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RECOVERY**

UK Chapter ERAS Society

ERAS Society

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6th ERAS UK Conference

Mercure Holland House Hotel, Cardiff

4th November, 2016

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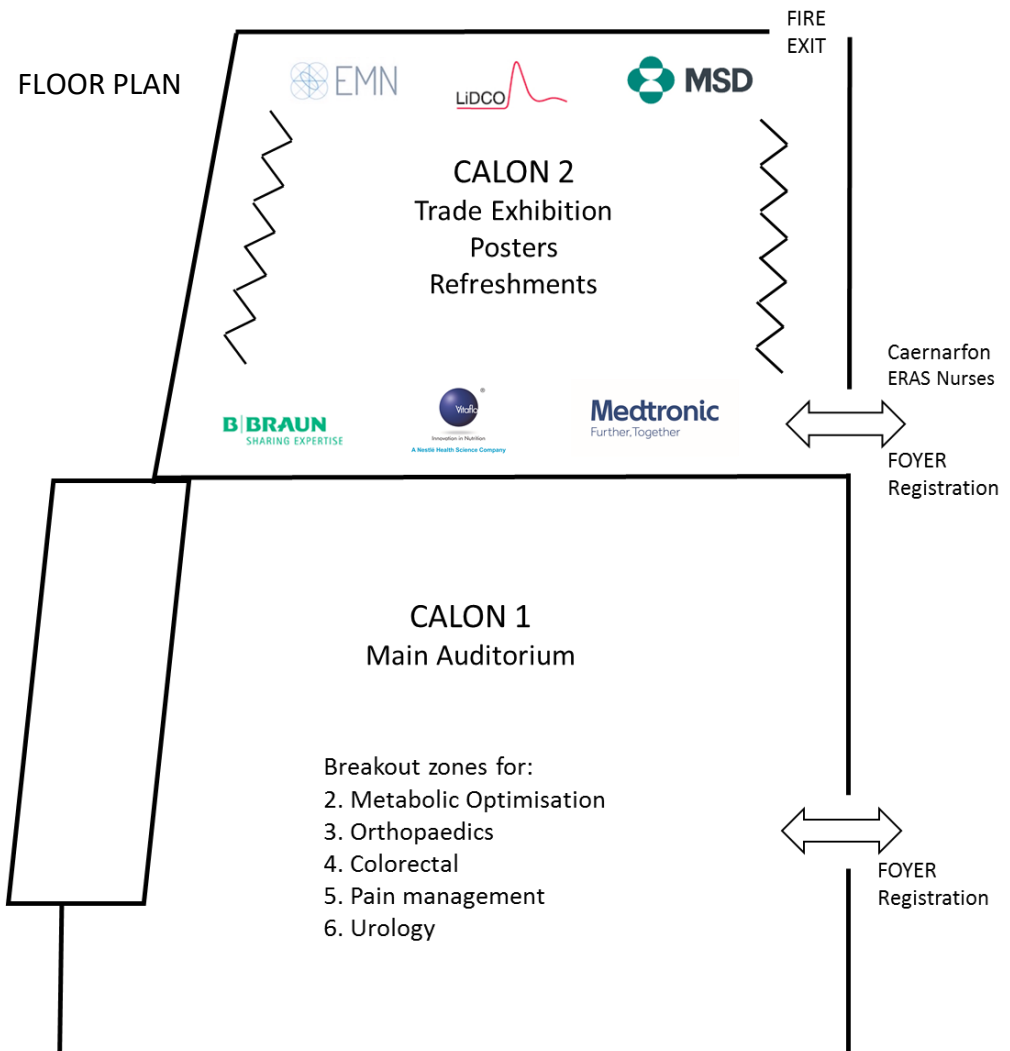
On behalf of the Cardiff and Vale University Health Board and ERAS UK, I would like to welcome you all to the 6th Enhanced Recovery after Surgery (UK) Society Conference.

This year, we will be looking at new developments in perioperative care and will also have a number of breakout sessions. There will be some presentations from some exemplar sites and we will also discuss what the limits of enhanced recovery could be.

This year we will be awarding the Ken Fearon prize for the best oral presentation, in memory of Professor Fearon, who sadly passed away in September.

I would like to thank the organising committee, faculty, sponsors and all of you for taking part in this event. Please tweet your thoughts and experiences today using #ERASUK.

Professor Wyn Lewis



Timetable

Time	Topic	Faculty	Location
08:00	Registration		Foyer
08:40	Opening Address	Professor Wyn Lewis	Calon 1
08:50	Keynote Lecture: Maintaining quality in ERAS in the face of financial restrictions: lessons from outside the UK	Professor Olle Ljungqvist	Calon 1
09:15	Getting engagement from your finance department	Claire Osmundsen-Little, Kate Bloomfield	Calon 1
09:30	Session 1: Optimising Perioperative Care	Chairs: Mrs Imogen Fecher-Jones, Professor Nader Francis	Calon 1
	Re-designing perioperative pathways	Professor Mike Grocott	
	Primary care optimization study (Fit for List)	Dr Rachael Barlow	
	Web based interventions for self-management of rehabilitation	Dr Kate Button	
	Perioperative fluid management—beyond the borders of ERAS	Dr Marcia McDougall	
	Panel discussion	All speakers	
11:10	Coffee, poster walk, trade exhibition		Calon 2
11:50	Session 2: The Ken Fearon prize session	Chairs: Cath Dixon, Dr Huw Davis, Professor Tom Wainwright, Jennie Burch	Calon 1
	16005: ERAS vs non ