture (BNC) or Prostatic Stenosis (PS) managed endoscopically. Is it safe?

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Introduction: Treatment of sphincter weakness incontinence after prostate cancer (CaP) treatment in the presence of concomitant BNC/PS is particularly challenging.
Patients and Methods: 115 patients had an AUS (AMS800™) inserted following CaP treatment between 2009-2017, after having a BNC/PS treated. All were followed-up for minimum of 12 months. Mean follow-up 39.2months (range12-82.9 months).
Results: 27 patients underwent open reconstruction of BNC/PS. The other 88 were managed endoscopically. Of these 88, 71 were primary implants, 11 revisions and 6 replacement for malfunction. 60 (68.2%) had radiotherapy. All 88 underwent at least one bladder neck incision/

resection/dilatation prior to AUS insertion. 8 required repeat dilatation at the time of AUS implantation. 25 performed self-dilatation (SIC) to stabilise the contracture before AUS insertion. 7 continued SIC with the device in-situ. 7 others required repeat dilatation. 75(85%) required no further intervention. Explantation rate was 20.4% (11 erosions; 7 infections). In the 14 performing SIC or requiring re-intervention there were 3 erosions (21.4%). 8 erosions and 7 infections occurred in the other 75 patients (20%). Only 2 erosions occurred in the 27 patients undergoing open reconstruction (7.4%) however only 5 (18.5%) had radiotherapy.

Conclusions: Endoscopic management of BNC/PC followed by AUS is feasible. Few patients require further intervention after device insertion. Explantation rate is higher compared to those managed by open reconstruction. However these are higher risk patients, many of whom have had radiotherapy which probably accounts for the higher explantation rate in the first place. Self-dilatation or interval dilatation once the device is in place does not increase the risk of erosion.

P6-12 Microdissection OncoTESE (micro-oncoTESE) in azoospermic men with suspected testicular cancer: Analysis of outcomes from an eUROGEN centre

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Introduction: Patients diagnosed with azoospermia and testicular lesions suspicious for cancer can be offered a surgical sperm retrieval (SSR) and orchidectomy simultaneously. Microsurgical retrieval of seminiferous tubules in the tumour harboring testicle (micro-onco-TESE) proceeding to a micro-dissection TESE(mTESE) in the contralateral testicle can be offered. The aim of this study was to report a single centre experience.

Methods: A retrospective cohort study was conducted for azoospermic men undergoing orchidectomy (radical/partial) with concurrent micro-onco-TESE. Intraoperative ex-vivo microsurgical SSR was performed using 18-24X magnification adjacent to the tumour or in vivo mTESE from the contralateral testicle. The primary outcome measure was surgical sperm retrieval rate.

Results: A total of 33 patients, median age of 33 years (range 24-36) underwent micro-onco-TESE. Testicular cancer (TC) was confirmed in 26 patients and benign pathology in 7 patients. The overall SSR rate was 39%. Sub-analysis showed that the SSR rate was 46% in the TC group and 14% in the benign group (not statistically significant, p=0.20). There was no significant difference in maximum tumour length between successful and unsuccessful SSR groups 33.9mm +/- 23 (SD) vs. 29.8mm +/- 17.5 (SD) p=0.62. There was no significant difference in maximum tumour length to testis length ratio between the successful SSR and unsuccessful groups 0.62+/-0.26 (SD) vs. 0.57+/-0.21 (SD) p=0.59.

Conclusions: We present one of the largest cohorts of micro-onco-TESE in testicular cancer. The technique should be offered to azoospermic men undergoing surgery for suspicious testicular lesions and our results show an overall SSR rate of 39%.

P6-13 Emergency sperm and spermatogonial stem cell retrieval in oncological context

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Background: Patients receiving chemotherapy or bone marrow transplant in oncological or haematological context are at high risk of losing their fertility hence the recommendation for sperm cryopreservation from semen. However, patients presenting with either azoospermia or inability to provide semen, face the risk to have to sacrifice their possibility to father their biological children. To those patients our andrology unit aims at offering timely preservation of their fertility by surgical sperm/stem cell retrieval.

Methods: Patients were enrolled prospectively and data analysed retrospectively.

Results: We screen on annual basis about 500 patients necessitating chemotherapy or bone marrow transplant, of which 10.5% present with azoospermia. From January 2018 to September 2019, 40 patients (median age of 18.4 years old and average testosterone at 7.1 nmol/L) underwent surgical sperm/stem cell retrieval which could be offered within one week from semen-analysis and preceding one day from chemotherapy start date (medians expressed). Primary diagnoses were sarcoma in 11, leukaemia in 1, lymphoma in 10, testicular tumour in 5, multiple myeloma in 1, prostate cancer in 1, while 3 patients had non-oncological haematological diseases.

14 patients underwent TeSE, 5 had oncoTeSE, 5 had electroejaculation and TeSE, 1 had TeSA and 15 had spermatogonial stem cell retrieval. The success rate for surgical sperm retrieval was 78.9% to which could be added the 13 patients who had spermatogonial stem cell retrieval. Average Johnsen score was 5.08.

Conclusion: Emergency sperm/stem cell retrieval in oncological context is a valid treatment option with high success rate for patients unable to cryopreservation semen.

P6-14 Does hormonal stimulation therapy have a role in inducing sperm production in azoospermic men with hypogonadotropic and hypergonadotropic hypogonadism?

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Introduction: Selective oestrogen receptor modulators (SERMs) and aromatase inhibitors (Ais) are often used in men to treat hypergonadotropic hypogonadism (HyperH) empirically, whilst, gonadotropin therapy is used in hypogonadotropic hypogonadism (HypoH) to induce spermatogenesis. This study aimed to evaluate the clinical efficacy of hormone stimulation therapy (HST) in HypoH and HyperH patients through analysis of changes in serum gonadotropins and testosterone; and semen parameters.
Materials and Methods: 79 azoospermic men, (HypoH: n=24, HyperH: n=55) underwent baseline hormone and semen analyses. At 3, 6 and 12 months of treatment, analyses were repeated. Mann-Whitney U tests compared baseline characteristics between both pathological groups. Wilcoxon signed rank matched pair tests determined the significance of the change from baseline of each parameter.
Results: In HypoH patients, gonadotropin therapy significantly increased serum testosterone from baseline to 3, 6 and 12 months and sperm concentration significantly increased from baseline to 3, 6 and 12 months. In HyperH patients, Clomiphene significantly increased serum gonadotropins from baseline to 3 months and both Clomiphene and Tamoxifen significantly increased serum testosterone from baseline to 3 months. There was no increase in sperm concentration, however. Ais had no significant effects. 2 patients with Klinefelter's syndrome had venous thromboembolic events (VTEs) on HST.
Conclusions: Whilst, gonadotropins demonstrate clinical efficacy in treating HypoH, empirical HST (CC, tamoxifen and AI) does not induce spermatogenesis in HyperH. Patients with Klinefelter's syndrome may be at increased risk of VTE on HST. Randomised control trials are urgently needed to evaluate the clinical safety and efficacy of these drugs.

P6-15 Does Micro-TESE result in hypogonadism?

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Objective: To evaluate whether surgical sperm retrieval in the form of Micro-TESE results in hypogonadism.
Methods: A retrospective review of all Micro-TESE cases performed over a 3-year period at 2 large fertility centres was undertaken. A total of 340 patients were identified from prospectively maintained databases. Pre and post-operative testosterone level, time of testosterone measurement and time since Micro-TESE were collated. Low testosterone was defined as $<$8 nmol/L on an early morning fasted sample. Patients with a normal pre-operative and low post-operative testosterone level were identified.
Results: From the total of 340 patients, 59 were excluded as they were on hormonal therapy. Of the remaining 281 patients, 177 were excluded due to incomplete follow up data. The remaining 104 patients with a median age of 34 years (range 25 – 53 years) were included in the analysis. Four out of 104 (3.8%) patients with normal pre Micro-TESE testosterone were found to have a low post-procedure early morning testosterone of $<$8 nmol/L.
Conclusions: There is no consensus on when to check testosterone level post Micro-TESE. Variable practice was observed in both centres with no routine post-procedure testosterone levels in 63% of cases across both centres. In unselected patients who were tested, the rate of de novo hypogonadism at 3 months was low (3.8%). Micro-TESE is safe and remains the gold standard surgical sperm retrieval method for non-obstructive azoospermia. Considering the small but important risk of de novo hypogonadism, testosterone level post Micro-TESE should be checked in all patients.

ePoster Session 7: History of Urology

P7-1 The evolution of the management of urethral injury

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The first record of urethral trauma followed an accident in 1087 when King William I and his army were raiding the town of Mantes. His horse was frightened, and William was thrown violently against the pommel of his saddle and sustained a straddle injury. His doctors knew this was fatal. They already appreciated that there was a difference between urethral rupture as a result of perineal trauma and when it was a result of a pelvic fracture. Catheterisability was a critical factor in diagnosis and treatment. A ruptured bulbar urethra was survivable if it could be catheterised and if the extravasation could be drained. A pelvic fracture-related urethral injury (PFRUI) was almost invariably fatal. In 1757, Verguin had the idea of suprapubic-catherisation from

above and catheterisation below the injury (by perineal section) allowing railroading of a catheter across the site of the injury and into the bladder. The mortality of these injuries dropped because of the development of anaesthesia allowing Young and Campbell to try early primary repair. Deansley (1907) and Hamilton Bailey (1927) recognised that the problem with PFRUI was posterior displacement of the bladder and prostate causing loss of alignment of the two ends of the urethra. All the subsequent developments of urethroplasty for PFUI came from Marion showing that the urethra had to be mobilised prior to repair. It was the work of Badenoch, Pierce, Payne and Coombes (transpubic approach) and of Waterhouse and Turner-Warwick who showed how extreme urethral-mobilisation combined with various types of pubectomy could produce a tension free anastomosis.

P7-2 Natural 'Stone breakers'

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Introduction: Urinary stones and attempts to clear the stones by herbs have existed since antiquity. In the ancient world, this was influenced by the classical view of the high priests. This paper investigates this fascinating history.
Methods: A search for sources was undertaken using Internet and library sources.
Results: Several herbs were found to cure urinary stones. Chanca Piedra translates to ''Stone breaker'' in Spanish and is indigenous to the rain forests of Amazon, India and Africa. The plant Phyllanthus niruri consistently has demonstrated litholytic properties and has been part of many civilizations including Indian medicine (Ayurveda). Known as bhumyamalaki in Sanskrit, this is perhaps the only herb that has undergone in-vitro, animal, and clinical trials that support its role on calcium oxalate crystallization. Ammi Visnaga (Khella. Queen's lace) is a flowering plant from the carrot family. The herb appeared in the Egyptian Ebers Papyrus 4000 years ago as an effective agent in treating stones. The seeds contain Khellin, which has been used to treat renal colic. The common bearberry (Urva-ursi) a pretty plant grown in in higher altitudes of western world is attributed to 'break stones' in many folklores. Avicenna the famous Persian philosopher (Circa 1025) reported 65 beneficial herbal medicines for destructing, expelling, and preventing kidney stones in his book the Canon of Medicine, which include black pepper, pennyroyal, and cinnamon.
Conclusion: Herbal remedies have existed for a long time and may have a role in prevention of stones. Some of them at least may warrant scientific research.

P7-3 The evolution of urethroplasty for urethral strictures

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Until Hunter recognised strictures to be areas of narrowing of the urethra, as we now know them, urethral obstruction was ascribed to "carnosities" that grew into the urethra, as described as such by Galen (131-200). Treatment was by dilatation or catheterisation and had been since at least 3,000 BC. There was not true attempt at urethroplasty until the late 19th century. Heusner reported the first successful urethroplasty in 1883 in Germany, and Robson was the first to describe it in English in 1885. Russell, in 1915, described excision of a stricture and dorsal semi-circumferential anastomosis leaving the ventral aspect open as a temporary perineal urethrostomy until healing was complete. Marion described the first attempt at mobilisation of the two ends of the urethra to perform an anastomosis in 1940. This problem of the length of the stricture was overcome by Davis and Traut in 1926 who described how a buried epithelialised strip become a tube, assuming the strip was open to the surface at each end. The first attempt at closing the marsupialised strip of epithelium with a flap of local skin was by Guy and Wyland Leadbetter in 1962. It was, however, Orandi who first described how that penile or scrotal skin-flap could be mobilised widely on a dartos pedicle to deal with a stricture of any length. Humby in 1941 described the repair of hypospadias using a graft of buccal-mucosa. Devine and Horton popularised the use of full-thickness skin-grafts in 1961. Contemporary urethroplasty still relies on these techniques.

P7-4 Dogs - Urology's best friend

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Introduction: Dogs have played an important role in experimental urology, including developing surgical techniques and understanding renal pathophysiology. This study aimed to explore contributions dogs have made to the field of Urology.
Methods: A comprehensive literature review relating to dogs and urology was performed. PubMed, MEDLINE®, and Google™ Scholar were searched for relevant scientific articles published to date in English. Manual bibliography search and "related article" functions were employed to supplement the original search.

Results: Urological surgery on dogs dates back to the 17th Century when von Roonhuysen (1672) and Zambeccarius (1678) performed unilateral nephrectomies, subsequently revealing compensatory hypertrophy of the remaining kidney. Comhaire in 1803 showed increased urea levels after nephrectomy in 65 dogs. The first successful nephrectomy was performed by Simon in 1869, but only following attempts on 30 dogs. Hinman experimented with unilateral ureteric ligation in dogs in 1926, removing the ligature at variable intervals of time to evaluate kidney viability after complete obstruction. Yarger (1974) unilaterally ligated canine ureters and showed a shift in the renal blood flow from the cortex to the juxtaglomerular regions. Dogs were instrumental in transplant surgery – vascular anastomosis in dogs was demonstrated by Carrel in 1902; he then performed renal transplants in them with ureteric anastomoses. Dogs have also been demonstrated to be able to distinguish bladder cancer urine from normal urine by odour, more successfully than would be expected by chance alone.
Conclusions: Dogs have helped urologists in experimental urology and remain many urologists' best friend today.

P7-5 The Lithotomists - La famille Colot

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The "Colots" (Collot) were a close-knit family who became so synonymous with stone-cutting that they were simply called'the lithotomists'. Through eight-generations they practiced the craft. Germain Colot was the likely dynasty founder. He learnt lithotomy from "the incisors", an itinerant group of Italian surgical practitioners who more or less kept their techniques secret (c.1460). On returning to Paris, he became an eminent surgeon and gained favour with Louis-XI. After practising on corpses, he famously operated on a thief with stone disease who was condemned to death but pardoned on condition that he submitted himself to vivisection. The operation occurred, and the criminal survived (c.1474). Laurent Colot was taught the 'Marian operation' ('apparatus major') by Octavian-de-Villa of Rome. After Octavian's death, Laurent was summoned to Paris by Henry-II to become royal lithotomist (1556). The family's legacy began in earnest. With hospital governors identifying lithotomy as an operation to increase their status, Laurent was also appointed at Hôtel-Dieu. Here, he operated on the poor, which fulfilled his charitable obligations and allowed him to perfect technique. His reputation spread and patients from throughout Europe resorted to Paris to obtain relief. The secret of the technique and office remained in the family, which led to a lithotomy monopoly in Paris for more than 150-years. Philippe Colot (1593-1656) refined the technique and instruments, and even operated on his father.

With Francois Colot's death (1630-1706), and the posthumous publication of the technique in his"Traité de l'opération de la taille"(1727) the family's remarkable stranglehold on lithotomy ceased and a new era in French lithotomy dawned.

P7-6 The self-lithotomy of Jan de Doot - Blacksmith, heal thyself

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Nicolaes Tulp (1593-1674), master surgeon, mayor of Amsterdam, and subject of the Rembrandt masterpiece "The Anatomy Lesson of Dr.Nicolaes Tulp"(1632) published the book "Observationes Medicae". Written in Latin for fellow physicians, it described medical curiosities that he encountered. In the chapter 'Aeger Sibi Calculum praecidens'(sick man cutting a stone from himself), he described the case of Blacksmith, Jan de Doot (1621-1665). Having survived two failed perineal lithotomy procedures for bladder lithiasis (combined mortality risk 64%) he lost faith in lithotomists and, due to intolerable ongoing pain, took matters into his own hands (1651). With his wife unwittingly dispatched to the fish market, he enrolled his brother's help. Using a self-crafted knife, he adopted the 'apparatus minor' approach. In lithotomy position, his brother lifted his scrotum. A finger was placed in his rectum and the bladder stone pulled towards his perineum. Doot then cut onto the stone. With the perineal incision too small, Doot tore it wider. With vigorous abdominal pressure, he eventually delivered the stone, which was chicken egg-sized and weighed 4-ounces. A barber surgeon was then summoned to approximate the wound. Despite festering, he survived. Fame followed and Doot released a poem alluding that despite both his action and name (doot = dead), he was still alive. Four years later Carel de Savoyen immortalised Doot in paint holding his stone and knife (1655). The portrait still hangs in the University of Leiden Department of Pathology. As Tulp summarised in his narrative, 'interdum quos ratio non restituit, adjuvat temeritas'– 'sometimes daring helps where reason does not'.

P7-7 John Elderton - The man behind the lithotrite?

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Introduction: The journey in the treatment of bladder stones from lithotomy to lithotrity has been well documented. There is little doubt that the operative technique was advanced and popularised by French surgeons in the early 19th century, for example, Jean Civiale performing his

first lithotrity procedure in 1824. However, identification of the original designs and inventions is less clear. We look at the life and work of John Elderton a British surgeon credited with designing a curved lithotrite in 1817.
Materials and Methods: A literature search relating to lithotrity and review of hospital archive information regarding John Elderton.
Results: John Elderton (1791 – 1844) was a House Surgeon at Northampton General Infirmary. He was a keen teacher and designed a number of anatomical casts, instruments and pathological specimens alongside a colleague William Money. These included devices to help reduce shoulder dislocations and compound fractures and were on display up until the Second World War. In 1817 he sent plans for a curved instrument for crushing bladder stones to Sir Benjamin Brodie (Sergeant-surgeon to the Queen) to whom he had been a student, and published them in 1819. It remains unclear whether the instrument was actually developed or used.
Conclusions: John Elderton was highly thought of with regards to his designs of medical devices and teaching equipment. As part of a broad spectrum of work, he was undoubtedly involved in the early designs of the Lithotrite.

P7-8 Paraffin to Bulkamid™ and everything in between: 100 years of injectables for the treatment of stress urinary incontinence

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Since restrictions were placed on the use of synthetic mesh in the United Kingdom there has been a steady increase in the use of injectable treatment for the management of stress urinary incontinence (SUI). We look at the inception of this practice and its development through time. A systematic search of the available urological literature was conducted to identify the key historical advances of injectable treatments in the management of females with SUI. The earliest reports of the use of urethral injections in the treatment of female SUI are from the 1900s. Gersuny, an Austrian surgeon, spurred by his previous successes with paraffin, experimented with its use to treat a woman with urinary incontinence. The procedure was adopted across Europe but its popularity soon waned following reports of serious complications such as pulmonary air emboli and urethral sloughing. In the latter part of the 20th Century, numerous materials were trialled with varying degrees of success, safety and durability such as Teflon, autologous fat, dextranomer microspheres (Zuidex™) and glutaraldehyde cross-linked bovine collagen (Contigen™). The currently available injectables; silicone microparticles (macroplastique™) and polyacrylamide hydrogel (Bulkamid™) were developed in the 1990s, with the later being the current favoured injectable owing to its low risk of complications. The current popularity of urethral bulking is a result of the void left by the pause on mesh use rather than its performance. The search for the ideal bulking agent that is easy to inject, volume stable, non – immunogenic and non-migratory will continue.

P7-9 All Saints' Hospital: 100 years on, lost but not forgotten

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Introduction: In 1920, 100 years ago, All Saints' Hospital for Genito-Urinary Disease began to treat inpatients and became the largest Specialist Urological hospital in the UK.
Methods: A non-systematic search of electronic journals and online archives regarding specialist Urological Hospitals.
Results: At its height, All Saints' Urology Hospital had over 50 inpatient beds and was treating 600 inpatients and 1500 outpatients a year. With no National Health Service, many hospitals in that era were founded and funded by wealthy philanthropists. Edward Canny Ryall was the founder and he funded the hospital himself for many years. The first patient to attend the hospital was so unwashed that Ryall gave him a shilling to go for a bath. The patient later repaid the shilling, which was displayed in the front hall. Ryall's overarching principle was to avoid open operations, given the high mortality risk and instead use less invasive techniques. He worked with Terrence Millin to pioneer TURP in the UK, with All Saints' the first hospital to offer this procedure. TURP patients remained in hospital for three weeks, while those having open prostatectomy at St Peter's were in for thirteen weeks.
Conclusion: With the creation of the NHS, All Saints' became one of the units of the Westminster Hospital and was renamed the Westminster Hospital Urological Centre. As the first hospital to offer TURP in the UK, 100 years on its legacy of minimally invasive surgery lives on today.

P7-10 Trends in Urology: The past, present and future of BAUS Annual Meeting

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Introduction: In an era of constantly evolving healthcare, looking towards the future has never been so important. In doing so we need to reflect on the past and ensure the future plans are fit for purpose. BAUS is now in its 75th year, we sought to review past trends of BAUS annual meeting and identify lessons learned and challenges for the future.
Methods: Quantitative and qualitative data from the past 20 (1999-2019) years of BAUS meetings was reviewed and analysed.
Results: On average the BAUS meeting admits 1085 attendees each year over a condensed three-day period, with the second day being the most popular for attendance (median 873, range 693-984). Attendees feedback reflected the desire for more training sessions and diverse urological topics, but also highlighted the challenges of clashing subjects. Trends in

presentation have moved away from unmoderated poster and paper presentation to ePosters which are valuable to delegates (90.5%), this allows greater interaction between audience and presenters often sparking lively debate. Prostate cancer remains the most popular topic for abstract submission (23.1%), this reflects overall delegate interest in oncology (52.5%). However, over the past four years andrology (+44.4%) and general urology (+46.5%) have increased in popularity, with basic science excluded and history of urology and renal/testes/sarcoma declining (-22.3%).

P7-10 Table.

Year	2017	2018	2019
Attendance			
• **Monday**	595	732	728
• **Tuesday**	693	938	784
• **Wednesday**	550	702	569
• **Total**	836	1051	901
Abstracts Accepted			
• **Papers**	6	6	0
• **Posters**	163	166	153
Abstract Theme (Submitted)			
• **Andrology / Penile Cancer /Reconstruction**	47	59	62
• **Bladder Cancer diagnosis and treatment**	46	55	51
• **Female Urology and Bladder Dysfunction**	45	39	47
• **General Urology**	53	56	63
• **History of Urology**	39	16	21
• **Management / Governance / Education / Quality Improvement**	62	67	78
• **Prostate Cancer**	105	126	134
• **Renal Cancer / Testicular Cancer / Sarcoma**	46	37	42
• **Stones / Imaging and Upper Tracy Disorders**	73	69	70

Conclusion: BAUS continues to be a popular annual meeting and has adapted to better reflect the needs of the delegates. Further planning is required to address future challenges facing Urology.

ePoster Session 8: General Urology - BPH/LUTS

P8-1 Quality of life with pharmacological treatment in patients with benign prostatic enlargement: Results from the evolution European prospective multicenter multi-national registry study

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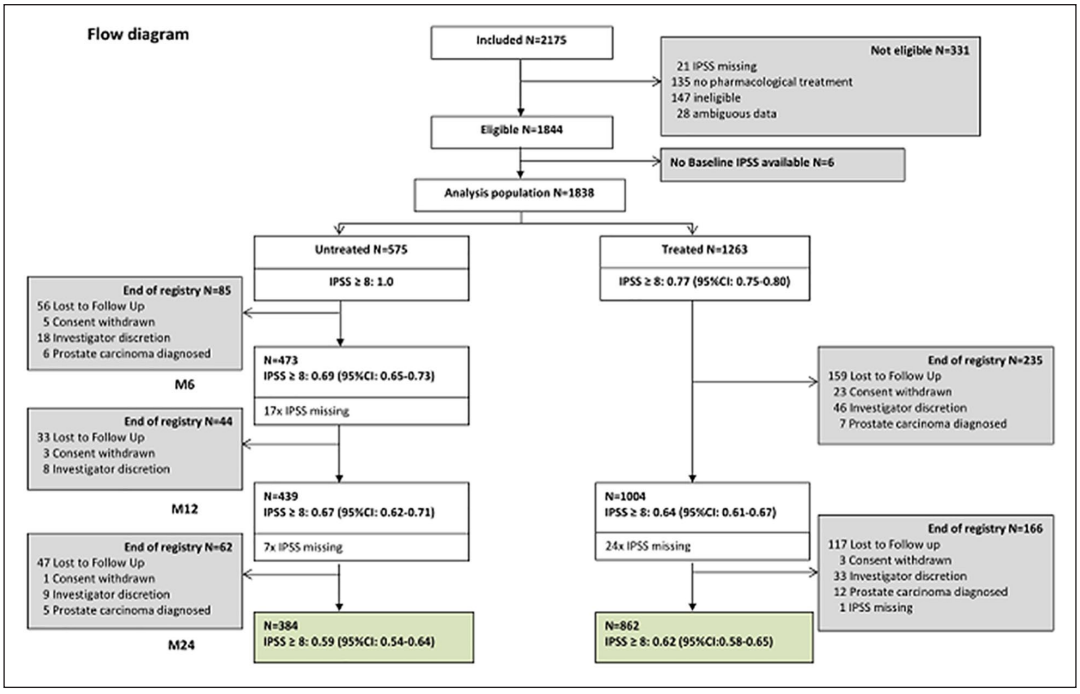
Background: The aim of this study was to evaluate the effect of pharmacological treatment of lower urinary tract symptoms due to benign prostate enlargement (LUTS/BPE) on disease- specific and generic Quality of Life (QOL) measures.

Methods: Evolution was a European prospective, multicenter multi-national, observational registry collecting real life clinical data over two years on the management of LUTS/BPE in primary and secondary care. Disease-specific QOL using questionnaires like IPSS Q8, BPH Impact Index (BII) and generic QOL using questionnaires like EuroQOL Five Dimension (EQ5D) which encompassed EQ5D VAS and EQ5D health index were investigated.

Results: The registry enrolled 1838 BPE patients and 1246 patients were evaluable at the end of 24 months. Nearly 70% of patients in the study were previously treated with medical therapy and 17% of these had already discontinued medical treatment previously for various reasons with lack of efficacy being the most common. The mean time since diagnosis of LUTS in the previously treated group was 4.7 years (0-26 years). Medical management produced statistically significant improvement in QOL (disease specific and generic) in patients previously untreated with medical therapy, and an insignificant change in generic QOL in those previously treated with medical treatment.



P8-1 Flow Diagram.

Conclusions: After 5-years from the onset of symptoms, LUTS/BPE patients previously treated with medication had significantly impaired QOL in patients in a manner comparable to other chronic diseases. Earlier intervention with minimally invasive surgical techniques should be considered in LUTS/BPE patients that do not show a significant improvement in QOL with medical therapy.

P8-2 Patient outcomes following use of combination therapy for trial without catheter in acute urinary retention patients in a pre-treated population

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Introduction: The use of alpha blockers (AB) and 5α-Reductase Inhibitors (5ARI) as a combination therapy (CT) for preventing the progression of Lower urinary tract symptoms is well studied. However, the use of CT for persistent cases of Urinary Retention (UR) is less well explored. **This** study aims to determine the efficacy of CT in patients who have persistent UR despite treatment with AB.
Methods: Patients presenting with AUR in our unit are catheterized, started on AB, and referred for TWOC. If unsuccessful, long-term catheter, surgery, or CT with delayed TWOC are options offered to patients. Data was collected prospectively for those treated with CT and delayed TWOC.
Results: 95 patients were included from January 2017 - February 2019, average age 78.2yrs. 56.8% of patients had a successful TWOC following CT with average length of time on CT of 2.44 months. 42.1% patients who had successful TWOC were deemed unfit for surgery / aged >80 years. All but 2 patients in this cohort had previous AB and retention/failed TWOC prior to commencement of CT.
Conclusion: This study suggests that CT and delayed TWOCs is a clinically relevant option in those who may be unfit / unwilling to undergo surgery. This includes those with a large residual volume or already on AB. It is reasonable to try a TWOC after 3 months of CT, with a further attempt at 6 months if the first TWOC fails.

P8-3 Is the widespread use of anticoagulation and antiplatelets causing avoidable postoperative bleeding in Urology patients necessitating additional hospital visits?

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Introduction: Post procedural haematuria is responsible for a significant number of attendances and readmissions to the Emergency Department (ED) and portends a potentially avoidable health burden. A significant number of patients undergoing urological procedures are on anticoagulants and/or antiplatelet medications. Herein, we aim to identify whether prior use of these medications impact on post procedural haematuria.
Methods: Patient episodes over a one-year period between 01/10/18 and 30/09/19 were interrogated. Inclusion criteria were age 60 or over, elective urological procedure, and ED attendance with a coded diagnosis of haematuria within 30 days of the original procedure. Readmission rates were tallied and analysed.

Results: 131 episodes fulfilled the inclusion criteria, reflecting 70 different patients. Of these, 75 (57%) were readmissions and 56 (43%) ED attendances; overall 96 (73%) were anticoagulated. The most common procedure leading to ED attendance and/or readmission were bladder biopsies (57 cases) of which 74% were anticoagulated. Rivaroxaban (n=21 cases) and Aspirin (n=20 cases) were the most commonly used anticoagulant and antiplatelet agents respectively. The odds ratio for ED attendance following an elective urological procedure on anticoagulation was 2.11, and for readmission with haematuria 3.41 compared to patients not anticoagulated.
Conclusion: Patients on anticoagulation and antiplatelet agents are more likely to be readmitted with haematuria. Adequate counselling of these patients preoperatively and careful timing of restarting anticoagulation, whilst balancing their risks versus benefits, can reduce attendances and/or readmissions via the ED.

P8-4 Why one should STOP-Bang (in the urology clinic)?

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Obstructive sleep apnoea (OSA) is recognised as one of the causes of nocturia, but its prevalence among patients with nocturia is unknown. Recently, the STOP-Bang questionnaire has emerged as a tool for risk-stratification of patients at the risk of OSA. We decided to offer patients presenting to the urology clinic with a bothersome nocturia a routine assessment with the STOP-Bang and a sleep study for those scoring $>$ 3 or 3 with the evidence of cardiovascular disease. We retrospectively reviewed clinical outcomes in 71 consecutive patients managed in multi-disciplinary setting. The average age was 73 years (range 34-88) and median nocturia frequency 4. Patients at risk of undiagnosed OSA (35) were referred for sleep studies. Median STOP-Bang score of the referred patients was 5 and those not referred was 3. Overall, 88.6% of sleep studies demonstrated the presence of OSA; of these 74.2% confirmed moderate or severe disease. Nine patients (39%) with moderate or severe OSA denied snoring and the same number denied hypersomnolence; these patients were only diagnosed because of STOP-Bang assessment. In the whole cohort, 18 patients underwent bladder outlet procedures and 19 were prescribed desmopressin. Overall, median nocturia frequency in our patients decreased from 4 to 1. At least a third of patients (32%) with bothersome nocturia have an undiagnosed clinically significant OSA. Identification and treatment of OSA improve outcomes across the whole cohort because nocturia in patients without OSA is more likely to respond to standard therapies.

P8-5 Do residual volumes in men with chronic urinary retention predict outcome of TURP?

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Introduction: There are no clear guidelines on the management of Chronic Urinary Retention (CUR). Use of pre-operative urodynamics (UDS) and bladder outflow surgery is variable. The aim of this study was to assess the correlation between pre-operative high residual volume (RV) and successful voiding after transurethral resection of prostate (TURP).
Materials and Methods: A database of TURPs between 2012 and 2018 was accessed to collect data on men with a pre-operative diagnosis of CUR. Successful outcome was defined as freedom from catheter.
Results: Of the 93 TURPs for CUR, 49 (52.6%) were successful. Mean age of Success vs Failure group was 70 vs 75 years ($p<0.05$). 14 men in Success vs 16 in Failure group had comorbidities relevant to poor outcomes ($p>0.05$). Mean RVs in the Success (1.4L, range 0.6-4) and Failure (1.2L, range o.4-3) groups were not significantly different ($p=0.07$). Outcomes of those with RV=/$>$ 1.5L were not different from those with RV$<$1.5L (57% catheter-free vs 48%; $p=0.41$). Of the 58 men with BOO on pre-operative UDS, only 34 (59%) had a successful outcome. Post-operative UDS was not carried out on them. Of the 29 who did not have pre-operative UDS, only 12 (41%) had a successful outcome.
Conclusions: Outcomes of TURP in men with CUR are not dependent on RVs and co-morbidities, although advanced age can be a factor. Routine use of pre-operative UDS can help in patient selection for surgery. In those with failed surgery, post-operative UDS should be carried out to exclude persistent obstruction.

P8-6 A closed looped audit: Reducing catheter-related morbidity and improving TURP waiting times in line with GIRFT recommendations

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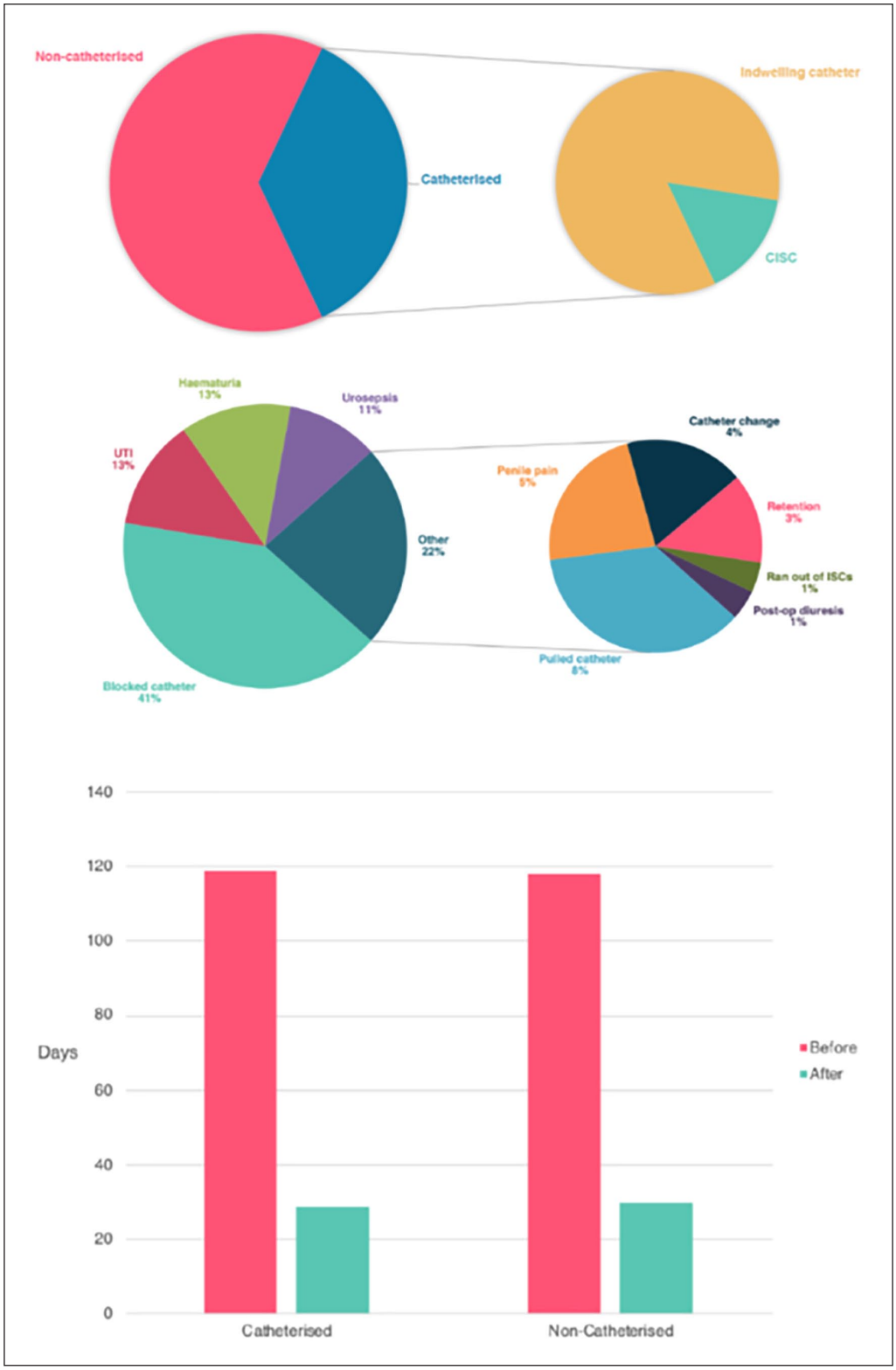
Introduction: In July 2018, Getting It Right First Time (GIRFT) recommended improved pathways for patients awaiting a TURP and in particular, the morbidity associated with catheterised patients. We reviewed a cohort of patients who underwent a TURP.
Methods: All patients who underwent a TURP from 1 January 2018 to 31 December 2018 were included. Data was collected on waiting list times, whether a catheter was inserted, date of catheter insertion, Accident and Emergency (A&E) attendances for catheter-related issues and the number of admissions this resulted in. We made a change in our pathway to ensure that catheterised patients undergo a TURP within 30 days of waitlisting. We re-audited data from 1 November 2019 to 31 December 2019.

Results: 181 patients underwent a TURP in 2018; 65 were catheterised with 10/65 performing self-catheterisation. The median waiting list times for the catheterised patients and non-catheterised patients were near identical (118 v 119 days). 93/95 A&E attendances were in the catheterised cohort. The median number of A&E attendances was 1 (range 0-8), the first attendance 1-day post-catheterisation with the median being 20 days (range 1-618). There were 13 admissions with eight uroseptic episodes in those catheterised; with none in non-catheterised patients. The re-audit included 18 patients (6/18 catheterised) and the median wait for catheterised patients was 29 days.

P8-6 Figures



Conclusion: We were able to significantly reduce waiting time and morbidity for catheterised patients by prioritising them and setting a 30-day target. We are now working on improvements to the pathway for all patients.

P8-7 Early experience of primary transurethral water vapour treatment (Rezum®) for symptomatic benign prostatic hyperplasia: an analysis of 332 consecutive patients

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Introduction: Transurethral water vapour treatment (Rezum®) is a novel minimally invasive therapy for lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH). We report early functional outcomes and adverse events.

Methods: Retrospective analysis of 332 consecutive patients at two centres between Aug/2017-Nov/2019. Inclusion criteria: LUTS secondary to BPH (pVol<120cc), acute urinary retention (passed TWOC), absence of clinically significant prostate cancer and no prior BPH treatment.

Results: Median age was 69yrs (IQR 62-74) and median pVol 53cc (IQR 41-70) with 20.8% (69/332) >80cc. Preoperatively, 66.9% (222/332) used α-blockers, with 42.7% (99/332) using 5α-reductase inhibitors. 99.0% (329/332) procedures were successfully completed. General anaesthesia, sedation and local anaesthetic were used in 81.3% (270/332), 18.4% (61/332) and 0.3% (1/332), respectively. Median operative duration was 9 minutes (IQR 7–12). There was successful 1st TWOC in 72.9% (242/332) a median 7 days post-operatively. 96.4% (320/332) achieved same-day discharge. Clavien-Dindo complications grade >/=2 occurred in 1.8% (6/332). 1.5% (5/332) were re-admitted for post-operative haematuria; none required blood product transfusion. In patients with paired outcomes, mean baseline IPSS was 22.7 (SD 6.6) and at 3-months 7.42 (SD 5.8) (change -15.3 (-67.4%)). Mean baseline QMax was 10.6 ml/s (SD 5.9) and at 3-months 17.4 ml/s (SD 8.1); (change +6.8 ml/s (+64.3%)). Further BPH surgery was performed for refractory symptoms in 1.8% (6/332).

Conclusion: Early outcomes for primary Rezum® demonstrate low rates of serious adverse events and promising improvements in LUTS. Further prospective long-term and comparative evaluation will determine validity of these findings.

P8-8 Real-World Outcomes Demonstrate Prostatic Urethral Lift (PUL) is Safe and Effective in Non-Retention and Retention Patients

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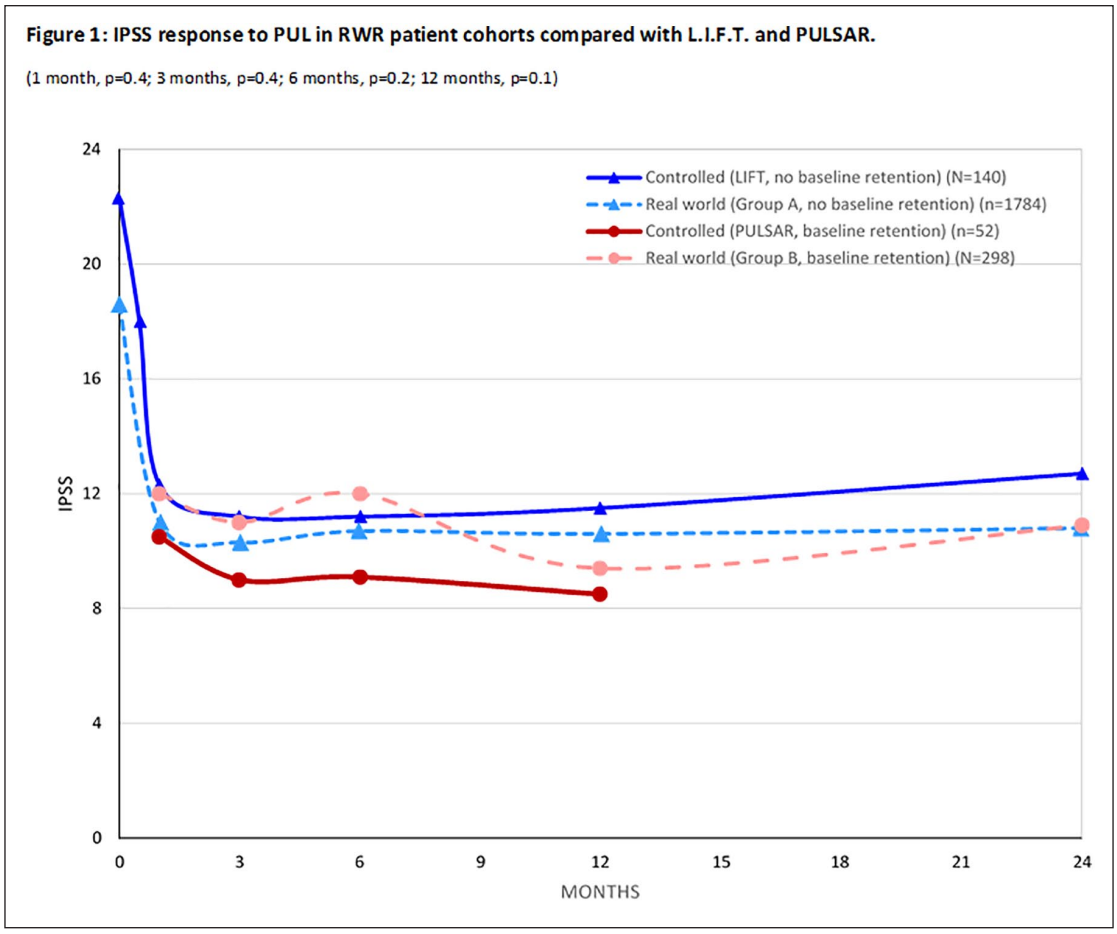
Introduction and Objective: Real world studies reflective of heterogenous populations should serve as benchmarks for new technologies, including those within the minimally invasive field for BPH. In order to determine how the UroLift System performs in the real-world setting compared to controlled settings, analyses were performed on the large, actively enrolling Real World Retrospective (RWR) study in comparison to the LIFT pivotal and PULSAR. urinary retention Prostatic Urethral Lift (PUL) trials.

Methods: The Real-World Retrospective (RWR) study gathered data from 2491 subjects who had undergone PUL after market clearance across 22 USA, UK, and Australian sites. RWR subjects were then filtered into non-retention (RWR Group A, n=2117) and retention (RWR Group B, n=374) groups. Controlled studies used for comparison were LIFT - the 5-year randomized controlled trial for PUL in non-retention subjects (n=140), and PULSAR - a controlled study following retention subjects post-PUL for 12 months (n=52). Absolute IPSS scores were compared at 1, 3, 6, and 12 months post-procedure between all studies using a one-way ANOVA. Adverse events and catheterization rates were compared between RWR subjects and the LIFT or PULSAR. study.

Results: We observe similar absolute IPSS scores among all groups at each timepoint following PUL (Figure 1), demonstrating consistent symptom outcome after treatment between real-world and controlled studies. Analyses also revealed equivalent safety profiles between real-world groups and their respective controlled studies. Adverse events in both RWR Groups (A: non-retention; B: retention) were not elevated compared to LIFT or PULSAR and were mild-moderate and transient. 84% of RWR Group A subjects were catheter-free post-procedure when catheterization was not the standard of care, which is slightly better than the 68% catheter-free rate of the LIFT trial. Catheter-independence of RWR Group B subjects was consistent with PULSAR. results at 1 month and at longest available follow up (87% RWR Group B vs. 81% PULSAR.).



P8-8 Figure 1.

Conclusions: When compared to controlled trials, PUL results from the real-world study demonstrate consistent symptom response, safety, and patient experience, revealing positive and novel findings for minimally invasive therapy in the BPH space.

P8-9 HoLEP in men with catheter-dependent urinary retention: Does early surgical intervention result in better outcome?

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Introduction: Catheter-dependent urinary retention is the indication for surgery in around 55% of men undergoing HoLEP at our centre. Men have indwelling catheters for extended periods of time. We compare the surgical outcomes for HoLEP on an emergency (< 2weeks), urgent (2-4weeks) or routine (>1month) basis for catheter-dependent urinary retention.

Materials and Methods: From a prospective database, 221 men who underwent HoLEP (2004-2010) were divided into three groups according to preoperative catheter duration. Group 1 (n=11) had preoperative catheter for < 2weeks, Group 2 (n = 43): 2-4 weeks and Group 3 (n=167): >1month. Data included enucleation weight, change in Hb, length of stay, TWOC success and postoperative IPSS, QoL and Qmax at 3 months.

Results: Median prostate weight was 46, 53 and 65gm and postoperative Hb reduction was 1.3, 1.5 and 1.2gm/dl in Groups 1, 2 and 3 (one-way ANOVA: not significant). All patients in Group 1 had successful TWOC, 1 patient each in Group 2 (2.3%) and Group 3 (0.6%) failed TWOC. Median postoperative hospital stay was 1 day in all 3 groups. Complications included capsular perforation (n=1) in Group 2 and Urosepsis (n=4) in Group 3. No significant differences were demonstrated in IPSS, QoL and Qmax ($p>0.05$), median IPSS=5.5, 3.5 and 4 in Group 1, 2 and 3, and median QoL=1 in all 3 groups.

Conclusions: These results indicate that HoLEP outcomes are independent of preoperative catheter duration. Published data describes the degree of catheter morbidity suffered by men awaiting surgery. These findings are incentives to strive for early operative intervention as there are no downsides to early HoLEP for men in urinary retention.

P8-10 Erectile function following surgery for benign prostatic hyperplasia: a systematic review and network meta-analysis of randomised-controlled trials

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Introduction: Benign prostatic hyperplasia (BPH) is an independent risk factor for erectile dysfunction. Numerous treatment modalities have recently emerged for BPH. These all risk erectile dysfunction yet may also improve function. A systematic review with network meta-analysis is crucial for identifying which modality produces greatest erectile function benefit.
Materials and Methods: In October 2019, MEDLINE, Embase, and Web of Science were searched for randomised-controlled trials comparing BPH surgical interventions. The primary outcome was post-operative International Index of Erectile Function-5 (IIEF-5) score at 6, 12, 24, and 36 months. Bayesian network meta-analysis was performed with meta-regression using baseline IIEF-5 score as the covariate. Mean differences (MD) with 95% credible intervals (95% CrI) and rank probabilities (p) were calculated. PROSPERO registration: CRD42019155506.
Results: 48 studies (5156 patients) were included. Prostatic urethral lift (PUL) ranked highest for IIEF-5 score at 6 months (11 techniques; p=0.581; MD 2.4, 95% CrI -0.71-5.6), 12 months (12 techniques; p=0.782; MD 2.9, 95% CrI -0.26-6.1), and 24 months (9 techniques; p=0.948; MD 3.6, 95% CrI 0.14-7.1). At 36 months (6 techniques, not including PUL), bipolar transurethral resection of the prostate ranked highest (p=0.424; MD 0.25, 95% CrI -0.53-0.91). Lowest ranking treatments were laparoscopic simple prostatectomy at 6 months (p=0.360) and 36 months (p=0.461), prostatic arterial embolisation at 12 months (p=0.709), and Aquablation at 24 months (p=0.464).
Conclusions: Based on network meta-analysis, PUL produces superior erectile function benefit up to 24 months. PUL data with longer follow-up is required, plus further RCTs analysing other new modalities.

P8-11 A true day-case bi-polar Trans-urethral Resection of the Prostate (TURP) with same day Trial Without Catheter (TWOC): Is it possible?

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Introduction: Transurethral resection of the prostate (TURP) is a common surgical management option for lower urinary tract symptoms secondary to prostatic enlargement. 85% of patients are discharged after TURP following a 1 to 2-night stay. There is a drive towards offering TURP as a day case procedure. We compare outcomes of Bi-polar TURP with TWOC within 24 hours versus TWOC beyond 24 hours to assess feasibility of day-case TURP.
Methods: Data was collected retrospectively of all patients that had a TURP from 1st Jan 2018 to 31st Dec 2018. Patient records and electronic software were used to collate and analyse data.
Results: 144 TURP patients included in the study. N=65 patients had a TWOC <24 hours. Mean age was 69.6 years. Mean tissue resected was 14g. N=54 patients passed TWOC day 1 post TURP. N=4 patients re-presented with complications of urinary retention (n=1) and haematuria (n=3) <30 days of discharge. N=79 patients had a TWOC >24 hours. Mean age was 70.2 years. Mean tissue resected was 16g. N=61 patients passed their initial TWOC. N=4 patients re-presented with complications of Haematuria (n=1), Urinary retention (n=2) and urinary tract infection (n=2) <30 days of discharge. Two patients were managed with a long -term catheter.
Conclusions: Our study shows comparable outcomes in both patient groups. There is no increased risk of complications for patients having TWOC within 24 hours avoiding patient discomfort and allowing the patient to be discharged safely within 24 hours. Our study shows a real possibility of offering true day-case TURP.

P8-12 Can bladder outflow surgery be safely combined with cystolitholapaxy?

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Background: Two thirds of secondary bladder stones are associated with bladder outflow obstruction. There have been studies suggesting an increased complication rate when combining cystolitholapaxy with bladder outflow surgery. We report a single center experience of cystolitholapaxy over a 4-year period focusing on complication rates, stone recurrence rates and bladder outflow (BOS).
Methods: 97 cystolitholapaxy were performed from 2014 to 2018 in 84 male patients. Data was not included for female patients or those with long term catheters for neuropathic bladders. We collected data retrospectively from electronic records.
Results: The median stone size was 2cm with 41% of patients having multiple stones. 25% of patients had BOS and cystolitholapaxy. BOS was abandoned in 2 cases due to prostatic bleeding. The complication rate was 15%: 8% in the combined group and 17% in the cystolitholapaxy only group, no Clavien-Dindo grade above II. One patient required readmission for haematuria requiring catheterisation and irrigation. Median operative time

was 48 minutes in the combined group and 22 minutes in the cystolitholapaxy group. 12 patients underwent 2 or more cystolitholapaxy procedures with a stone recurrence rate of 14%. 16 patients went on to have BOS with a median time of 8 months to surgery.

Conclusion: This review suggests no higher complication rate in the simultaneous cystolitholapaxy and BOS group when appropriately selected. Simultaneous surgery is desirable, but it may not always be possible and further research is required to determine whether selection criteria can be applied.

ePoster Session 9: Prostate Cancer 1 – Optimising Diagnostics

P9-1 Prostate cancer screening, are we there yet? Results from the largest UK community-based PSA screening event

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Introduction: The role of PSA screening in the era of multiparametric MRI and modern prostate biopsy techniques remains undefined. This study used data from the UK's single largest PSA screening event to evaluate the clinical and economic effects of PSA screening in a contemporary cohort.

Patients and methods: A total of 2235 men between the ages of 39-89 years attended on a single day for a PSA blood test organized by the Lions club in Reading, UK. Patients with borderline PSA results were told to have a repeat test, and those with abnormal results were referred to their local urology department. Clinical and financial data regarding subsequent investigations and treatment were collected retrospectively and analysed.

Results: All 2235 men underwent PSA testing, 2033 (91%) had a normal age specific PSA, 74 (3.3%) men were borderline and 128 (5.7%) had abnormal results. A total of 111 men were investigated further. Forty men were diagnosed with prostate cancer, 32 were ISUP $\geqslant$2 (1.4%). Subsequently, 13 patients had robotic radical prostatectomy, 15 had radical radiotherapy, 2 brachytherapy and 1 had hormone therapy. Based on analysis of clinical time and investigations costs, this screening program cost £210,386 equating to £103.5/person screened.

Conclusion: The role of PSA screening in the era of MPMRI and contemporary biopsy techniques needs to be revisited. The early diagnosis of prostate cancer increases the chance of curative treatment for clinically significant, treatable disease and is associated with similar cost per diagnosis to those of other current UK screening programmes.

P9-2 Ethnic variations in prostate cancer (PCa): The characteristics of prostate cancer in men of South Asian (SA) origin compared with Caucasian men in the United Kingdom

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Introduction: There are racial variations within PCa, which appears less common in South Asian (Indian/Pakistani/Bangladeshi/Sri-Lankan) men in the UK. We scrutinised PCa characteristics in SA and Caucasian patients.

Patients and Methods: A retrospective review identified 113 SA and 2872 Caucasian men with PCa between 2009-2019.

Results: Median follow up was 54 months (2-240). SA patients were diagnosed at a lower age (p=0.0001) and with a lower initial PSA (p=0.003) (Table) compared to their Caucasian counterparts. There is a tendency towards lower grade/stage disease in SA men, but no statistically significant difference in Gleason scores, T-staging nor N-staging, however, Caucasian patients were two times more likely to present with metastatic disease. Communication problems were frequently encountered in SA patients with 43% relying on family members/interpreter. SA patients were more likely to be managed conservatively (27% vs 18%); more likely to undergo radical radiotherapy (37 vs 25%) rather than surgery (14 vs 20%); and less likely to receive hormonal manipulation compared to Caucasian counterparts (19 vs 31%). Within the SA group, 81% demonstrated no evidence of disease progression and 8(7%) patients died due to PCa.

P9-2 Table.

	South Asian (n=113)	Caucasian (n=2,872)	p value
Mean age (SD)	66.6 (8.8)	70.3 (9.2)	*0.0001*
Median PSA (QR)	8.7 (5.2-16.9)	12.1 (7.3 – 36.6)	*0.003*
Gleason score	Odds ratio (95% CI)		

(Continued)

	South Asian (n=113)	Caucasian (n=2,872)	p value
(SA vs Caucasian)			
5-6	1.81 (1.12-2.92)		0.15
7 (3+4)	1.25 (0.73-2.14)		0.41
7 (4+3)	0.99 (0.52-1.92)		0.98
8-10	0.99 (0.54-2.05)		0.98
TNM staging			
(SA vs Caucasian)			
T1/T2 disease	0.89 (0.43-1.85)		0.77
T3 disease	0.47 (0.22-1.01)		0.06
N_0 status	2.19 (1.00-4.79)		0.05
M_0 status	2.31 (1.19-4.48)		*0.01*

Conclusion: This provides interesting insights into PCa characteristics in SA men in the UK, with a tendency towards earlier diagnosis and lower risk disease and challenges involving communication. The role of ethnicity in PCa is complex and poorly understood, but national PCa guidance many not be universally applicable to SA patients and focused, prospective, multi-modality research, involving primary care, is necessary to understand PCa management in SA men.

P9-3 Clinical utility and cost-modelling of the PHI test to triage referrals into UK image based diagnostic services for suspected prostate cancer: The PRIM (Phi to Reflne Mri) multi-centre study

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Introduction: MRI is a crucial part of the diagnostic pathway for prostate cancer but remains a resource intensive test. Here we tested the use of the PHI assay to refine the use of mpMRI and biopsies.
Methods: Multicentre UK study where men due for mpMRI and biopsies had PHI and PSA tested at referral. AUC and diagnostic test statistics were calculated for overall and significant cancers (⩾GG2).
Results: 554 men from 5 centres were recruited (median age, PSA and PHI - 66y, 8.0 ng/ml and 43.7 respectively). Overall and ⩾GG2 cancer detection rates were 359/554 (65%) and 48% (266/554) respectively. There were no between-centre differences for demographics or cancer detection. AUC for ⩾GG2 cancers was 0.63 for mpMRI, 0.70 for PSA and 0.82 for PHI. Amongst mpMRI negative men the AUCs were 0.70. 0.79 and 0.82 for PSA, PSA density and PHI respectively. Pre-referral PHI cut-offs between 20-30 had NPVs of 0.85-0.90 for ⩾GG2 cancers. Using a PHI ⩾30 cut-off to rule out referrals would reduce mpMRI by 25% and biopsies by 40%, missing 8% of ⩾GG2. In contrast a mpMRI in all men and biopsy positive lesions reduced biopsies by 35% but missed 9% of ⩾GG2 disease. Mean costs were lowest under a PHI strategy compared to all other options (including PSAd), and decision curve analysis demonstrated net clinical benefit.
Conclusion: These data suggest that PHI test as a triaging test may be an effective way to refine use of imaging and reduce costs without compromising cancer detection rates.

P9-4 Risk stratification for prostate cancer management: value of the Cambridge Prognostic Group classification for assessing treatment allocation

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Background: The five-tiered Cambridge Prognostic Group (CPG) classification is a better predictor of prostate cancer-specific mortality than the traditional three-tiered classification (low-, intermediate- and high-risk). We aimed to investigate radical treatment rates according to CPG.
Methods: Patients diagnosed with non-metastatic prostate cancer in England, between 2014 and 2017, were identified from the National Prostate Cancer Audit database and risk stratified according to CPG. Adjusted Risk

ratios (aRR) were estimated for undergoing radical treatment according to CPG, and for receiving radiotherapy for those treated radically. Funnel plots were used to display variation in radical treatment rates across hospitals.

Results: 61,999 men were included. The proportion of men receiving radical treatment increased from 11.3% in CPG1 to 78.8% in CGP4, and 73.3% in GCP5. Men in CPG3 were more likely to receive radical treatment than men in CPG2 (66.3% versus 48.4%; adjusted RR: 1.44; 95% CI 1.36-1.53 P<0.001). Radically treated men in CPG3 were also more likely to receive radiotherapy than in CPG2 (59.2% versus 43.9%; aRR: 1.18; 95% CI 1.10-1.26). Although radical treatment rates were similar in CPG4 and CPG5 (78.8% versus 73.3%; aRR: 1.01; 95% CI 0.98-1.04), more men in CPG5 had radiotherapy than in CPG4 (79.9% versus 59.1%; aRR: 1.26; 95% CI 1.12-1.40).

Conclusions: The CPG classification distributes men in five risk groups that are about equal in size. It reveals differences in treatment practices in men with intermediate-risk disease (CPG2/CPG3) and in men with high-risk disease (CPG4/CPGP5) that are not visible when using the traditional three-tiered risk classification.

P9-5 Medium term outcomes in men with a non-suspicious mpMRI within the RAPID pathway

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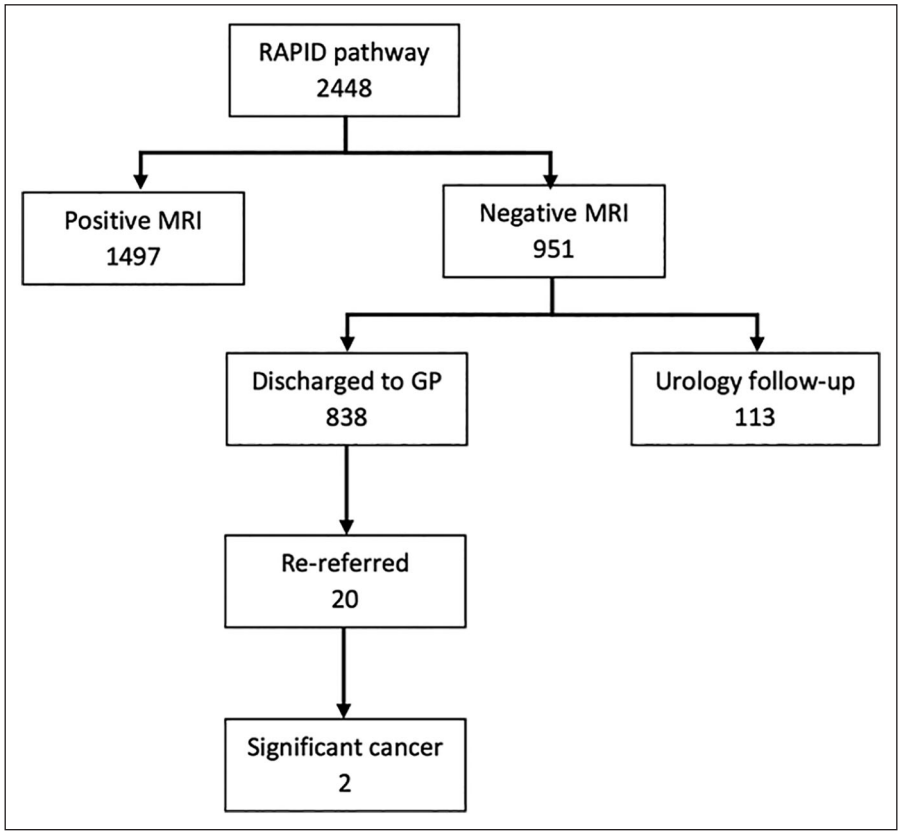
Introduction: The 2019 NICE guideline recommend omitting biopsy in men with a non-suspicious MRI. We investigated the re-referral rates of men who have been discharged with a non-suspicious mpMRI from the Rapid Access Prostate Imaging and Diag
nosis (RAPID) pathway.

Patients and Methods: 2448 patients have been investigated through the RAPID pathway between April 2017 to December 2019. Men were discharged from the pathway with an mpMRI score 1 or 2 or a score of 3 with PSA density ⩽ 0.12. Non-suspicious MRIs had second mpMRI review 1-2 weeks after the initial report within a MDT setting. On discharge, primary care are advised on an individualised PSA re-referral threshold.

Results: The median age was 66 [IQR 60-72] and median PSA was 6.7 [4.9-9.9]. In total, 34.2% [838/2448] were discharge without a suspicion of cancer and 0.02% [20/838] were re-referred by their GP. Of these, 4 patients required a biopsy due to a new mpMRI lesion or a persistently raised PSA density. There were 2 patients who had a new diagnosis of Gleason 3+4 (ISUP ⩾ 2).



P9-5 Figure.

Conclusions: After 2 years of follow-up, the mpMRI diagnostic pathway has a low re-referral rate and mpMRI triage remains a safe and effective approach. Re-referral rates may increase with longer follow-up.

P9-6 The best-timed pathway for suspected prostate cancer: an audit of outcomes following introduction of straight-to-mpMRI referrals

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Prostate cancer is the commonest male cancer in the UK, with 46,500 new cases per year and accounts for a significant economic burden for the country. The Best-Timed Pathway (BTP) was introduced by a national collaboration of urological cancer centres aiming to streamline the GP Two-Week Wait (2WW) pathway with straight-to-mpMRI testing prior to transrectal ultrasound-guided (TRUS) biopsy. This retrospective, full-cycle audit reviewed waiting times from referral to investigations and outcomes in a single tertiary urology centre in North West England. The BTP was gradually introduced during the total study period of 03/06/19 to 12/12/19 resulting in 76 patients (N0) on the old pathway and 29 patients (N1) on the BTP. Time from referral to TRUS biopsy and outcome was longer for those on the old pathway (mean 27.7 days [SD 13.0] and 43.6 days [SD 15.6], respectively) versus BTP (mean 16.5 days [SD 7.7] and 31.9 days [SD 8.9], respectively). The P-values in both instances are <0.001. Furthermore, the rate of negative biopsies increased from 25.0% under the old pathway to 51.7% under the BTP. We conclude that the BTP provides patients with a shorter wait between 2WW referral to investigations and outcomes. However, there are further improvements that can be made to the algorithm in order to reach the Faster Diagnosis Standard (FDS) target of 28 days set by NHS England. The proportional increase of negative biopsies with the BTP is a concern and needs to be scrutinised further.

P9-7 The clinical and financial implications of a decade of prostate biopsies in the NHS - interrogation of the Hospital Episode Statistics (HES) Data 2008-2019

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Introduction: To date, the evidence for comparing transrectal (TR) and transperineal (TP) route of prostate biopsy has not been consolidated especially in antibiotic resistance era.

Methods: This is an interrogation of national Hospital Episode Statistics, to evaluate the clinical and financial implications of a decade (2008-2019) of prostate biopsies in the United Kingdom National Health Scheme for assessment of 28 days complications and non-elective readmissions (NEL) with secondary evaluation of cost implications.

Findings: Out of 486,467 biopsies (387,879 TR and 98,588 TP), rates for infection and sepsis were higher for TR cohort ($p<0.001$). Sepsis has been more than doubled for TR biopsies in last two years than the decade (1.12% Vs 0.53%). Predominant reasons for NEL for TR and TP cohorts were infection and urinary retention respectively and in last two years NEL rate was lesser for TP group (3.54% Vs 3.74%). The estimated expenditures for NEL for the decade were £33,589,527 and £7,179,926 respectively for TR and TP cohorts ($p<0.001$), translating into per patient cost of £2,225 and £1,758 respectively ($p<0.001$). Assuming that all the biopsies were done transperineally, downstream savings for managing NEL would have been £7,501,655 with added upstream savings of approximately £60,909,959 if done under local anaesthetic (LA).

Future implications: The data gives sufficient evidence for the distinct advantages of TP over TR route in terms of lesser infections and burden of expenditure with a potential for saving both upstream and downstream costs, attributing to the decision of shifting the practice pattern towards LATP route.

P9-8 Comparison of complications after transrectal and transperineal prostate biopsy: a national population-based study

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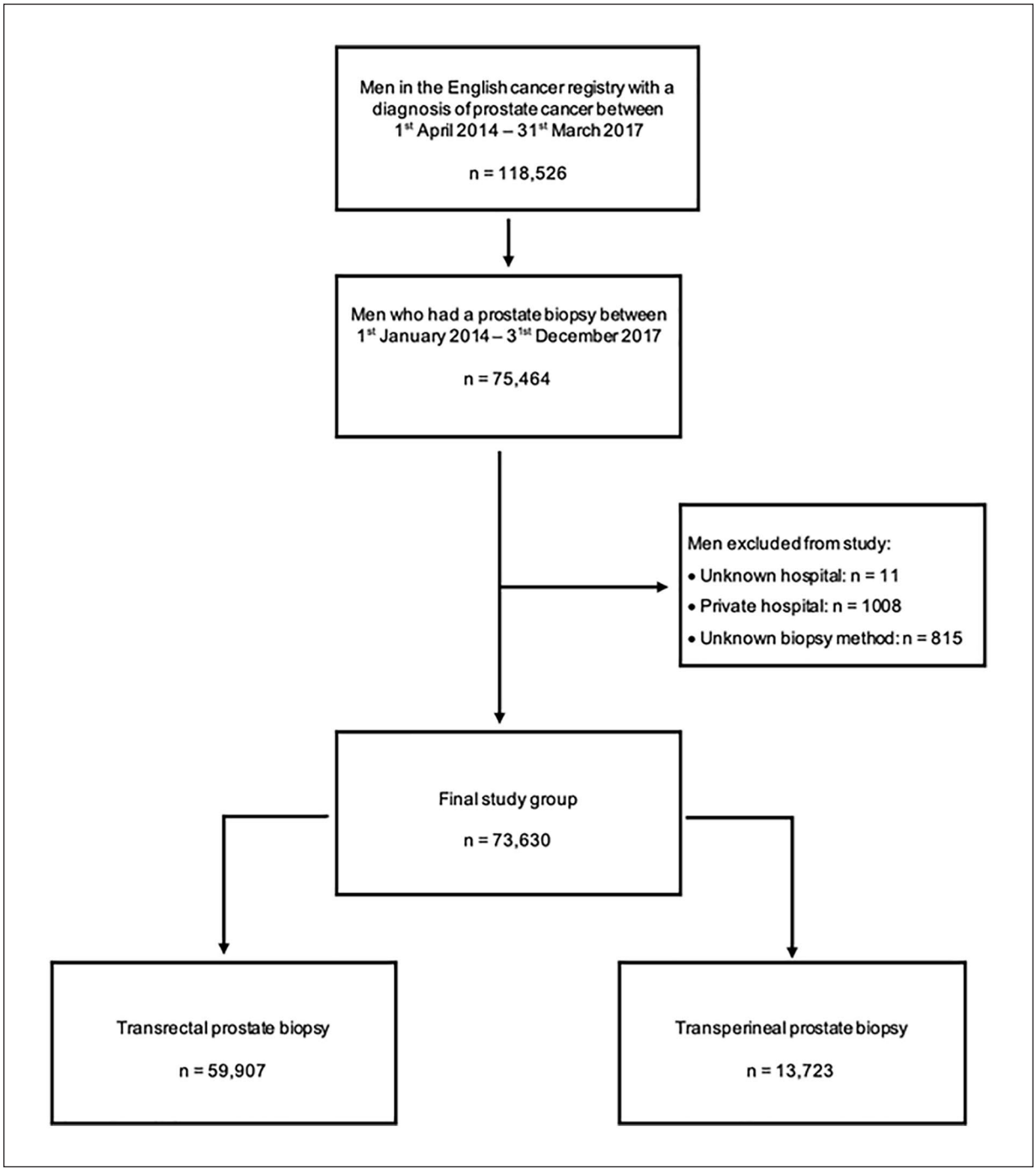
Introduction: Prostate biopsies are increasingly being performed via the transperineal route. Our objective was to assess the complications of transrectal compared to transperineal prostate biopsies.

Patients and Methods: All men diagnosed with prostate cancer between 1st April 2014 and 2017 in England were identified. Administrative hospital data were used to identify biopsy route. Administrative hospital data

were used to identify overnight hospital stay immediately after biopsy as well as hospital admissions because of sepsis, urinary retention or haematuria, mortality, and total length of hospital stay within the first 30 days. Generalised linear regression models were performed to calculate adjusted risk differences (aRD).

Results: 73,630 men were identified. Men who had a transperineal biopsy (n=13,723) were more likely to have an overnight stay than those who had a transrectal biopsy (n=59,907); (12.25% vs 2.36%; aRD 9.70%: 95% CI 7.12% to 12.27%), less likely to be readmitted because of sepsis (1.03% vs 1.35%; aRD -0.36%: -0.56% to -0.15%), and more likely to be readmitted for urinary retention (1.93% vs 0.95%; aRD 1.06%: 0.71% to 1.41%). There were no significant differences for risk of haematuria or mortality.



P9-8 Figure.

P9-8 Table.

Risk of readmission and mean length of hospital stay in the first 30 days after transrectal (TR) and transperineal (TP) biopsy.

Risk of readmission in first 30 days after					
	TR	TP			
	number (%)	number (%)	Adjusted risk difference* (%)	95% CI	*P*- value
Number of men	59,907	13,723			
Overnight stay immediately after biopsy*	1,415 (2.36)	1,681 (12.25)	9.70	7.12 to 12.27	<0.001
Sepsis	806 (1.35)	142 (1.03)	-0.36	-0.56 to -0.15	0.001
Urinary retention	571 (0.95)	265 (1.93)	1.06	0.71 to 1.41	<0.001
Haematuria	396 (0.66)	97 (0.71)	0.07	-0.15 to 0.28	0.546
Mortality**	59 (0.10)	9 (0.07)	-0.03	-0.07 to 0.01	0.197
Length of hospital stay					
	TR	TP			
	Mean (SD)	Mean (SD)	Adjusted mean difference* (%)	95% CI	*P*- value
Number of men	806	142			
Readmission LOS (sepsis; days)	6.53 (8.88)	5.08 (3.95)	-1.10	-1.84 to -0.36	0.004
Number of men	571	265			
Readmission LOS (urinary retention; days)	3.87 (4.50)	2.58 (2.70)	-1.32	-1.97 to -0.66	<0.001
Number of men	396	97			
Readmission LOS (haematuria; days)	3.88 (5.78)	3.12 (3.55)	-0.70	-2.03 to 0.63	0.304

Abbreviations: LOS = length of hospital stay; RCS = Royal College of Surgeons;
* Adjusted for biopsy year, age, ethnicity, RCS Charlson score and socioeconomic deprivation status
** Only adjusted for age.

Conclusions: Transperineal biopsies have a lower risk of sepsis but higher risk for urinary retention. Biopsies via the transperineal route would prevent one readmission for sepsis in 278 men at the cost of three additional men readmitted for urinary retention. These results reflect complications during a period when practice is moving towards performing more transperineal biopsies under local anaesthetic with fewer, more targeted needle insertions.

P9-9 Clinical utility of non-targeted systematic prostate biopsies in patients undergoing pre-biopsy mpMRI from a multicentre series of 2,350 patients

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Introduction: The diagnostic yield of clinically significant prostate cancer (csPCa) in non-targeted biopsies in men with

a suspicious multi-parametric (mpMRI) remains unclear. The aim of this study was to determine the clinical utility of non-targeted prostate biopsies when performed alongside MRI-targeted biopsies across multiple centres using pre-biopsy mpMRI in men referred with a suspicion of prostate cancer.

Patients and Methods: A prospective online biopsy registry of 2,350 consecutive patients (Apr/2017-Dec/2019). Transperineal biopsy was advised if PI-RADS score was 4-5 or score 3 with PSA-density >/=0.12. csPCa was defined as Gleason >/=3+4.

Results: Mean age, median PSA and median prostate volume were 65.8 yrs (SD 8.4), of 6.7 (IQR 4.8 - 9.9) ng/ml and 49cc (IQR 35-72). 1,148 (48.6%) underwent biopsy with csPCa in 631/1148 (54.9%). 848 underwent combined targeted and non-targeted systematic biopsies. In men without cancer in targeted-biopsy, 22/848 (2.6%) had csPCa in non-targeted and 37/848 (4.3%) Gleason 3+3 disease alone. No Gleason >4+3 was detected in exclusively non-targeted biopsies. When csPCa was detected in targeted biopsies, csPCa was also present in 150/848 (17.7%) of non-targeted biopsies with only Gleason 3+3 present in 53/848 (6.3%) of non-targeted biopsies in this group. In 69 men with only Gleason 3+3 in targeted biopsies, csPCa was present in non-targeted areas in 9.

P9-9 Table.

n = 848		Non-targeted Biopsy			
		Clinically Significant Prostate Cancer	Clinically Insignificant Prostate Cancer	No Cancer	Total
Targeted Biopsy	Clinically Significant Prostate Cancer	**150**	53	197	**400**
	Clinically Insignificant Prostate Cancer	9	**13**	47	69
	No Cancer	22	37	**320**	379
	Total	181	103	564	**848**

Supplementary Table 1. Results of men who had combined MRI targeted biopsy and non-targeted systematic transperineal prostate biopsy. Clinically significant prostate cancer defined as Gleason >/=3+4.

Conclusion: Detection of csPCa in only non-targeted systematic biopsies in a pre-biopsy mpMRI pathway is 2.6% although when csPCa is found in targeted biopsies, this rate is higher.

P9-10 Do concomitant systematic biopsies add to fusion targeted biopsies in the diagnosis and management of clinically significant prostate cancer?

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There is robust evidence that MRI targeted prostate biopsy (TB) has been shown to give a higher diagnostic yield for clinically significant (cs) prostate cancer (PCa) than systematic biopsies (SB). Whether this allows TB to be performed in isolation without concomitant SB remains controversial.

This prospective observational study included all patients undergoing Fusion TB with the aim of comparing TB and SB histology results and impact on clinical outcomes. The primary outcome measure was to ascertain the percentage of csPCa detected on SB missed by TB.

The 104 patients were selected by MDT to have Fusion TB based on bi or multi parametric 1.5T MRI identified PIRAD 3-5 lesions. 18 were biopsy naïve and 85 had previous biopsies. csPCa was defined using PRECISION (Gleason ≥3+4) and PROMIS trial criteria (UCL 1: any primary Gleason 4, or core length ≥6mm).

TB alone missed between 6.25% (2/32)(PRECISION) and 11.1% (4/36)(UCL 1) of csPCa.

Case analysis showed that of the 35 patients offered radical treatment, 2 were based on SB alone and in 4 patients, a radical treatment decision required both biopsies due to upstaging.
TB alone without concomitant SB misses 6.25% to 11.1% of clinically significant prostate cancers in this group of largely previously biopsied patients. Furthermore, in those offered radical treatment, this decision was based, at least in part, on SB in 17.1%. For this reason, we recommend that SB should also be performed at the same time as TB.

P9-11 Cognitively-targeted, freehand, local anaesthetic trans-perineal prostate biopsies are an inexpensive and highly effective method for sampling targets on MRI: The Altnagelvin Technique

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Introduction: At our centre, we have replaced local-anaesthetic trans-rectal biopsies with local-anaesthetic trans-perineal biopsies for all prostate cancer diagnostics. To our knowledge, our biopsy technique is unique to previously reported literature, in that it does not require proprietary consumable needle-guides nor imaging fusion software to target MRI lesions. Such items can add many £100s in costs per procedure compared to trans-rectal biopsies.
Materials: Data was collected from a prospective, consultant maintained database. Only patients with PI-RADS 3 – 5, who were biopsy naïve were included. Our positive target rate was a surrogate marker of successfully sampling the MRI indicated lesion. Biopsies were trans-perineal, under local anaesthetic, with a co-axial needle in place of a proprietary needle-guide.
Results: In total 324 TP biopsies were included. The target was positive in 84.5%, negative in 14.2% and indeterminately reported in 1.3%. The average maximum tumour length was 9.6mm indicating that targets were being adequately sampled. Of the positive-target group, 54 were from PI-RADS 4 lesions on MRI. We examined this group separately as these lesions are by definition lesions under 15mm. There were 61 PI-RADS 4 lesions biopsied with a positive target rate of 88.5% (54/61). The average maximum tumour length for these lesions was 7.8mm, once again indicating that the lesions were being adequately sampled.
Conclusion: Our technique of TP biopsy achieves a high positive rate when combined with MRI targets, and obviates the need for expensive proprietary consumables or fusion-software. Consumable costs per procedure were £10 cheaper than trans-rectal biopsies.

P9-12 Preoperative prediction of extra capsular extension on final specimen utilising mpMRI and PSA density: Results from a series of 1421 robotic sssisted radical prostatectomy specimens

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Introduction: Preoperative risk of Extra Capsular Extension (ECE) of prostate cancer is traditionally estimated based on parameters including PSA, core positivity on biopsy and clinical stage. ECE is associated with higher rates of biochemical recurrence and disease progression. Individualised risk assessment is therefore warranted preoperatively for better counselling and surgical planning of optimal oncological outcomes and possible nerve sparing. We aimed to assess the accuracy of mpMRI with PSA Density (PSAD) in predicting ECE on final histology.
Methods: A retrospective review of 1,421 patients who had undergone a robotic assisted radical prostatectomy (RARP) during 2011-2018 was performed, the patients underwent a preoperative 1.5T or 3T mpMRI. PSA Density was calculated via presenting PSA value and TRUS volume at biopsy.
Results: Our mpMRI had a Positive Predictive Value (PPV) of 74% and 65% and a Negative Predictive Value of 65% and 75% in diagnosing pT3 and pT2 respectively on final specimen. Specificity of mpMRI for ECE was found to be 85%. MpMRI identified pT3 was downgraded to pT2 and upgraded to pT4 in 24% and 1.4% of cases respectively on final histology specimen. A higher PSAD (PSAD$>$0.23) is associated with a likely understaged pT3 disease on mpMRI or a higher likelihood of ECE on final histology ($p<0.01$).
Conclusion: Our study highlights the crucial role of mpMRI in individualised preoperative surgical planning and patient counselling for non-nerve sparing RARP, by enabling accurate predicting of ECE. PSAD can be utilised in conjunction with mpMRI to create a model to enable more accurate prediction of ECE

ePoster Session 10: Prostate Cancer 2 – Optimising Treatment

P10-1 Selecting patients with intermediate-risk prostate cancer for active surveillance: Does MRI have a role?

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Introduction: Selecting which ISUP GG2 patients can be safely managed with active surveillance (AS) remains controversial. The aims of this study are to evaluate the association of MRI score with adverse pathology at final prostatectomy, which could help identify patients that may be higher risk for AS.

Patients and Methods: We undertook a retrospective cohort study at our institution, identifying 1117 patients with favourable intermediate risk disease (Gleason 3+4, PSA⩽10ng/ml, stage⩽T3a, <50% positive cores) who underwent RARP between 2010-2019. We defined a multivariable logistic regression model with adverse pathology (upstaging to T3a/b disease, upgrading ⩾ GG3 or lymph node invasion) as the outcome, MRI score as the predictor, and included risk of organ confined disease using a nomogram which incorporated preoperative PSA, Gleason grade, clinical stage, number of negative cores, and number of positive cores. Secondary outcomes of biochemical recurrence and upgrading alone were also investigated.

Results: 70% of patients had a positive MRI (equivalent to PIRADS score 4/5). 11% of patients were upgraded and 35% had adverse pathology on final specimen. A positive MRI was associated with higher rates of adverse pathology (OR 2.44, p<0.0001), upgrading (3.89, p<0.0001) and biochemical recurrence after RARP (HR 1.62, p=0.075) at a median follow-up of 2.2yrs (IQR 1.3-4.2yrs), when compared to the reference group of patients with an equivocal MRI score.

P10-1 Table 1. Association between PIRADS score and outcomes on multivariable analysis.

		Adverse Pathology			BCR		
		Odds Ratio	95% C.I.	p-value	Hazards Ratio	95% C.I.	p-value
Primary Analysis (N=1177)	MRI PIRADS Score			<0.0001			0.075
	Intermediate**	Ref.	Ref.	–	Ref.	Ref.	–
	High***	2.44	1.75, 3.40	<0.0001	1.62	0.88, 3.00	0.12
	Low*	0.86	0.49, 1.53	0.6	0.57	0.16, 2.01	0.4
Sensitivity Analysis – Outcome of GGG3 or higher on RP (N=1177)	MRI PIRADS Score			<0.0001			
	Intermediate	Ref.	Ref.	–			
	High	3.89	2.00, 7.56	<0.0001			
	Low	1.63	0.60, 4.41	0.3			

*: PIRADS 1/2, **: PIRADS 3 ***: PIRADS 4/5.

Conclusions: In patients with favourable ISUP GG2 PCa who are potential AS candidates, a positive MRI is associated with an increased risk of aggressive pathological features on prostatectomy specimens.

P10-2 Radical prostatectomy for Gleason 3+3 prostate cancer; who, how and why? Analysis of the British Association of Urological Surgeons complex operations database

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Introduction: There is a risk of overtreating low-grade prostate cancer (PCa) with radical prostatectomy (RP). A preference for active surveillance for localised Gleason 3+3 disease was advocated in the 2018 UK National Prostate Cancer Audit. This reflects the peri-operative risks and common functional sequalae following RP.

Objectives: To understand modern RP practices in England for Gleason 3+3 PCa.

Materials and Methods: BAUS manage the complex operations database for RP. Surgical departments upload data describing patient, disease, surgical, pathological and outcome factors. Surgeons can review and amend their data before lockdown and data cleansing. Analysis of all 21,973 RPs recorded in England from 2016-18 was performed to identify 2,627 cases of Gleason 3+3 disease diagnosed pre-operatively.

Results: Using Hospital episode statistics, the BAUS RP dataset was deemed 91% complete. Gleason 3+3 patients accounted for 12% of RPs. Median patient age was 63 and 89% were ASA 1-2. Median PSA was 7.0 (IQR 5.1–10.4). Intermediate-risk disease was present in 52% (pre-operative T stage ⩾2b and/or PSA ⩾10). Table 1 further describes disease, surgical and outcome factors. Median LOS was 1 day.

P10-2 Table.

Indication	n	%
Primary cancer treatment	1828	70%
Previous active surveillance	724	28%
Pre-op T stage	**n**	**%**
T1	618	24
T2	1617	62
T3	291	11
T4	1	0.04
Not recorded	100	4
Surgical modality	**n**	**%**
RARP	2109	80
LRP	297	11
ORP	221	8
Nerve spare	**n**	**%**
Bilateral	1401	53
Unilateral	502	19
Post-op outcome	**n**	**%**
Tranfused	10	0.4
Clavien-dindo 3-4	22	0.8
In hospital mortality	0	0
Post-op histology	**n**	**%**
3+3	748	28
3+4	1362	52
4+3	176	7
8+	97	4
Not recorded	244	9%
Upstaged	1005	38%
Downstaged	130	5%

Table 1: disease, surgical and outcome factors
RARP = Robot-assisted radical prostatectomy
LRP = Laparoscopic radical prostatectomy
ORP = Open radical prostatectomy

Conclusions: Decisions to proceed to RP for Gleason 3+3 PCa in England can be commonly justified by pre-operative factors indicating intermediate or high-risk disease, and by post-operative upstaging/upgrading. Further factors that might lead a surgeon to perform RP for locally-confined Gleason 3+3 disease include patient preference, high disease volume, MRI suggesting a higher-grade lesion, and prostate capsule proximity. Peri-operative outcome data indicate that RP in this cohort is safe.

P10-3 A multicentre cost-effectiveness and Patient Reported Outcome Measures (PROM) comparison study between laparoscopic and robotic assisted radical prostatectomy

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Objective: To assess if there were any statistically and clinically significant differences in cost effectiveness and PROM data between LRP and RARP between 3 high volume UK units.
Patients and Methods: Baseline, 6 weeks, 3 and 12 month EPIC-26 (UI, UO, Bowel, Sexual, Hormonal), Decision regret score (DRS) and EQ5D5L questionnaires were used. Capital, maintenance costs as well as in hospital and post hospital health care resource utilisation within 1 year of surgery were used for health economic analyses.
Results: 439 patients (201 in LRP and 238 in RARP groups) were included. The groups were similar in age, BMI and PSA.
There was a statistically significantly lower early (</=3mo post op) overall DRS for the RARP compared to LRP group and when adjusted for cT2, Bilateral Nerve Sparing (BNS) status. For EPIC-26 UI there were significantly better scores for RARP vs LRP groups for overall comparison and when adjusted for cT2 status, cT3 and all nerve sparing variations. For EPIC-26 sexual there were significantly better scores for RARP vs LRP for overall, cT2, BNS and D'Amico low risk status at 12months post-op. Despite the worse PROM outcomes all economic analyses including high case volumes (1000 cases/year), LRP was considered the more cost-effective intervention. This was primarily driven by the capital investment and maintenance costs totalling £400k+ per year.

P10-3 Table 1. Decision Regret Score comparing LRP to RARP.

Parameter Decision Regret Score	LRP baseline	LRP 12mo	RARP baseline	RARP 12mo	Statistical difference
Overall	10(0-20)	5(0-25)	10(0-20)	5(0-20)	P=0.4
cT2	10(0-20)	5(0-25)	10(0-15.75)	5(0-18.75)	P=0.5

(Continued)

Parameter Decision Regret Score	LRP baseline	LRP 12mo	RARP baseline	RARP 12mo	Statistical difference
cT3	17(20-25)	22(3-37)	10(0-20)	10(0-25)	P=0.4
NNS	10(0-20)	5(0-21.25	15(0-32.5)	15(3-26)	P=0.1
UNS	10(0-20)	10(0-31)	10(0.5-20)	7.5(0-20)	P=0.2
BNS	15(0-20)	5(0-25)	10(0-20)	5(0-15)	P=0.5
D'Amico L	20(10-20)	7.5(0-25)	5(0-15)	5(0-8.75)	P=0.3
D'Amico I	10(0-20)	5(0-25)	10(0-25)	5(0-20)	P=0.6
D'Amico H	10(0-20)	5(0-25)	10(0-18)	5(0-25)	P=0.9
Missing	25	25	99	99	

Conclusion: The main benefits of RARP appear mainly related to nerve sparing. New robotic systems will need to reduce their costs and demonstrate nerve sparing ability to become cost effective.

P10-4 Assessment of learning curve for robot assisted laparoscopic prostatectomy on real time basis with case by case evaluation of perioperative outcomes

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Introduction: The learning curves analysed till date for robot assisted laparoscopic prostatectomy (RALP) are based on some arbitrary cut offs of the total cases with a fellowship programme.
Methods: We analysed a large dataset of RALP from a single centre between 2008 and 2019 for assessment of learning curve for perioperative outcomes with respect to time and individual cases.
Results: 1406 patients were evaluated with a mean operative time (OT) and console time (CT) of 198.08 and 161.05 minutes respectively. A plot of OT and CT showed an initial decline followed by a near constant phase. The inflection points were detected at 1398 days (308th case) and 1470 days (324th case) respectively for OT and CT with declining trend of 8.83 minutes and 7.07 minutes per quarter year ($p<0.001$). Mean estimated blood loss showed 70.04% reduction between start (214.76 ml) and end (64.35 ml) ($p<0.001$). Complication rate did no vary with respect to time (p 0.188) or number of procedures (p 0.354). There was insufficient evidence to claim that either number of operations ($p = 0.326$) or D'Amico classification ($p = 0.114$ for Intermediate vs Low, $p = 0.158$ for High vs Low) or time (p 0.114) were associated with the odds of positive surgical margins (PSM).
Conclusions: It takes about 300 cases and nearly 4 years for standardising the operative and console time with an approximate estimation of requirement of around 80 cases per annum for a single surgical team in the initial years for optimising the outcomes of RALP.

P10-5 Benchmarking radical prostatectomy – analysis of the British Association of Urological Surgeons national database for radical prostatectomy

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Introduction: The BAUS complex operations database for radical prostatectomy (RP) is a national repository of mandated RP data, made publicly available via the 'Clinical Outcomes Publication'. A near complete and detailed dataset exists for RP practice across England providing contemporary benchmarking data.
Objective: To produce comprehensive and detailed benchmarking data, delivering transparency for patients and a reference resource for surgeons.
Materials and Methods: BAUS manage the RP complex operations database. Surgical departments upload data describing patient, disease, surgical, pathological and outcome factors. Surgeons can review and amend their data before lockdown and data cleansing. Analysis of 2016-18 data was performed for 21,973 patients undergoing RP in England to produce approach-specific benchmarking data.
Results: Using Hospital episode statistics (HES), the BAUS RP dataset was deemed 91% complete. ASA 1-2

was reported in 81% of patients. Over 80% of patients had RP performed in a high-volume centre (> 100 RPs per annum) and 84% had Gleason score ⩾7 disease. Table 1 summarises patient, disease, surgical and outcome descriptors. Operative time was <4 hours in 85% of cases. LND was performed more commonly in higher risk patients (cT3, PSA >20, Gleason score ⩾8). Pathological upstaging occurred in 35%.

P10-5 Table.

Surgical modality	RARP		LRP		ORP		Total	
	n	%	n	%	n	%	n	%
Totla no. cases	18689	85%	1592	7%	1692	8%	**21973**	-
Median annual surgeon volume (IQR)	43 (23 - 65)		27 (12 - 39)		22 (7 - 39)		**43 (26 - 63)**	
Median patient age (IQR)	64 (59 - 69)		65 (59 - 69)		66 (60 - 70)		**65 (59 - 69)**	
Pre-op T2	11305	60%	905	57%	895	53%	**13105**	**60%**
Pre-op T3	3686	20%	355	22%	266	16%	**4307**	**20%**
Transfused	26	0.1%	6	0.4%	31	2%	**63**	**0.3%**
LN dissection performed	5381	29%	622	39%	1143	68%	**7146**	**33%**
LN yield >= 16	1312	24%	42	7%	311	27%	**1665**	**23%**
Positive surgical margins								
All patients	4472	24%	386	24%	404	24%	**5262**	**24%**
cT3	1199	32%	126	35%	86	32%	**1411**	**33%**
PSA > 20	458	42%	39	46%	58	42%	**555**	**42%**
Gleason score 8+	687	29%	69	30%	93	34%	**849**	**30%**
Clavien-Dindo Grade 3-4	200	1.1%	17	1.1%	46	2.7%	**263**	**1.2%**
Clavien-Dindo Grade 5	3	0.02%	1	0.1%	0	0%	**4**	**0.02%**
Median LOS (IQR)	1 (1-2)		2 (1-2)		3 (2-4)		**1 (1-2)**	

Table 1: Patient, disease, surgical and outcome descriptors by operative modality.

Conclusions: Analysis of this comprehensive dataset offers the first set of UK national RP standards, allowing procedure, patient and disease-specific comparisons against national trends. Service centralisation, adoption of technology, and specific aspects of surgical practice including operative modality and LND can be observed. Public facing analysis of this dataset will enhance informed patient decision-making.

P10-6 Evaluating open radical prostatectomy in the era of centralisation and the robot - analysis of the British Association of Urological Surgeons complex operations database

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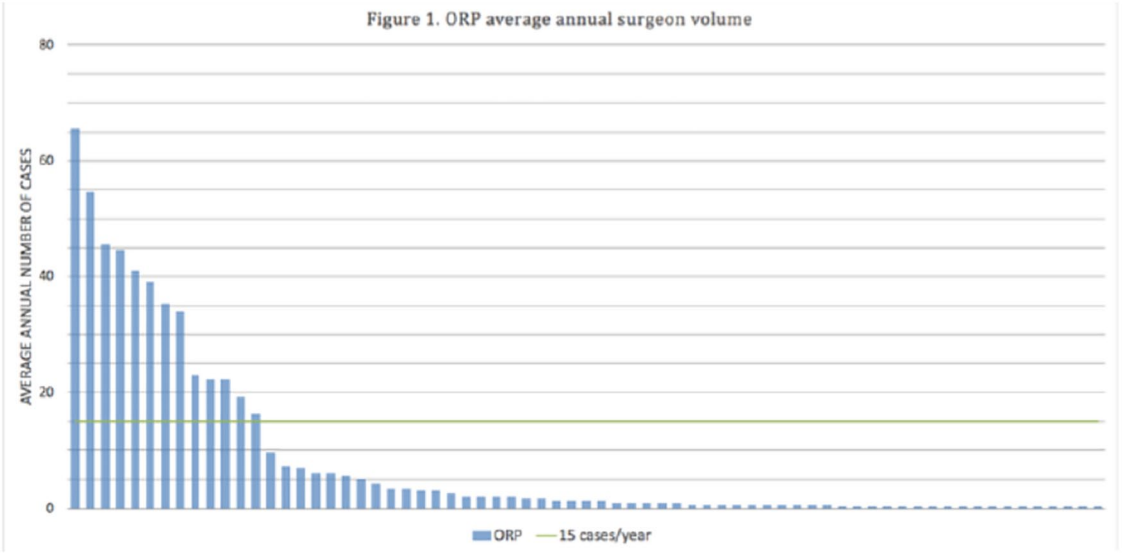
Introduction: Radical prostatectomy (RP) in the UK is now typically performed in high-volume centres by high-volume surgeons, in accordance with national guidance. Robot-assisted RP (RARP) is now more frequently utilised than open RP (ORP).

Objective: To understand modern ORP practices in England.

Materials and Methods: BAUS manage the complex operations database for RP. Surgical departments upload data describing patient, disease, surgical, pathological and outcome factors. Surgeons can review and amend their data before lockdown and data cleansing. All 1,692 ORPs from a total 21,973 RPs recorded in England (2016-18) were analysed.

Results: Median age was 66 and 73% were ASA 1-2. Median PSA was 8 (IQR 6-12). Patients had pre-operative Gleason score ⩾7 in 82% of cases. Pre-operative T-stages 1, 2, 3 and 4 were recorded in 19%, 53%, 16% and 0.2% of cases respectively. From a total 69 ORP surgeons, 13 (19%) high-volume ORP surgeons (⩾15 annual cases) performed 82% of ORPs. The remaining 18% were performed by 56 surgeons (81%) who performed <15 annual cases (Figure 1). High-volume surgeons' operative and outcome descriptors are shown in table 1.

P10-6 Figure and Table.



	n	%
No. of cases	1390	82%
Bilateral nerve spare	460	33%
Unilateral nerve spare	127	9%
LN dissection	983	71%
LN yield >=16	282	29%
EBL < 1000mL	1138	82%
Transfused	19	1%

Median LOS (IQR)	3 (2 - 4)	
Clavien-Dindo grade 3-4	38	2.7%
Positive surgical margin	325	23%

Table 1. Operative and outcome factors for high-volume (≥15 annual cases) ORP surgeons

Conclusions: The majority of contemporary ORPs are performed by a low number of high-volume surgeons. Disease characteristics of ORP patients reflect the wider RP cohort. Specific ORP indications include prior abdominopelvic surgery, contraindications to Trendelenburg positioning, and unforeseen robotic equipment failure. Low rates of transfusion/Clavien-Dindo complications ⩾3 indicate ORP performed by high-volume surgeons to be safe in this current series. A requirement for ORP expertise is likely to remain.

P10-7 Retzius sparing technique leads to improved early continence recovery and better quality of life after robot-assisted radical prostatectomy: a multi-centre series of over 400 men

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Introduction: We report patient-reported outcome measures for quality of life (QoL), erectile function and urinary function of patients treated with Retzius sparing robotic assisted radical prostatectomy (RS-RARP) and non-RS-RARP at 9 months.

Methods: From August 2017- July 2019, 413 patients underwent RARP by three surgeons. Patient demographics, cancer specific variables (PSA, disease risk, pT stage, positive surgical margin [PSM]) and surgical technique were recorded. Patients prospectively completed EQ-5D-3L, IIEF-5 and mLUTS questionnaires 7days prior to surgery and postoperatively at 7days, 1,3,6 and 9 months. The practice management software Carebit was used.

Results: A total of 240 and 173 patients had a non-RS-RARP and RS-RARP respectively. There was no difference in PSM (RS-RARP: 21.4% vs non-RS-RARP: 17.1%, $p>0.1$). Baseline EQ-5D-3L, IIEF and mLUTS between both patient cohorts were similar (all $p>0.1$). RS-RARP patients reported significantly better EQ-5D-3L scores compared to non-RS-RARP (81vs76, p=0.026) at 7days

but there was no difference at 1,3,6 and 9 months follow-up (all >0.1). No difference in IIEF scores between the two cohorts at 1,3,6 and 9 months (all >0.1) were observed. RS-RARP patients has a lower mLUTS score at 1month (20vs31, p<0.01). mLUTS scores remained lower for RS-RARP patients at 3 (17vs21, p>0.1), 6 (14vs20, p=>0.1), 9 (14vs15, p>0.1) and 12months (11vs17, p=0.09).

Conclusion: We report better immediate QoL and urinary function including continence recovery in patients treated with RS-RARP. RS-RARP did not result in worse early oncological results and thus the trade-off between cancer control and functional outcomes appears to favour RS-RARP over non-RS-RARP.

P10-8 Exercise-induced attenuation of treatment side-effects in newly diagnosed prostate cancer patients beginning androgen deprivation therapy: a randomised controlled trial

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Objectives: (i) To assess whether exercise attenuates the adverse effects of androgen-deprivation therapy (ADT) in prostate cancer patients, and (ii) to examine whether exercise-induced improvements are sustained after the withdrawal of supervised exercise.

Patients and Methods: 50 patients with prostate cancer scheduled for ADT were randomised to an exercise group (n = 24) or a control group (n = 26). The exercise group completed 3 months of supervised aerobic and resistance exercise training (twice a week for 60 min), followed by 3 months of self-directed exercise. Outcomes were assessed at baseline, 3- and 6-months. The primary outcome was difference in fat mass at 3-months. Secondary outcomes included: fat-free mass, cardiopulmonary exercise testing variables, QRISK2 score, anthropometry, blood-borne biomarkers, fatigue, and quality of life (QoL).

Results: At 3-months, exercise training prevented adverse changes in peak O2 uptake (1.9 mL/kg/min, P = 0.038), ventilatory threshold (1.7 mL/kg/min, P = 0.013), O2 uptake efficiency slope (0.21, P = 0.005), and fatigue (between-group difference in Functional Assessment of Chronic Illness Therapy-Fatigue score of 4.5 points, P = 0.024) compared with controls. After the supervised exercise was withdrawn, the differences in cardiopulmonary fitness and fatigue were not sustained, but the exercise group showed significantly better QoL (Functional Assessment of Cancer Therapy-Prostate difference of 8.5 points, P = 0.034) and a reduced QRISK2 score (2.9%, P = 0.041) compared to controls.

P10-8 Table. Adjusted mean differences in outcomes at 3-months and 6-months.

	3-months		6-months	
	Adjusted mean difference (95% CI)	*p*	Adjusted mean difference (95% CI)	*p*
Body composition				
Fat mass (kg)	–1.9 (–4.9, 0.93)	0.18	–2.2 (–5.5, 1.1)	0.18
FFM (kg)	1.2 (–1.2, 3.7)	0.32	1.4 (–2.9, 5.8)	0.51
Body mass (kg)	–0.98 (–2.7, 0.70)	0.25	–2.0 (–4.1, 0.08)	0.061
Waist circumference (cm)	–0.32 (–3.0, 2.4)	0.82	–2.1 (–5.4, 1.3)	0.22
Waist to hip ratio	–0.01 (–0.04, 0.02)	0.48	0.00 (–0.04, 0.03)	0.80
Blood biomarkers				
PSA (ng/mL)	–0.74 (–27.7, 26.2)	0.96	–3.1 (29.8, 23.6)	0.82
Total cholesterol (mmol/L)	0.09 (–0.25, 0.42)	0.61	0.12 (–0.22, 0.45)	0.49
HDL-C (mmol/L)	0.07 (–0.04, 0.19)	0.21	0.01 (–0.11, 0.13)	0.81
LDL-C (mmol/L)	–0.02 (–3.0, 0.25)	0.87	0.02 (–0.43, 0.46)	0.94
Triglycerides (mmol/L)	–0.04 (–0.28, 0.21)	0.77	0.09 (–0.15, 0.32)	0.46
Testosterone (nmol/L)	0.14 (–0.12, 0.41)	0.28	0.14 (–0.02, 0.29)	0.084

(Continued)

Table. (Continued)

	3-months		6-months	
	Adjusted mean difference (95% CI)	*p*	Adjusted mean difference (95% CI)	*p*
SHBG (nmol/L)	1.6 (–6.2, 9.4)	0.68	9.8 (–3.0, 22.6)	0.13
Insulin (pmol/L)	10.8 (–7.4, 29.1)	0.24	–14.8 (–39.7, 10.1)	0.23
Glucose (mmol/L)	0.27 (–0.11, 0.65)	0.16	0.28 (–0.13, 0.68)	0.18
PROs				
FACT-P	4.1 (–4.5, 12.6)	0.34	8.5 (0.67, 16.3)	0.034
FACIT-Fatigue	4.5 (0.62, 8.4)	0.024	4.2 (–1.3, 9.7)	0.13
GodinQ	9.1 (–2.7, 20.9)	0.12	10.2 (0.74, 19.7)	0.035
CPET variables				
VO_{2peak} ($ml.kg^{-1}.min^{-1}$)	1.9 (0.16, 3.7)	0.034	0.95 (–1.0, 3.0)	0.34
VT ($ml.kg^{-1}.min^{-1}$)	1.6 (0.38, 2.9)	0.012	0.73 (–0.32, 1.8)	0.17
VE/VCO_2	–2.1 (–4.2, 0.02)	0.052	–1.8 (–4.0, 0.46)	0.11
VE/VO_2	–1.3 (–3.4, 0.71)	0.19	–0.63 (–2.8, 1.5)	0.56
O_2 pulse (ml/beat)	0.98 (–0.25, 2.2)	0.12	0.13 (–1.0, 1.3)	0.81
OUES	0.21 (0.07, 0.35)	0.005	0.11 (–0.07, 0.29)	0.23
Strength				
Hand grip (kg)	0.46 (–1.5, 2.5)	0.65	1.0 (–0.67, 2.7)	0.23
CV event risk				
QRISK2 (%)	–0.46 (–2.8, 1.9)	0.68	–2.9 (–5.8, 0.13)	0.041

95% CI = confidence interval; CPET = cardiopulmonary exercise test; CV = cardiovascular; FACIT-Fatigue = Functional Assessment of Chronic Illness Therapy-Fatigue; FACT-P = Functional Assessment of Cancer Therapy-Prostate; FFM – fat-free mass; GodinQ = Godin Leisure-Time Exercise Questionnaire; HDL-C = high-density lipoprotein cholesterol; LDL-C = low-density lipoprotein cholesterol; OUES = oxygen uptake efficiency slope; *p* = p-value; PROs = patient reported outcomes; PSA = prostate specific antigen; SHGB = sex hormone binding globulin; VT = ventilatory threshold; VCO_2 = carbon dioxide output; VE = minute ventilation; VO_2 = oxygen uptake; VO_{2peak} = peak oxygen uptake.

Conclusion: A short-term programme of supervised exercise in patients with prostate cancer beginning ADT results in sustained improvements in QoL and cardiovascular events risk profile.

P10-9 Does big mean bad? The correlation between prostate cancer tumour volume and oncological outcomes

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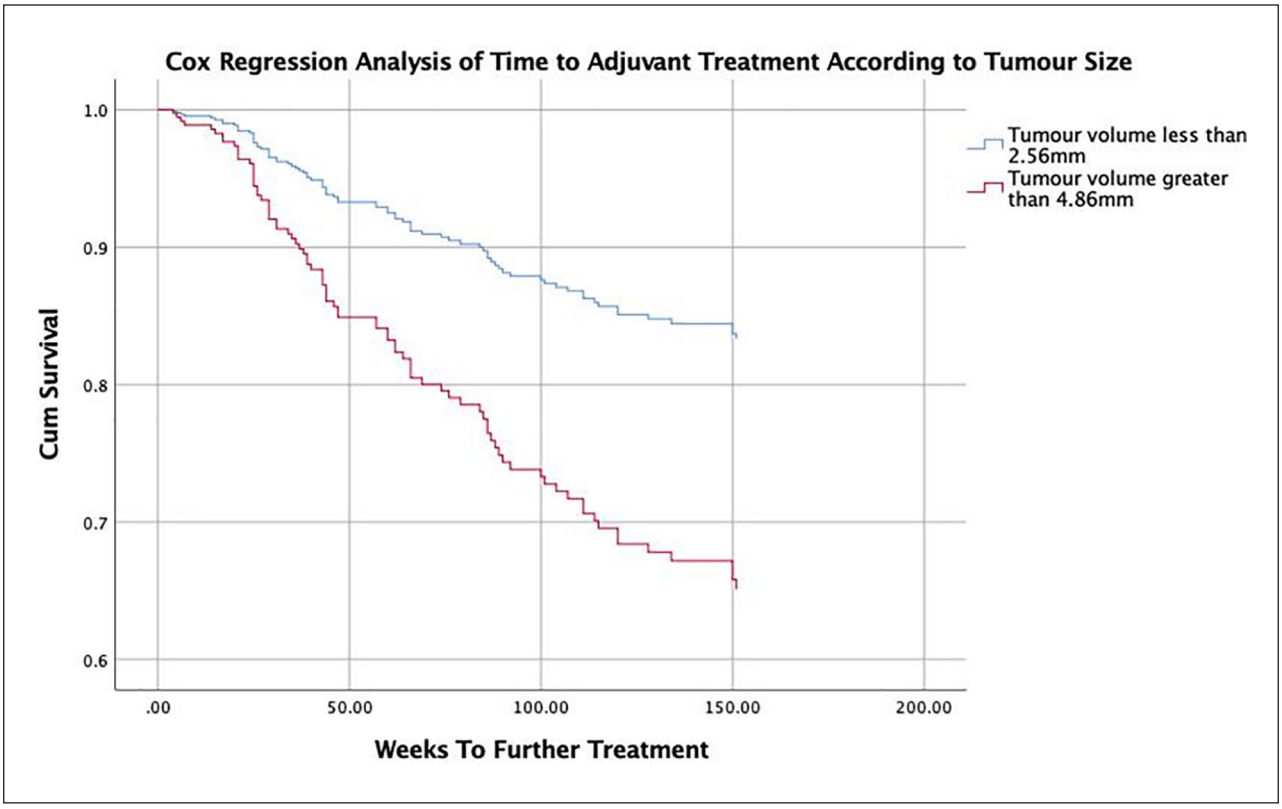
Introduction: Risk stratification in prostate cancer remains inadequate. Many approaches lack granularity whilst more advanced models are complex and poorly validated. We examine the role of tumour volume in predicting oncological outcomes following radical prostatectomy.

Patients and Methods: A prospectively collected multi-surgeon database of patients undergoing minimally invasive radical prostatectomy was analysed. Demographic data, tumour volume measured on the final specimen and oncological outcomes (biochemical recurrence (BCR), metastases, time to further treatment) were collected with a minimum of 2 years follow up. Univariate analyses of the association between tumour volume and rate of BCR and metastases was performed using independent T tests. Cox's regression was used to assess survival time to adjuvant treatment (ADT or radiotherapy) between large and small tumour volume as determined by the previous univariate analysis controlling for prostate size, PSA, BMI, T stage, grade group, specimen size.

Results: 465 patients were included with a complete mean follow up of 88.9 ± 34.3 months. Statistically significant differences in tumour size were seen in patients

with and without BCR (4.9mm vs 2.6mm, p<0.0001) and metastases (11.2mm vs 3.2mm, p<0.0001). Survival analysis demonstrated significantly higher risk of adjuvant treatment with tumour sizes over 4.86mm, p<0.0001 with tumour volume a significant independent predictor, Exp (B)= 2.35, p=0.001).



P10-9 Figure.

Conclusions: Our analysis shows that tumour volume is an independent marker for disease severity. Conventional pathological staging parameters such as ECE may be surrogates of tumour volume. Preoperative MRI imaging offers the potential for preoperative tumour volume assessment to aid risk stratification.

P10-10 Prostate cancer quality of life following surgery: an insight into outcomes from a range of secondary treatments

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Introduction: There is increasing interest in patient reported outcome measures (PROM) following treatments for prostate cancer. Little has been published about comparisons for patients who need secondary treatments (artificial urinary sphincter (AUS) and salvage radiotherapy).

Objective: To assess the PROM for patients with prostate cancer undergoing primary surgery including those requiring AUS and salvage radiotherapy.

Methods: We compared 2 differently collected datasets; a prospectively collected pre-op and 1yr post-surgery (LRP) group and also postal PROM questionnaires for patients who underwent AUS or salvage radiotherapy from 2011 – 18. ICIQ-UI SF, EPIC-26, Decision regret and EQ5D5L were used.

SPSS was used to assess for distribution of data before appropriate statistical testing used to assess for statistical significance. Mean clinical identifiable differences (MCID) for EPIC-26 were used for "clinical" differences.

Results: 429 patients (169 pre-op, 168 1yr post-op, 45 post AUS, 47 post salvage RT) completed questionnaires. Table 1 shows that patients in the AUS group had the lowest PROM outcomes, however, there was no clinical difference in incontinence between the AUS group and post LRP group. The continence PROMs for patients receiving salvage radiotherapy were good with no statistical differences between this group and post-LRP group. There was a significantly and clinically lower bowel quality of life.

P10-10 Table 1.

PROM	AUS group	Salvage Radiotherapy group	Pre-LRP group	1year post LRP group	Statistical significance * (MICD)
Mean ICIQ (range)	9.4 (0-21)	7.0 (0-20)	2.3 (0-18)	7.4 (0-21)	0.08
Mean EPIC-UI (range)	54.5 (0-100)	62.8 (8-100)	86.8 (8-100)	60.1 (0-100)	0.06
Mean EPIC-UO (range)	83.2 (44 -100)	87.9 (8 – 100)	81.8 (19-100)	90.6 (19-100)	0.02
Mean EPIC-Bowel (range)	83.7 (29-100)	89.4 (29-100)	92 (25-100)	94.2 (0-100)	<0.001
Mean EPIC-Sexual (range)	11.9 (0 – 63)	18.9 (0-95)	57.4 (0-100)	17.2 (0-83)	0.15
Mean EPIC-Hormonal (range)	85.3 (25 – 100)	85.2 (20-100)	89.4 (15-100)	88.2 (20-100)	0.67
Mean EQ5D5L health score (range)	71.1 (15 -100)	79.6 (40-100)	79.9 (10-100)	80.1 (20-100)	0.02
Mean Decision Regret score (range)	26.4 (0-100)	22.6 (0-80)	14.1 (0 – 50)	14.7 (0-100)	0.003

*- Kruskal Wallis test of 1yr post LRP group, AUS groups and salvage radiotherapy group.

Conclusion: Patients requiring secondary treatments following surgery for prostate cancer do not suffer worse incontinence quality of life, however, do have a significantly higher decision regret and lower quality of life for bowel and obstructive symptoms in comparison to those not requiring secondary treatments.

P10-11 Late genitourinary toxicity following curative intent intensity-modulated radiotherapy for prostate cancer: A systematic review

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Introduction: The aim of this systematic review is to assess the incidence of late genitourinary toxicity following curative intent intensity modulated radiotherapy (IMRT) in patients with localised prostate cancer, as recorded by institutions and reported in Patient Reported Outcome Measures.
Methods: We conducted a systematic literature search of MEDLINE, EMBASE and Cochrane from January 2008 to January 2019 following PRISMA guidelines. Published prospective studies measuring post-IMRT genitourinary adverse events in localised prostate cancer with a 60-month endpoint were included. The Radiation Therapy Oncology Group (RTOG) and National Cancer Institute Common Terminology Criteria for Adverse Events (CTCAE) scoring systems were included. Two reviewers independently assessed risk of bias. The study is registered in PROSPERO: CRD42019133320.
Results: Of 4720 identified studies, five met our inclusion criteria with a total of 4671 patients. We identified 1001 RTOG Grade ⩾2 complications with a cumulative incidence of 19% (95% CI 6-32, random effects model) at 60-months of follow-up. There were 153 CTCAE Grade ⩾2 complications (33%), Haematuria 69 (4%, 95% CI 0.7-7.5%), Urinary incontinence 194 (10%, 95% CI 8.9-12.6 %), Urinary retention 10 (24%). One study reported time to event analyses, one reported predictive factors and no studies reported economic analysis. There was considerable heterogeneity amongst the studies, but this varied with outcome (I2 95 %-0%).
Conclusion: Late genitourinary toxicity as defined as 60-month following IMRT is common. Urologists are likely to face a growing burden of care from these difficult to cure complications. This data may lead to better patient counselling.

P10-12 The importance of lymph node location, burden and treatment outcome in metastatic (M1) Hormone-Sensitive Prostate Cancer (HSPC): Analysis from the STAMPEDE trial Arms A and C

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Introduction: Current metastatic burden definitions, which are critical to treatment decision making, don't account for lymph node metastasis (LNM) location, size or number. Consequently, metastasis directed trials and choice of therapy varies widely. We will report a comprehensive analysis of cross-sectional baseline staging scans, with LNM status, correlated with clinical outcome in metastatic (M1) patients from STAMPEDE to enable appropriate treatment for men with this condition.
Methods: 1086 M1 patients randomised to Arms A or C between October 2005 and March 2013 were eligible. Detailed LNM evaluation was performed using the Royal College of Radiology lymph node diagnostic criteria for cross-sectional imaging (CT/MRI). Scans were reviewed centrally by two experienced readers. LN number and size were annotated in regional (obturator, external iliac, internal iliac and sacral) and non-regional (common iliac, retroperitoneal, mediastinal) areas. Findings were correlated with long-term clinical outcome after treatment.
Results: LNM distribution was evaluable for 629 men (median age 66, median PSA 115 ng/ml): 307 had lymphadenopathy. Of these, 178 had non-regional LNM (median node number 4, median maximum size 2.1 cm (range 1 to 8.1) and minimum size 1.2 cm (range 0.9 to 3.9). Following regional assessment, obturator LN disease was the most common (203 men), followed by internal (133) and external iliac (117) nodes. For non-regional LNM, 87 patients had both common iliac and retroperitoneal LN disease.
Conclusion: The data linked to STAMPEDE's treatment outcome will refine existing metastatic burden criteria, thereby improving treatment decision making in men with M1 prostate cancer.

ePoster Session 11: Management, Governance, Education and Quality Improvement

P11-1 Referral to treatment (RTT) pathway and clinicians' awareness – how small a change in practice can make a big difference!

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Introduction: As per the Referral to Treatment (RTT) pathway a NHS Trust is supposed to start treatment within 18-weeks of receiving a routine, non-urgent referral. Failure of this target not only leads to financial compensation, it also has a negative impact on the trust's performance.
Methods: We analyzed the cases which either breached or were about to breach 18-weeks target. We then developed a questionnaire containing potentially avoidable ten real clinical situations and requested all the clinicians in urology department to mark the outcome for each situation. Subsequently, the situations were discussed and clinicians were made aware of the appropriate responses. After a gap of one month the clinicians were given the same questionnaire to fill up to ensure that they remember things rightly and are willing to change their practice.
Results: In the first cycle (17 clinicians) the options "sending the patient for investigation" and "add to waiting list" were selected inappropriately in quite a few situations which would keep the pathway open and could potentially lead to 18-weeks breach. In addition, multiple outcomes were selected by some clinicians for a given situation which should not be the case. However, in the second cycle (15 clinicians) all of them selected only one outcome per situation without choosing any inappropriate option. Subsequent review showed reduction in the number of patients breaching 18-weeks target.
Conclusion: Clinicians should understand the basics of RTT pathway and choose the proper code in clinic to help their trust to minimize 18-weeks breach.

P11-2 Meeting the 28-day faster diagnosis standard - Rapid Access Prostate Imaging and Diagnosis (RAPID) compared to a standard pathway

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Introduction and Objective: The new 28-day Faster Diagnosis Standard (FSD) may present a challenge for prostate cancer. We compare the outcomes of Rapid Access Prostate Imaging and Diagnosis (RAPID) pathway to a standard pathway.
Methods: RAPID included 994 men with 267 in the standard pathway (04/2017-12/2019). Men referred into the RAPID pathway were booked for a mpMRI followed by a consultation on the same day. A transperineal prostate biopsy (TP-Bx) was offered if the MRI score was 4 or 5, or a score of 3 with PSA-density >/=0.12, usually on the same day. Men not suitable for RAPID followed a standard pathway with a consultation first. Comparisons were made with Mann-Whitney U Tests.
Results: Median age was 66 years [IQR 60-72] and PSA 7 [IQR 0.1-286] in RAPID compared to 80 years [IQR 39-98] and PSA 9.2 [IQR 0.3-4730] for the standard pathway with 100% (994/994) and 60% (161/267) having a mpMRI. The median time from referral to mpMRI was

significantly shorter for RAPID; 10 days (IQR 7-13) vs. 42 days (IQR 10-403) (p=0.02). In RAPID, 42.2% (420/994) had a non-suspicious mpMRI and did not require TP-Bx; of those having an mpMRI in the standard pathway 54.6% (88/161) had TP-Bx with 45% (40/88) having biopsy without mpMRI due to high clinical suspicion (total 32.9% (88/267) had TP-Bx).
Conclusions: The RAPID pathway provides a fast-access, streamlined approach to meet the new 28-day faster cancer diagnosis national target.

P11-3 Five-year outcomes of suspected prostate cancer referrals seen in a nurse led clinic

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Introduction and Objectives: Implementation of best practice pathways for suspected prostate cancer is a challenge for NHS Trusts. Locally, suspected prostate cancer referrals rose by 39% from 2014 to 2018. Streamlining of services is essential to achieve diagnostic targets. An analysis of the feasibility of discharging patients with a normal age-related PSA measurement on repeat testing or an MRI reported as PI-RADS $\leqslant$2 (P$\leqslant$2) was performed.
Methods: A retrospective audit of patients seen in the Advanced Nurse Practitioner led suspected prostate cancer clinic over a five-year period was undertaken. Patients with no history of prostate cancer and who did not undergo prostate biopsy at first referral were included in audit analysis.
Results: Between 2014-2019, 2393 patients were seen in the nurse led clinic. 953 patients fulfilled the audit inclusion criteria. 361 (37.8%) patients were discharged to primary care. 272 (28.5%) patients had a normal age-related PSA on repeat testing. 6 (1.6%) of the discharged patients were subsequently found to have a clinically significant prostate cancer (Gleason $\geqslant$3+4). Mean re-referral time of 22 months. 96 (10%) patients were discharged without biopsy following an MRI P$\leqslant$2 and no cancer has subsequently been found to date. 90 patients discharged to primary care with specific advice for PSA follow up had no subsequent PSA testing.
Conclusion: Adopting referral criteria of two raised PSA blood tests and discharging patients with MRI P$\leqslant$2 may help achieve best practice pathway targets, whilst minimising risk of missing clinically significant prostate cancer.

P11-4 The role of Physician Associates in urology: Experience from a Tertiary Centre in the UK

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Introduction: The Urology workforce in the UK has undergone significant changes in the last decade. More recently, we have witnessed the introduction of Physician Associate (PA) posts in secondary care. In 2019 our unit recruited PAs to work alongside junior doctors and urology nurse practitioners. We present herein an overview of our department's experience.
Methods: Over a period of 10 months, data were collected from PAs' job plans and electronic theatre diaries to compile a summary of their activities. With PAs' consent written feedback was extracted from Multi-Source Feedback (MSF) questionnaires used for their appraisal.
Results: The PAs' job plans were structured to broaden their experience in general urology as well as expanding their technical skills in agreed domains (outpatient diagnostic procedures and bedside assisting for robotic and other minimally invasive surgery). Tables 1 and 2 show summaries of their final job plans and operating logbooks respectively. In a relatively short period of time, PAs participated in over 150 robotic procedures as first assistant and performed just over 500 flexible cystoscopies. The average rating on MSF questionnaires was "good" to "outstanding" and none of the 30 respondents had concerns.

P11-4 Table 1. PA Timetable.

PA 1	AM	PM
Mon	Flexi	Flexi
Tue	On call	On call
Wed	Day off	Day off
Thu	Flexi	Theatre
Fri	Theatre	Flexi
PA 2	**AM**	**PM**
Mon	Theatre	Theatre
Tue	Day off	Day off
Wed	On call	On call
Thu	Theatre	Flexi
Fri	Theatre	Theatre
PA 3	**AM**	**PM**
Mon	MDT	Flexi
Tue	PSA	PSA
Wed	Theatre	LATP
Thu	On call	On call
Fri	Day off	Day off

P11-4 Table 2. Procedure numbers.

Procedure	Total
Supervised flexible cystoscopy	269
Independent flexible cystoscopy	296
Robotic-assisted prostatectomy	80
Robotic-assisted partial nephrectomy	43
Robotic-assisted cystectomy	33
Laparoscopic nephrectomy	21
Laparoscopic nephroureterectomy	10
Adrenalectomy	5
Penile cancer surgery (biopsy, glansectomy etc.)	20
Observed LATP biopsies	36
Supervised LATP biopsies	17

*LATP: Local anaesthetic transperineal prostate.

Conclusion: In our opinion, PAs are a valuable addition to the urology workforce with adaptable skills that could be tailored to meet the demand of the workplace. PAs have enhanced our unit's performance and facilitated better surgical training for our junior medical staff.

P11-5 A review of urological training, how many procedures are required to gain competency in core urological procedures?

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Background: Indicative numbers and competencies in 18 key procedures are required for UK urological trainees to gain a certificate of completion of training (CCT). This study aims to establish how indicative numbers relate to achievement of required competency.
Methods: ISCP records and elogbooks all trainees (n=109) in their final year of training in May 2019 were reviewed, recording the year in which the required indicative numbers and competencies were achieved.
Results: The median percentage of procedures completed at the time trainees achieved level 4 competency varied from 84% for TURPs to 300% for inguinal orchidectomies. For level 1 or 2 procedures, the median percentage of procedures completed at the time trainees achieved the required competency varied from 40% for PCNL and female procedures to 235% for ileal conduit. Several procedures required more numbers to achieve the required competency, which include inguinal orchidectomy, ureteroscopy and ileal conduit. For female, paediatric and PCNL, trainees appear to become competent some time before they complete their indicative numbers.

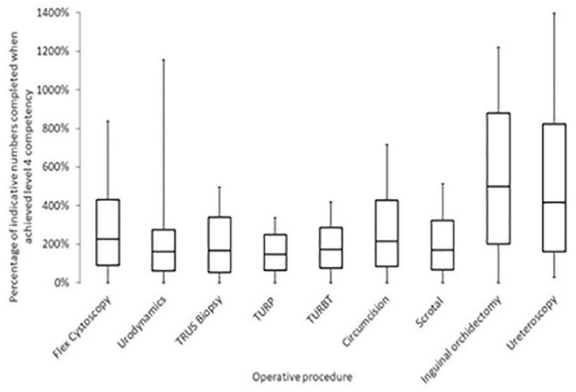

Figure 1. The median, interquartile range and range for the percentage of procedures completed before trainees reached the required competency for level 4 procedures

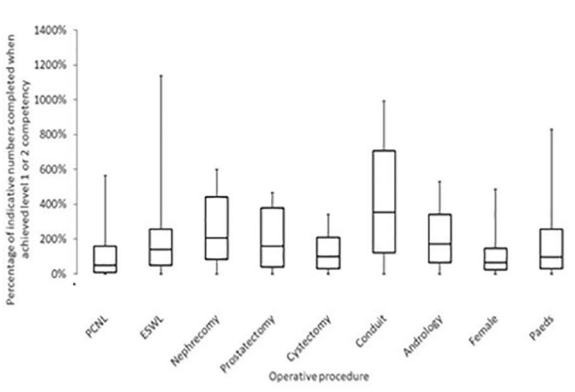

Figure 2. The median, interquartile range and range for the percentage of procedures completed before trainees reached the required competency for leve 1-2 procedures

P11-5 Figures.

Conclusion: The median urological trainee achieves a required competency for most procedures when they have completed their indicative numbers. However, there is a vast range and many trainees reach competency without reaching an indicative number whereas others had not reached required level competency despite achieving the indicative target. While indicative numbers demonstrate exposure to a procedure, a competency-based system may offer a better indication of surgical ability.

P11-6 Establishing a national cadaveric emergency urology course to increase trainee preparedness for independent on-call practice in the United Kingdom

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Introduction: Level 4 competence across a range of emergency cases is required for certification in urology in the UK. Given many of these conditions are uncommon, exposure during training may be limited. This prospective study sought to evaluate the effectiveness of a standardised cadaveric emergency urology simulation course aimed at addressing this current training deficit.
Materials and Methods: 104 delegates undertook one of seven two-day BAUS supported emergency urology cadaveric courses held at two pilot centres, comprising hands-on operating using fresh frozen cadavers and case based discussions. Delegates were invited to complete pre- and post-course questionnaires relating to operative experience and confidence in performing specific emergency procedures independently. Primary outcome was a self-reported 'confidence score' for each procedure covered.
Results: Response rates for pre- and post-course surveys were 81.7% and 64.4% respectively, with 58.7% completing both. Respondents ranged from FY2 to Locum Consultant, with the greatest proportion being ST5-7 Speciality Trainees (36.5%). Respondents reported no pre-course experience in packing of a transurethral resection cavity and emergency nephrectomy (median 0 cases), and very limited experience in the surgical management of ureteric injuries (median of 1 case for both end-to-end anastomotic repair and reimplantation). ISCP competency level was not documented for the majority of evaluated procedures. Following course completion, a statistically significant increase in confidence score was observed for each index procedure ($p<0.001$ for all comparisons).
Conclusions: A standardised cadaveric simulation course can improve exposure to and trainee confidence in performing a wide range of emergency procedures in the GMC Urology curriculum.

P11-7 Urology boot camp for medical students: Improving the knowledge and skills of tomorrow's doctors

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Introduction: Almost all doctors will encounter patients with urological pathology during their careers. Despite this, exposure to urology as a student is limited, resulting in junior doctors often feeling underprepared for dealing with urological problems. We therefore established a one-day urology teaching course which covered the entire BAUS curriculum.
Method: Graduates of a large teaching hospital undertook a survey regarding their practical skills and knowledge in urology (n=20). This was compared to students that underwent the boot camp and completed the same survey (n=23).
Results: Of the graduates, 40% felt that they knew most of the curriculum and 0% knew the entire curriculum. In the post-boot camp student cohort this increased to 78% and 9% respectively. 40% felt 'mostly prepared' for final examinations, which increased to 70%. 35% felt that their knowledge was 'good', increasing to 48% with a further 13% feeling it was 'excellent'. 0% were 'very confident' in examination skills, which increased to 22%, an additional 48% felt 'moderately confident'. In addition, 30% of students felt that the boot camp helped to prepare them for medical finals, a further 70% agreed and felt that as a result they were better prepared for being a doctor. All course candidates felt that the course increased their knowledge and skills in Urology.
Conclusion: This urology boot camp improves medical students' skills and knowledge, better preparing them for medical school examinations and foundation years. We feel that this course would benefit all medical students, providing comprehensive and standardised undergraduate training in Urology.

P11-8 Investigating the effectiveness of Shared Medical Appointments (SMA) for prostate cancer survivors after robotic surgical treatment

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Introduction: Shared medical appointments (SMA) in some cancer survivors have shown to be effective with high satisfaction rates. Robotic assisted laparoscopic prostatectomy (RALP) for localised prostate cancer can lead to embarrassing side effects including erectile dysfunction and urinary incontinence. We aimed to assess whether SMAs were appropriate in managing post-RALP side effects.
Materials and Methods: A prospective study was performed at a tertiary hospital in London (United Kingdom). After a new prostate cancer survivorship pathway was implemented, patients were referred to a post-RALP SMA. Questionnaire results were analysed to assess overall acceptability. Subgroup analysis on age and ethnicity was performed to identify variations of acceptability.
Results: A total of 223 patients completed post SMA questionnaires. 222 patients (95.6%) were satisfied with the post-RALP SMA and 215 (96.4%) felt comfortable speaking in the group setting. 218 (97.8%) were confident in managing the side effects after the SMA. Age subgroup analysis showed no statistical significance. In the ethnicity subgroup analysis, more Black, Asian and minority ethnic (BAME) patients felt the seminar provided too much information (13.6% vs 1.6%, $p<0.01$) and preferred individual appointments (17.3% vs 5.5%, $p<0.01$). Furthermore, 12.3% BAME vs 0% Caucasian patients ($p<0.001$) would prefer three separate appointments for the same information.

P11-8 Table 1. Overall post SMA questionnaire results.

	Definitely yes n (%)	Yes n (%)	Unsure n (%)	No n (%)	Definitely no n (%)	No answer n (%)
Were you confident before this clinic in dealing with issues that might arise following treatment?	61 (27.4)	89 (39.9)	65 (29.1)	7 (3.1)	1 (0.4)	–
Were you satisfied with today's seminar?	151 (67.7)	71 (31.8)	1 (0.4)	–	–	–
Was there too much information in today's seminar?	7 (3.1)	7 (3.1)	6 (2.7)	157 (70.4)	46 (20.6)	–
After this seminar do you feel more confident in coping with your recovery after treatment?	95 (42.6)	123 (55.2)	3 (1.3)	–	–	2 (0.9)
Would you have preferred individual appointments to discuss all of today's issues?	3 (1.3)	20 (9.0)	15 (6.7)	165 (74.0)	19 (8.5)	1 (0.4)
Would you rather attend 3 separate clinic appointments to receive the same information as this 1 seminar today?	2 (0.9)	9 (4.0)	11 (4.9)	150 (67.3)	49 (22.0)	2 (0.9)
Did you feel comfortable asking any questions in a group setting?	95 (42.6)	120 (53.8)	4 (1.8)	4 (1.8)	–	–

Conclusions: Patients are comfortable asking questions and had high satisfaction rates with post-RALP SMA. Some BAME patients felt too much information was provided, and a few would prefer individual appointments and separate consultations. Providing patient choice between post-RALP SMA or individual appointments would ensure maximal benefit and support.

P11-9 Chairport - a same day discharge innovation permitting high flow during times of bed occupancy pressures

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Introduction: Discharging elective post-operative patients on the same day can be clinically safe and improve flow through hospital. Routine length of stay may be an index of high-quality care reflected by GIRFT. Within our organisation we have introduced Chairport – a mechanism of same day discharge based on co-morbidity, social circumstances and procedure, with criteria-based nurse delivered discharge from the 9 chair unit that cannot be used for inpatient or acute admissions.
Material and Methods: Chairport is run by a Registered Nurse and a Nursing Auxiliary. A prospective review of Chairport utilisation was undertaken between 2017-19. We have evaluated patient acceptability and identified which cases have been best suited to this novel mechanism. Patient experience feedback was also collected.
Results: Prospective data were collected over a 22-month period. 1042 patients underwent Urological surgery and were recovered and discharged from the Chairport. The procedures included 334 transperineal biopsies, 141 circumcisions, 88 ureteroscopies, as well as most cystoscopic and peno-scrotal operations.
The age range was 16-93. 35% of all Urological cases are now discharged via Chairport rather than a day-case bed. 92.7% of patients were ASA 1 or 2. Feedback from both patients and their relatives has been universally excellent.
Conclusion: Chairport is a popular and viable mechanism of same-day discharge for the majority of day-case procedures. It does not impact on bed-occupancy, permitting continued elective surgical care even at times of high bed-occupancy due to non-elective admissions. We recommend this mechanism for consideration and adoption.

P11-10 Variations in clinical commissioning of circumcision surgery in England – are there equal standards of care for patients?

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Introduction: Circumcision is the most commonly performed surgical procedure globally. In the UK, Circumcision has been classified as "a procedure of low clinical value" (PLCV) by NHS England allowing individual clinical Commissioning groups (CCGs) to produce their own policies and criteria for funding. This study analyses the variation in CCG indications and policy for circumcision surgery across England using BAUS guidance as the gold standard.
Methods & Materials: Each of the 195 CCGs website was accessed to review their published policy on the medical indications for circumcision funding. A freedom

of information (FOI) request was sent where data was unavailable for public view.

Results: 162/195 CCGs supplied data for the study (5/195 CCG's had no documented policy, 26/195 did not respond to the FOI request). 47/162 (29%) CCGs had the same indications (n=7) for circumcision funding as BAUS guidelines (range; 0-10 indications). The most common indications were pathological phimosis and Balanitis/Balanoposthitis (n=162 & 155 respectively). The least common indications were the inability to retract foreskin (n=9) and UTI prevention secondary to long-term catheter (n=6), neither of which are recommended indications by BAUS. 33/162 required conservative measures for at least 3 months before consideration for funding and 13/162 required prior CCG panel approval for funding for all indications.

Conclusions: BAUS have clear guidance on the current evidence-based indications for circumcision however, this is frequently overlooked by individual CCGs. This has resulted in unequal and inequitable access to surgery dependent on geographic location, creating a postcode lottery for this urological procedure.

P11-11 National implementation of an evidence-based, stakeholder-driven national Quality Improvement Programme: an update

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Background: A well-designed Quality Improvement (QI) programme is essential in an effective healthcare system. However, QI implementation remains fragmented within UK surgical specialties. In 2016 we developed the 'Education in Quality Improvement Programme' (EQUIP) for Urology training programme. Here we demonstrate how to achieve national implementation of EQUIP using a stakeholder-driven Theory-of-Change (ToC) methodology.

Methods: The ToC received multidisciplinary stakeholder input (i.e. Urology staff, patients, managers, educators, charity funders, national curriculum and society leads, and improvement science experts); Development Phase: national needs assessment and reviews of QI education in surgery informed draft ToC; Review Phase: draft ToC was reviewed in a multidisciplinary workshop (N=10) and semi-structured interviews with stakeholders (N=6); Refinement Phase: ToC was refined further in final workshop (N=10) and senior stakeholder interviews (N=4). All data were recorded and analysed using the Framework Method.

Results: There is a lack of robust QI training and standard of delivery in the current Urological curriculum. There is a need to develop an evidence-based, user-informed QI training capacity with multi-disciplinary cooperation and committed leadership. We identified the detailed inputs, activities and enablers needed to achieve this (figure 1). The British Association of Urological Surgeons was identified as the key specialty organisation that could drive the national implementation of EQUIP e.g. establishing QI platform and regional QI champions (figure 1).

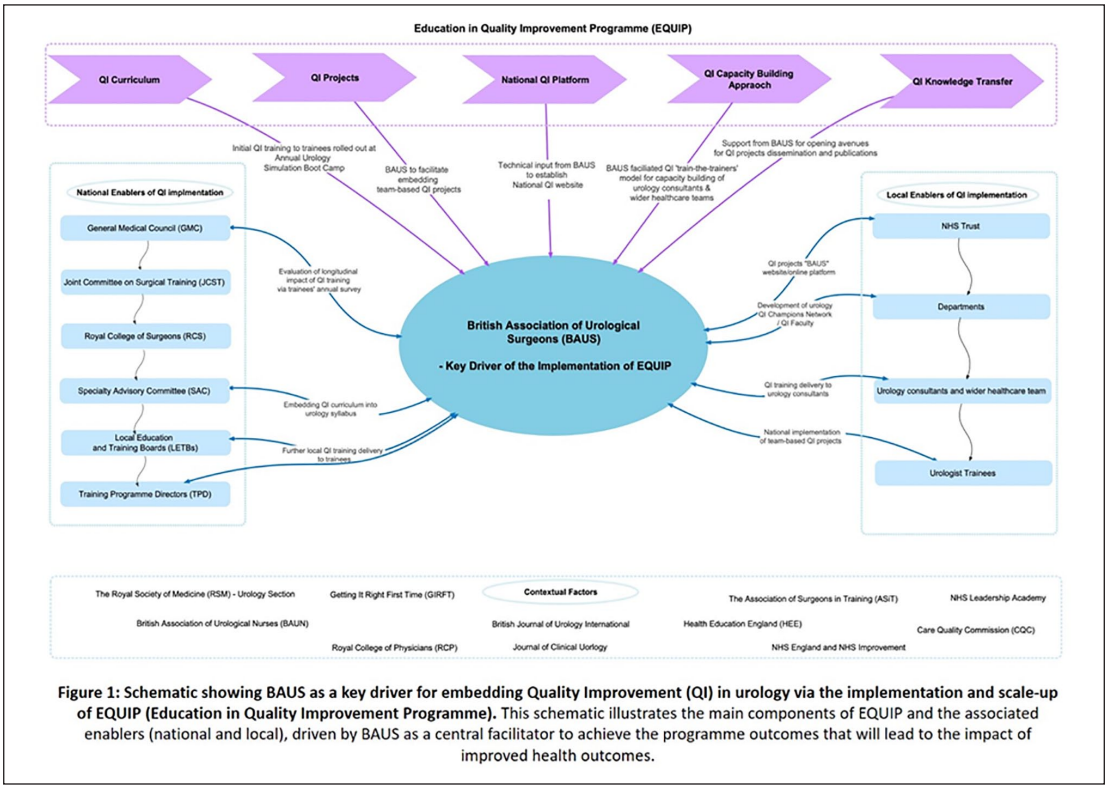

Figure 1: Schematic showing BAUS as a key driver for embedding Quality Improvement (QI) in urology via the implementation and scale-up of EQUIP (Education in Quality Improvement Programme). This schematic illustrates the main components of EQUIP and the associated enablers (national and local), driven by BAUS as a central facilitator to achieve the programme outcomes that will lead to the impact of improved health outcomes.

P11-11 Figure 1.

Conclusion: Using standardised ToC methodology, we developed a clear evidence-based strategy, driven by key stakeholders, to implement a nationally scalable QI programme. This can achieve educational impact and positive system change in Urology services.

P11-12 Real world financial benefits of outpatient bladder cancer management using a dual-diode laser

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Introduction: Bladder cancer is the eleventh most common cancer with over 40,000 cases treated per year in the UK. TURBT remains the gold standard, however outpatient based transurethral laser ablation (TULA) has similar outcomes in low/intermediate grade disease in select cohorts. We analysed the financial benefit for patients treated to date.
Methods: A prospective database of all patients undergoing TULA from 3 NHS Trusts was reviewed. Potential benefit between TULA and TURBT was made analysing tariffs, bed days and opportunity costs.
Results: Between 2014-2019, 475 patients underwent 990 TULA procedures. The 2016/17 tariff for TURBT was £1608 compared to £979 for TULA, resulting in a £622,710 saving to the CCGs. TURBT is often loss leading for a Trust. Average procedure times were TURBT (90 min) and TULA (30min). With the average hourly cost of theatre time estimated at £940 this potentially has saved Trusts £1,395,900 and cleared 124 operative days (based on 8 cases/day). All TULA cases were outpatient based with no admissions. National TURBT average length of stay is 1.6 days thus saving up to 760 bed days. Each day costing £222, equating to a £351,648 saving. Costs of TULA need to be offset against this and are £108/hr (8 cases/session £432) overall costing £53,568 across the 990 procedures.
Conclusion: Along with patient benefits, the financial benefit of TULA is multifaceted. Resulting in savings for NHS Trusts/CCGs whilst alleviating bed pressures and 'creating' theatre capacity.

ePoster Session 12: Bladder Cancer Diagnosis and Treatment

P12-1 Development and validation of a next-generation sequencing panel for the non-invasive detection of urothelial bladder cancer utilising common somatic mutations in urine DNA

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Background: Next generation sequencing (NGS) of urine DNA may enable reliable non-invasive detection of urothelial bladder cancer (UBC).
Objectives: 1) To develop a panel of somatic mutations for detection of UBC, 2) to optimise methodology to generate a non-invasive detection test, and 3) to prospectively assess the panel in haematuria and surveillance clinic patients.
Methods: A panel of mutations was developed and tested with DNA from 956 UBCs using multiplex-PCR NGS. The utility of the panel for non-invasive UBC detection was refined using a "training set" of urine pellet DNAs from 403 incident UBC patients and 102 UBC-free control subjects. The panel was then tested using two "test sets" of urine pellet DNAs from >400 haematuria clinic patients and >400 surveillance clinic patients. We also evaluated the advantages of capture-based library preparation incorporating unique molecular identifiers (UMIs).
Results: We have developed a panel of 451 mutations in 23 genes that are suitable for UBC detection. In the training set we obtain 85% sensitivity (95% CI 81-88%) at 90% specificity (83-95%) based on multiplex-PCR NGS data. Test set performance based on multiplex-PCR NGS data will be reported. Inclusion of non-coding mutation hotspots in 5 additional genes improves sensitivity and the evaluation of UMIs shows successful noise suppression and improved mutation detection leading to higher sensitivity and specificity.
Conclusions: Multiplex-PCR NGS analysis of urine pellet DNA achieves UBC detection at sensitivity and specificity that approaches clinical utility; improved library preparation incorporating UMIs improves performance further.

P12-2 The role of URO17™ biomarker to enhance diagnosis of urothelial cancer – First UK pilot data

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Introduction & Objectives: We evaluate the diagnostic accuracy and sensitivity of URO17™ (Oncoprotein Keratin 17) urinary biomarker for the detection of urothelial cancer in a prospective blinded validation study. This is first data from the UK.
Materials & Methods: After receiving both local and national ethics/protocol approval, 115 patients were consented and recruited into the study. All patients were scheduled to undergo cystoscopic investigations. 22

patients were excluded for reasons such as biopsies not being taken and catheters being in situ.
Results: The full cohort consisted of 93 participants, 65 males and 28 females, with an average age of 71.3. 49% (46) were known to have previously had a diagnosis of a urothelial malignancy. The malignancies detected included both muscle-invasive and non-muscle invasive tumours, and tumours of all grades and carcinoma in situ. URO17™ was shown in the full cohort (n=93) to have an overall sensitivity of 100% and a specificity of 60.9%. In the sub analysis for new patients undergoing investigation had a sensitivity of 100% and specificity of 89%,with a negative predictive value of 1 and a positive predictive value of 0.933.
Conclusions: URO17™ urine immunostaining can accurately exclude urothelial malignancy with minimal requirements and will indicate patients that should be thoroughly investigated. While this would not replace cystoscopy as the gold standard, and histological analysis is still required for staging. URO17™ is an effective adjunct that may help reduced the number of unnecessary cystoscopies. URO17™ was positive in every case of bladder cancer and no cases were found if there was a negative URO17™ result.

P12-3 Patient satisfaction in bladder cancer: a data linkage study from the National Cancer Patient Experience Survey (NCPES)

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Analysis of the National Cancer Patient Experience Survey has until now lacked detailed analysis of patients with bladder cancer.
The National Cancer Registration and Analysis Service provided anonymised individual patient data from patients with bladder cancer from the 2015 NCPES linked by NHS number to the national radiotherapy and chemotherapy databases and Hospital Episode Statistics. NCPES contains 99 questions therefore these were grouped into themes including quality of life, activities of daily living, symptoms, psychological impact and body image. 673 patients with bladder cancer submitted a response to NCPES. 75% were male, 63% were under 75 years, only 9.8% were current smokers although 51% were ex-smokers. 62% had a long-term health condition (LHC), 22% performed a caring role and 20% had a stoma. 92% of patients had transitional cell carcinoma, 67% were grade 3. 16% were treated with systemic chemotherapy and 6% had intravesical chemotherapy. 16% were treated with cystectomy and 12% with radiotherapy, predominantly with curative intent. The following statistical differences were found: Worse quality of life in smokers, carers and those with LHC. There was a greater impact on activities of daily living among older patients, carers and those with LHC. Men, older patients and those with LHC had worse symptoms. Smokers and those with long term health conditions experienced the greatest psychological impact. Body image was worse in those with LHC. There are major quality of life impacts in bladder cancer patients but these vary depending on the quality of life metric and patient characteristics.

P12-4 Exploring patients' experience and perception of being diagnosed with bladder cancer: a mixed methods approach

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Background: We determined patient experience and perception following a diagnosis of non-muscle invasive bladder cancer (NMIBC) using a mixed methods approach.
Methods: Patients were part of a prospective multi-centre observational study recruiting patients with NMIBC for a biomarker study (DETECT II; ClinicalTrials.gov: NCT02781428). A mix methods approach comprising 1) the Brief Illness Perception Questionnaire (Brief IPQ) and 2) semi-structured interviews to explore patients' experience of haematuria, initial and subsequent experience with NMIBC diagnosis.
Results: 213 patients completed the Brief IPQ. Patients felt that they had minimal symptoms (median [IQR]: 2[0-5]) and were not particularly affected emotionally (3[1-6]) with a minimal effect to their life (2[0-5]). They remained concerned about their cancer diagnosis (5[3-8]) and felt little personal control over the cancer (2[2-5]) and believed that their illness would continue (6[3-10]). A significant association with a lower personal control of disease ($p<0.05$) and a poorer understanding of cancer management ($p<0.05$) was observed in patients >70 years. Qualitative analysis report that at initial haematuria presentation, most patients were unaware of the risk of NMIBC. Patients were most anxious and psychologically affected between the interval of cystoscopy diagnosis and transurethral resection (TUR). Following TUR, most patients were positive about their cancer prognosis.
Conclusion: NMIBC patients, particularly elderly patients, have a poor perception of disease control and believe that their disease will continue over a prolonged period of time. Psychological support and prompt TUR following bladder cancer diagnosis would help improve the mental health of patients with NMIBC.

P12-5 Risk factors associated with urinary tract cancer in patients referred with haematuria: Results from the IDENTIFY collaborative study

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Introduction: IDENTIFY is the largest global, prospective, observational study on patients referred to secondary care with haematuria. We aimed to determine clinical risk factors for bladder (BC) and upper urothelial tract cancer (UTUC). **Patients & Methods:** Data was collected on patients referred to secondary care with newly suspected urinary tract cancer. Multilevel logistic models were used to assess established clinical risk factors for all cancers, then additional less-established risk factors for BC and UTUC. **Results:** There were 11,059 patients from 110 institutions in 26 countries. The prevalence rates of cancers were: BC 17.9% (n= 1951), UTUC 1.17% (n=128), RCC 0.98% (n=107), prostate cancer 1.14% (n=124). Our model showed that established clinical risk factors: visible haematuria (OR 3.4, CI 2.8-4.0, $p<0.001$), male sex (OR 1.3, CI 1.2-1.5, $p<0.001$), increasing age (OR 1.04, CI 1.03-1.05, $p<0.001$) and smoking history (OR 2.1, CI 1.9-2.4, $p<0.001$) were independently associated with a urinary tract cancer diagnosis. Table 1 shows the association of less established risk factors with bladder cancer. A high-risk occupation and more than one episode of haematuria were associated with an increased risk of BC. Voiding LUTs and previous haematuria investigations were associated with a reduced risk of BC. Flank pain was independently associated with UTUC (OR 3.6 CI 2.2-5.8, $p<0.001$).

P12-5 Table 1. The association of less established risk factors with bladder cancer in a multilevel mixed effect model, adjusted for age, gender, type of haematuria and smoking as fixed effects, and centre and country as random effects.

Bladder cancer risk factors	Odds ratio	(95% Confidence interval)	p value
Storage LUTs	0.94	0.49-1.81	p=0.85
Voiding LUTs	0.33	0.13-0.83	**p<0.05**
Mixed LUTs	1.21	0.51-2.87	p=0.66
Dysuria	1.26	0.71-2.22	p=0.78
High risk occupation	3.73	1.35-10.28	**p<0.05**
High risk medical drug therapy	0.55	0.07-4.43	p=0.57
High risk travel history	3.41	0.39-29.97	p=0.27
UTI at time of haematuria	0.68	0.37-1.22	p=0.19
Anticoagulation	0.77	0.42-1.41	p=0.41
Previous pelvic radiotherapy	0.3	0.03-2.60	p=0.27
FH of urothelial cancer	1.64	0.36-7.41	p=0.52
BMI	1.02	0.97-1.08	p=0.32
Previous haematuria investigation	0.35	0.14-0.88	**p<0.05**
More than one episode of visible haematuria	2.24	1.14-4.37	**p<0.05**

Conclusions: We have identified an association between previously poorly understood risk factors and the diagnosis of BC and UTUC which will be used as part of a risk calculator for cancer risk prediction and to personalise choice of investigations.

P12-6 Radical cystectomy against intra-vesical BCG immunotherapy for high risk non-muscle invasive bladder cancer: Results from the randomised controlled BRAVO-feasibility study

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Purpose: High-risk non-muscle invasive bladder cancer (NMIBC) is a heterogeneous disease. Treatments include maintenance BCG (mBCG) and Radical Cystectomy (RC).
Methods: We conducted a prospective multicentre RCT to determine the feasibility of a phase 3 trial comparing BCG with RC in BCG naïve patients. Eligible participants had new high-risk NMIBC suitable for both treatments. The primary outcome was recruited patients.
Results: Between October 2016 and March 2018, we approached 185 eligible patients and recruited 51 (27.5%). Of these, 1 withdrew and 25 were randomised to each of mBCG and RC. In the mBCG arm, 23/25 (92%) patient received mBCG, 4 had NMIBC at 6 weeks, 3 with NMIBC at 4 months and 4 received RC. At closure, 1 patient had metastatic BC. In the RC arm, 20 (80%) participants received surgery, including 5 (25%) with no tumour, 13 (65%) with high grade NMIBC (65%) and 2 (10%) with muscle invasion in their specimen. At closure, all patients were free of disease. Adverse events were common, mostly mild and equally distributed (13/20 (65.0%) with RC and 15/23 (65.2%) with mBCG). The quality of life of both arms was broadly similar by 12 months.
Conclusion: An RCT comparing mBCG and RC, using survival as an endpoint, will be challenging to recruit into. Patients will agree to be randomised if clinicians are in equipoise. Around 10% of patients with high risk NMIBC have a lethal disease and may be better treated by primary radical treatment.

P12-7 The natural history of low risk non-muscle invasive bladder cancer: a collaborative multi-centre study

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Introduction: Current NICE guidance recommends discharging patients with low risk non-muscle invasive bladder cancer (LRNMIBC) who remain free of recurrence at 1 year of follow up. This has been met with some trepidation. In this collaborative study, we set out to assess the suitability of these guidelines to patients within our regional population.
Materials & Methods: A retrospective, multi-centre study involving 6 hospitals located across Yorkshire, England. Inclusion criteria was based on the NICE definition of LRNMIBC as per the 2015 guidance. Timeline of diagnosis ranged from 01/01/2012–30/06/2016.
Results: In total, 412 patients were identified. 63.8% of the patients were graded as G2 (low-grade) pTa with the remaining 36.2% being G1pTa. Over a median follow up time of 36 months (IQR 25-50), the observed recurrence rate was 29.2%. 51.8% of patients developed their 1st recurrence beyond 1 year of surveillance. 4 patients (1%) progressed to muscle invasive disease with a further 7 (1.7%) progressing to high-risk NMIBC.
Conclusion: The overall risk of recurrence and progression was similar to that observed in the EORTC data. We noted that the majority of patients developed a recurrence beyond 1 year of surveillance which challenges the current UK NICE guidance. Between 6 to 13 cystoscopies were required to detect a single recurrence which equates to £4122 - £8931 per recurrence detected (£687 per cystoscopy - 2011 NHS tariff). This figure would need to be taken into account if current NICE guidance was to be altered in favour of a prolonged surveillance program.

P12-8 Safety and efficacy of outpatient Holmium-YAG laser ablation of non-muscle invasive bladder cancer: following up a large retrospective UK case series

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Introduction: Flexible cystoscopy and Holmium-YAG laser ablation (HoLAT) under local anaesthesia for treatment of low-grade bladder tumour recurrences has been demonstrated to be a safe, well-tolerated procedure with economic advantages. The outcomes for high grade recurrences for patients unfit for regional or general anaesthesia is less clear. This study aims to assess the long-term oncological outcome of a large single institution series of patients with low-grade and high-grade bladder tumour recurrences treated with HoLAT.
Patients and Methods: Patients were offered HoLAT if the tumour recurrence was small and/or they were unfit for regional or general anaesthesia. Patients who had their first episode of HoLAT between June 2006 and September 2013 were included. Data was extracted from patient's medical records. The primary outcomes were overall survival (OS), cancer specific survival (CSS), progression free survival (PFS) and recurrence free survival (RFS).
Results: 232 patients with 522 HoLAT procedures were included. Median age was 74. At initial diagnosis 24.1% had G1pTa, 47% G2pTa, 9.9% G3pTa, 19% T1 and 4.3% CIS. The median follow-up was 74.8 months. 18% were discharged after a recurrence free follow up duration. 52.2% had 1 HoLAT, 19.8% had 2 HoLATs, 11.2% had 3 HoLATs and 16.8% had 4 or more. At 10 years, OS was 47.4%, CSS was 94.1%, PFS was 82.1%, RFS was 15.8% (see Table 1 for subgroup analysis).

P12-8 Table 1. Long-term survival rates for patients with bladder cancer treated with Holmium:YAG laser.

	Overall Survival	Cancer-Specific Survival	Progression-Free Survival	Recurrence-Free Survival
G1Ta				
• **5-Year**	71.2%	95.9%	88.4%	39.6%
• **10-Year**	47.4%	94.1%	82.1%	15.8%
G2Ta				
• **5-Year**	75.6%	97.9%	85.0%	42.8%
• **10-Year**	45.3%	97.9%	85.0%	17.0%
G3Ta				
• **5-Year**	69.6%	95.5%	85.0%	48.8%
• **10-Year**	33.9%	95.5%	85.0%	27.4%
T1				
• **5-Year**	53.8%	88.1%	86.7%	30.2%
• **10-Year**	44.8%	80.5%	86.7%	N/A
Total cohort				
• **5-Year**	71.5%	96.0%	88.6%	40.5%
• **10-Year**	47.6%	94.2%	82.4%	15.1%

Conclusions: HoLAT for bladder tumour recurrences has an acceptable CSS and PFS for patients with small low grade tumours or those unfit for regional or general anaesthesia.

P12-9 National trends, perioperative outcomes and re-admission rates in 12625 radical cystectomies (open, laparoscopic and robotic) in England based on HES data

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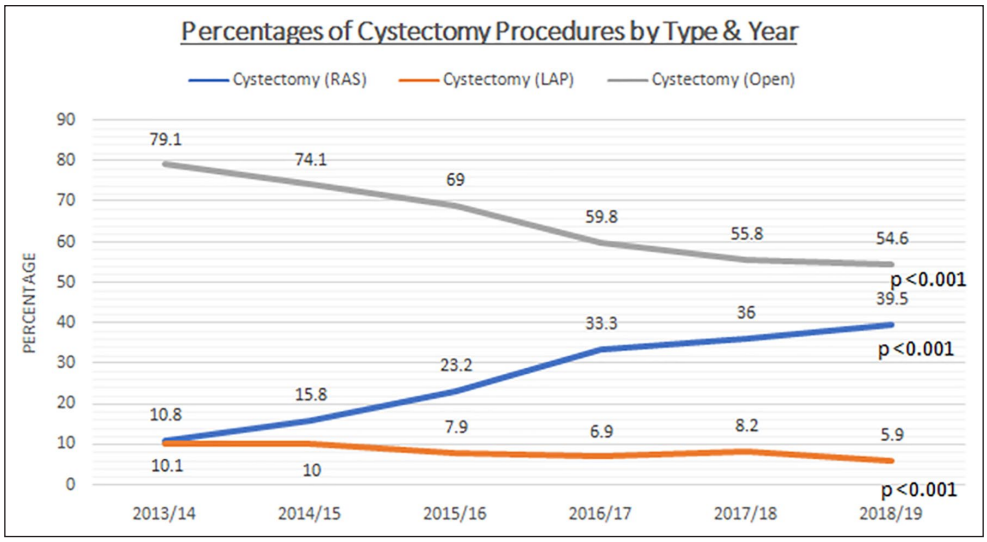
Introduction: We evaluate the data of 12625 Radical Cystectomies in England (Open, Robotic and Laparoscopic) with trends in the adaption of techniques and post-operative complications.

Methods: This analysis utilised national Hospital Episode Statistics (HES) from NHS England.

Results: There was a statistically significant increase ($p < 0.001$) in the number of Robotic assisted radical cystectomies from 10.8% in 2013-2014 and 39.5% in 2018-19[Figure 1]. The average LOS reduced from 12.3 days to 10.8 days for RARC from 2013 to 2019 similarly the LOS reduced from 16.2 to 14.3 for ORC. The rate of sepsis (0-90 days) did rise from 5% to 14.5% between 2013-14 and 2017-18 for the entire cohort($p<0.001$). Acute Renal Failure (ARF) increased over the years from 9.5 % to 17% ($p< 0.001$). The rate for fever, UTI, critical care activity and ARF were higher for ORC than RARC ($p <0.001$).The comparison of all episodes within 90 days for conduit versus non-conduit diversions showed significantly higher rates of sepsis, infections, UTI and fever in non-conduit group .Overall complications were significantly higher in non-conduit group throughout the duration except was year 2016-17($p <0.001$).The robotic approach has increased in last 5 years with nearly 40% of the cystectomies now being robotically in 2018-19 from the initial percentage of 10.8% in 2013-14



P12-9 Figure.

Conclusion: This evaluation of the HES data from NHS England for 12,625 RC confirms an increase in the adoption of Robotic Cystectomy. Our data confirms the need to develop strategies with enhanced recovery protocols and post-operative close monitoring following Radical Cystectomy in order to reduce post-operative complications.

P12-10 Benchmarking radical cystectomy – analysis of the British Association of Urological Surgeons national database

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Introduction: The BAUS complex operations database for radical cystectomy (RC) is a national repository of mandated RC data, made publicly available via the 'Clinical Outcomes Publication'. A near complete and detailed dataset exists for RC practice across England, providing contemporary benchmarking data.

Objectives: To produce comprehensive RC benchmarking data, delivering transparency for patients and a reference resource for surgeons.

Materials and Methods: BAUS manage the RC complex operations database. Surgical departments upload data describing patient, disease, surgical, pathological and outcome factors. Surgeons can review and amend their data before lockdown and data cleansing. Analysis of 2016-18 data was performed for 5,288 patients undergoing RC in England.

Results: Using Hospital episode statistics, the BAUS RC dataset was deemed 93% complete. Median patient age was 70 (IQR 62 – 75), and 75% were male. Charlson comorbidity index ⩽2 was reported in 66%. Indications included; primary treatment of muscle-invasive bladder cancer (MIBC) (44%), non-muscle invasive bladder cancer (NMIBC) (31%). Commonest disease stages were T2N0 (30%) and T1N0 (21%). RARC conversion rate was 5%. High (>60) and low (<30) annual volume centres each accounted for 29% of RCs. Post-operative histology upstaged 22% and downstaged 23%. NMIBC and MIBC were lymph node positive in 7% and 22% respectively.

P12-10 Table 1.

Surgical modality	Robotic RC		Laparoscopic RC		Open RC		Total	
	n	%	n	%	n	%	n	%
Total	2055	39%	279	5%	2830	54%	5288	-
Urinary diversion:								
Ileal conduit	1739	85%	257	92%	2305	81%	4336	82%
Orthotopic	108	5%	14	5%	134	5%	258	5%
Lymph node dissection	1665	81%	236	85%	1975	70%	3909	74%
Lymph node yield >= 16	622	30%	97	35%	751	27%	1486	28%
Transfused	75	4%	14	5%	464	16%	557	11%
Enhanced rcovery pathway	1411	69%	241	86%	1779	63%	3458	65%
Median LOS (IQR)	7 (5 - 11)		10 (7 - 14)		10 (7 - 15)		9 (6 - 14)	
Positive surgical margins:								
Total NMIBC	45	6%	8	7%	55	6%	109	6%
Total MIBC	74	8%	19	12%	120	8%	213	8%
Unplanned HDU admission	27	1.3%	11	3.9%	36	1.3%	74	1.4%
Unplanned re-admission	197	9.6%	42	15%	262	9.3%	501	9.5%
90-day mortality	37	1.8%	5	1.8%	60	2.1%	104	2.0%

Table 1. Surgical and outcome descriptors by operative modality.

Conclusions: Analysis of this comprehensive dataset offers the first set of UK national RC standards, allowing procedure, patient and disease-specific comparisons. Technology adoption and specific aspects of surgical practice are observed, including operative modality, LND and reconstruction techniques. Public facing analysis will enhance informed patient decision-making.

P12-11 Comparing the ability of wearable devices and CPET to predict major complications following radical cystectomy

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Introduction: Wearable devices (WDs) represent an inexpensive method of collecting mobility data from patients. In many centres, cardiopulmonary exercise testing (CPET) is used to risk-stratify patients undergoing RC. In this study, we compare WD-derived mobility data with CPET variables used for risk-stratification in RC.
Materials & Methods: Patients recruited for a multi-centre RCT comparing open and robotic radical cystectomy (RC) were asked to wear a wrist-worn WD for seven days at baseline for 7 consecutive days prior to RC, and step-counts were logged. Patients also underwent CPET and were considered high-risk if: anaerobic threshold (AT) <11 or VE/VCO2 $\geqslant 33$. Complications within 90 days were defined as Clavien-Dindo major (CD) $\geqslant 3$ or minor ($\leqslant 2$).
Results: 10 of 57 (17.5%) patients had major complications in the post-operative 90 days, with patients having median daily step-counts of 8,626 (IQR: 6,561-12,358). Step-counts at baseline correlated significantly with both AT and VE/VCO2 ($p=0.005$ and $p=0.002$). Step-counts were significantly different in the different risk groups ($p<0.001$). A statistically significant ($p<0.05$) association between step-counts and major complications was identified. On ROC analysis, AUC (CI) for step-counts to predict CD$\geqslant 3$ complications was 0.719 (0.537-0.901). Logistic regression identified step-counts to be a statistically significant variable ($p=0.04$) in predicting major complications, but not CPET.
Conclusions: Step-counts measured from WDs correlate strongly with CPET variables used for risk stratification and are significantly lower in the CPET high risk group. However, step-counts from WD are statistically significant predictor of major complications while CPET is not in this patient cohort.

P12-12 Robot assisted radical cystectomy in the over eighties (RCOES) – A United Kingdom multicentered study

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The risk to benefit ratio of surgical treatment of muscle-invasive bladder cancer in patients aged 80 and over has not been comprehensively quantified. Herein, we aim to compare the outcomes of Robot Assisted Radical Cystectomy between patients under and $\geqslant 80$ years. Data from eight United Kingdom tertiary referral uro-oncology centres was collated. Power calculation mandated 128 patients greater than 80 years old to detect a clinically significant difference. Between September 2010 and April 2019, a total of 147 patients $\geqslant 80$ years underwent Robot Assisted Radical Cystectomy and ileal conduit formation. These patients were compared with a comparator under 80 year old age group in the same time frame. The median age for <80 cohort was 71yrs (46-79), and 82yrs (80-88) for the $\geqslant 80$ cohort, with a male majority. The majority of patients had ASA grade of 2 or 3. In the over 80s group there were a total of 26 Clavien Dindo 3+ complications (17.7%), which was comparable to the <80 group (12.5%). There was a significant difference between the length of stay, however, between those >80 (mean 11.84 days, SD 1.9, $P<0.0001$) and those <80 years old (mean 8.03 days, SD 7.71). There was no difference in survival at early and medium-term follow-up. Favourable outcomes can be achieved in dedicated tertiary referral pelvic urooncology centres, where robotic assisted radical cystectomy in over 80 year old patients is safe and feasible in the carefully selected patient, although the length of stay may be longer.

ePoster Session 13: General Urology - Emergency & Trauma

P13-1 WITHDRAWN

P13-2 Investigation of patients with haematospermia – how common is an underlying diagnosis of cancer?

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Introduction: Haematospermia, although often found to be a benign condition in the majority of patients, can be an alarming sign for both patients and doctors. Guidelines relating to the investigating haematospermia are limited. The aim of this study was to evaluate the incidence of an underlying pathology and the value of diagnostic investigations performed in patients presenting with haematospermia.
Patients and Methods: A retrospective review of 393 consecutive men investigated for haematospermia was performed in a single centre. Patient demographics, radiological and microbiological results were all recorded together with the clinical outcomes.
Results: In this cohort, the median age was 50 years (range 15-82 years). The overall prostate cancer detection rate was 5.3% but 7.2% in the ⩾40 years group. Two further patients were diagnosed with testicular and bladder malignancy. A further 5.6% of patients were found to have a benign pathology suitable for intervention. 288 patients underwent a transrectal ultrasound scan (TRUSS) and 58.7% (n=169) of these patients were found to have a positive finding (total findings n =188). 110 patients underwent a multiparametric MRI and 73.6% (n=81) had a positive finding.
Conclusions: This is the largest reported cohort of patients investigated for haematospermia. The overall cancer detection rate was 5.9%. Apart from TRUSS and MRI prostate, the remaining investigations have a low diagnostic yield. Based on these results, we propose an algorithm for the management of haematospermia to limit unnecessary investigations.

P13-3 Ultrasound-guided Suprapubic Catheterisation (USPC): Technique, outcomes, and cost-effectiveness

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Introduction: Suprapubic catheterisation (SPC) is an alternative to transurethral catheterisation for long-term bladder drainage. The procedure is mostly performed under general anaesthesia with cystoscopic visualisation. However, ultrasound-guided suprapubic catheterisation (USPC) using local anaesthesia may be a suitable alternative. This study aims to assess clinical outcomes and cost-effectiveness of USPC in interventional radiology compared to cystoscopy-guided insertion in theatre.
Materials and Methods: A retrospective analysis was conducted of 124 USPC and 31 cystoscopy-guided procedures over a 2-year period. Technical success, clinical success, and the 30-day complication rate were compared. The cost-effectives ratio (CER=Procedural Cost/Effectiveness Index) for each method was calculated.
Results: Technical success in the USPC cohort was 94.4% compared to 93.5% with cystoscopy-guidance (p-value n.s.). Clinical success with USPC was 91.6% compared to 96.6% with cystoscopy (p-value n.s.). The rate of major complications was comparable between USPC and cystoscopy-guided insertion (10.9% vs. 17.2%; p-value n.s.). No bowel injury occurred. The rate of overall minor complications and minor urinary tract infections was significantly higher with cystoscopy (44.8% vs. 19.4%; 13.8% vs. 3.4%; $p<0.05$), although such complications may have been better detected in the cystoscopy cohort who were predominately in-patients. USPC was more cost-effective (CER=234.9) than cystoscopy-guided insertion (CER=1082.5), owing to the higher theatre associated costs with cystoscopy.
Conclusion: USPC demonstrates comparable clinical outcomes to cystoscopy-guided SPC but is considerably more cost-effective. Whilst validation of outcomes would necessitate a prospective case-controlled trial, current findings would support the use of USPC over cystoscopy as the preferred insertion technique for SPC.

P13-4 The role of cannabinoids in benign urological disease as it relates to both basic science and clinical practice: A Systematic Review

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Background: Many urological pathologies are associated with a significant symptom burden and current treatments often achieve inadequate management. However, evidence suggests that cannabinoid medications may provide a suitable alternative.
Aims: To evaluate how cannabinoids behave within the urological system and how they are currently used to treat benign urological pathologies.
Methods: This review was undertaken per PRISMA's reporting guidelines. PubMed, Ovid MEDLINE, The Cochrane Library, EMBASE, Web of Science, Mednar and OpenGrey were searched. Studies regarding cannabinoid management of benign urological diseases were included, all clinical outcomes were considered. Risk of bias was

assessed per the Cochrane Risk of Bias Tool. Quality of papers was assessed via the CASP Appraisal, CEBM and Cochrane checklists.
Results: Of the 771 papers identified, 62 were included in the final review. This review summarises several high-quality studies demonstrating the therapeutic potential of cannabinoids in the management of benign urological disease, most notably neurogenic bladder dysfunction (clinical studies), renal disease (animal studies) and interstitial cystitis (animal studies).
Conclusion: Cannabinoids show most potential in the alleviation of neuropathic pain and neurogenic bladder dysfunction. However, cannabinoids cannot currently be considered a reliable clinical alternative and must first be standardised and formulated like other pharmaceutical agents.

P13-5 Are adults just big kids? A collaborative approach to the management of vesicoureteric reflux in adults: A case series and systematic review

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Introduction: Vesicoureteric reflux (VUR) is common within the paediatric population. It occurs within less than 4.4% of adults and does not display the same rate of spontaneous resolution. Surgical management is required in adults to prevent sequelae ranging from recurrent UTIs to end-stage renal failure. The standard management of VUR in adults has historically involved ureteral reimplantation, whilst endoscopic management is the first-line management in children.
Methods: Retrospective analysis (2019-2009) was performed of our collaborative (paediatric and adult urology) institutional experience of VUR management in adults, using endoscopic injection of dextransomer/hyaluronic acid copolymer (Deflux). Systematic review of the literature was also performed.
Results: The records of 7 patients, all female, aged 19-54 were reviewed. Three initially developed symptoms of VUR in childhood. Seven patients had presenting symptoms of recurrent UTI/pyelonephritis, 3 had elevated creatinine and 1 stage III chronic kidney disease. Two patients had previously undergone bilateral ureteral reimplantation for management of VUR. One patient had developed reflux into the ureteric stump following nephrectomy. Four patients required 1 injection of deflux for resolution of symptoms. In the 3 patients requiring >1 injection, symptomatic improvement ranged from 9 months-6 years. Two patients had recurrent UTIs post-deflux. Two had reflux noted on post-operative MAG3 scan. No patients developed complications such as obstruction of VUJ or development of new contralateral reflux. None required subsequent reimplantation.
Conclusions: Endoscopic management of VUR avoids the risks and morbidities associated with the extensive abdominal surgery involved in performing reimplantation, whilst providing physiological and symptomatic improvement.

P13-6 Delayed presentation with acute scrotal pain in ethnic minorities

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Introduction: Delayed presentation in acute testicular torsion increases risk of testicular loss. We investigated whether there is a delay in presentation with suspected torsion in patients from an ethnic minority.
Patients and Methods: A retrospective audit of patients undergoing scrotal exploration for suspected torsion from September 2014-2019 was completed. Notes were used to identify time between onset of pain and presentation to hospital. Patients' ethnicity was identified through voluntary demographic information. Median time to presentation was compared between ethnic minorities (EM) and white British (WB) patients, as well as exploration findings.
Results: EM patients (n=29) with suspected torsion presented significantly later with a median of 19 hours (range1.3-192) compared to 4 hours (0.5-96) in WB patients (n=65). ($p<0.001$) In patients found to have torsion with or without testicular loss, EM patients (n=18) presented at a median of 17.5 hours (3.1-192) compared to 3 hours (0.5-84) in WB patients (n=33), a statistically significant delay. ($p<0.001$) The relative risk of EM requiring orchidectomy when presenting with torsion was 12.83.
Conclusion(s): In our population, EM present later with acute scrotal pain, increasing their risk of testicular loss. More study is required to identify causes of delayed presentation in these patients with the aim of improving health education.

P13-7 3D printing improved testicular prosthesis prototypes: using lattice infill structure to modify mechanical properties

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Introduction: Silicone and liquid filled testicular implants have problems with firmness, shape, size and positioning

and risks of rupture. We aimed to develop a 3D printed testicular prosthesis with an anatomical size and shape which matches the stiffness characteristics of a human testicle without liquid or silicone infills.

Materials and Methods: A total of 27 testicular prostheses and uniform test samples with differing characteristics using a cubic lattice unit cell were 3D printed. These prostheses were compression tested and property matched to human testicular stiffness values from literature. Additionally, the 3D printed testicular prosthesis and 3 market testicular prostheses (Promedon, Torosa and Kiwee) were hardness tested and compared. Young's Modulus or stiffness, and shore hardness measurements. Sample sizes of 3 were used to evaluate the repeatability of the results and the printing process.

Results: 3D printed testicular prostheses using a cubic lattice structure of relative densities between 0.3 and 0.4 and a material with an elastic modulus of 3-4 GPa can match the stiffness characteristics of human testicles. Hardness testing results showed that current market testicular prosthesis are 2 – 4 times harder than the 3D printed testicular prosthesis.

Conclusions: 3D printing can be used to match the properties of human tissue to create customisable, patient specific testicular prostheses with no risk of rupture. This method could be applied to a variety of other implants mimicking native tissues.

P13-8 Trends in antibiotic resistance for escherichia coli positive urinary infections over six years

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Introduction: Antimicrobial resistance (AMR) is a global health problem. Our aim was to review the resistance of Escherichia coli to antibiotics at our university hospital over a six-year period and see whether our protocol based antibiotic policy over this time led to any change in the resistance patterns.

Patients and Methods: Sensitivities of E.coli urine isolates between 2014-2019 (6-years), sourced from the hospital and general practitioners in the community, were collected from the microbiology department. Previous trends of resistance for Cefalexin, Ciprofloxacin, Co-amoxiclav, Gentamicin, Nitrofurantoin, Trimethoprim, Amikacin, and Pivmecillinam were examined using the Cochran-Armitage test.

Results: 712,004 urine samples tested positive for E.coli (Table 1). The overall resistance trends for Cefalexin, Nitrofurantoin and Amikacin remained equivocal; increased for Co-amoxiclav, Ciprofloxacin and Gentamicin; and reduced for Trimethoprim and Pivmecillinam.

P13-8 Table. A table displaying the number and percentage resistance of E.Coli isolates to antibiotics between 2014 – 2019 (Res – Resistance).

Year	2014	2015	2016	2017	2018	2019	Trend (p-value)
E coli isolates (number of isolates/yr)	73436	75918	77853	75130	75291	60385	
Cefalexin Res (%)	1051 (10.09%)	1151 (10.68%)	1196 (10.83%)	1120 (10.51%)	1155 (10.89%)	900 (10.72%)	Equivocal (p=0.17)
Ciprofloxacin Res (%)	1108 (10.69%)	1183 (11.04%)	1253 (11.38%)	1166 (11.01%)	1224 (11.56%)	1000 (11.87%)	Increasing resistance (p=0.01)
Co-amoxiclav Res (%)	521 (6.03%)	477 (4.48%)	689 (6.30%)	675 (6.38%)	685 (6.54%)	618 (7.35%)	Increasing resistance (p=0.00)
Gentamicin Res (%)	551 (5.36%)	590 (5.55%)	653 (5.99%)	589 (5.60%)	706 (6.72%)	562 (6.70%)	Increasing resistance (p=0.00)
Nitrofurantoin Res (%)	88 (0.86%)	150 (1.42%)	150 (1.36%)	113 (1.08%)	153 (1.46%)	97 (1.16%)	Equivocal (p=0.11)
Trimethoprim Res (%)	3512 (32.98%)	3610 (32.89%)	3779 (33.50%)	3446 (31.80%)	3260 (30.18%)	2483 (28.95%)	Decreasing resistance (p=0.00)
Amikacin Res (%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	6 (1.70%)	7 (1.00%)	Equivocal (p=0.80)
Pivmecillinam Res (%)	52 (12.71%)	35 (7.45%)	56 (11.72%)	64 (12.93%)	49 (9.28%)	32 (5.95%)	Decreasing resistance (p=0.02)

Conclusion: Despite our protocol based antibiotic policy, although the overall antibiotic resistance remained stable, there was an increasing trend in antibiotic resistance for more commonly used antibiotics including Co-amoxiclav, Ciprofloxacin and Gentamicin, reflecting their overall use for prophylaxis and treatment. We plan to continue our policy of reviewing our antibiotic usage and the prescribing protocol with the microbiology department to minimize antimicrobial resistance.

P13-9 Identification and quantification of immunological markers excreted in urine in response to urinary tract infection

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Introduction: Inflammation is the body's innate response to bacterial infections. Certain proteins are excreted into the urine as a consequence of infection, these proteins are called immunological markers. A lack of information exists regarding the quantity and type of immunological markers excreted in human urine in response to a urinary tract infection. Could these markers be utilised to develop a diagnostic test for UTI that improves upon the dip-stick and enhances clinical decision making regarding the safeguarding of antibiotics.

Materials and Methods: In this study we collected urines infected with either E. coli, P.mirabilis or K.pneumoniae and utilised enzyme-linked immunosorbent assays to compare levels of a range of immunological markers with healthy individuals. We investigated Interleukin 8, Interleukin 6, Procalcitonin, Lactoferrin, and Uromodulin (Tamm-Horsfall).

Results: We found that levels of these markers indeed change with infection by differing bacterial species. Levels of Interleukin 8, Interleukin 6, and Lactoferrin were more concentrated in patients with UTI compared to healthy controls. Uromodulin was present in significantly lower quantities in urines infected with E. coli compared to all other urines tested.

Conclusions: Lactoferrin and Interleukin 8 were the best markers of infection with E.coli, P.mirabilis and K.pneumoniae. It is our hope that this information could be used to develop a rapid diagnostic test for UTI, ensuring more accurate detection of symptomatic UTI resulting in more appropriate perscribing of antibiotics.

P13-10 Emergency nephrostomy insertion out of hours: Transfer to a Tertiary Centre or wait for in-house interventional radiology services?

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Introduction: The British Association of Urological Surgeons (BAUS) recommend urgent decompression of infected and obstructed urinary tracts within a maximum of 12 hours. District general hospitals in the United Kingdom tend to have interventional radiology (IR) on weekdays during normal working hours only (08:00-17:00). Patients requiring an emergency nephrostomy outside of normal working hours are often transferred to a tertiary centre where 24-hour IR is available. We aimed to assess the timings of decision, transfer and nephrostomy insertion from our unit.

Materials and Methods: All patients transferred from a single public funded hospital for an emergency nephrostomy insertion in 2016-2019 were included. Data on decision for transfer, arrival at tertiary centre and nephrostomy insertion were collated.

Results: A total of 34 patients were transferred for emergency nephrostomy insertion in 2016-2019. However, 10 were excluded from analysis due to lack of documentation. On average, transfer to the tertiary centre took 5.3 hours (range 1-17 hours). Mean time from arrival at tertiary centre to nephrostomy insertion was 8.2 hours (range 0-33 hours). Mean time from decision to nephrostomy insertion was 13.9 hours (range 4-43 hours). Out of the 10 patients transferred on weekdays out of hours, 3 (30%) had a nephrostomy inserted overnight (17:00-08:00).

Conclusions: Average time from decision to nephrostomy insertion out of hours from our unit was 14 hours. On weekdays, medical optimisation in the high dependency or intensive care unit until in-house IR is available during normal working hours can be considered, depending on patient condition and clinical urgency.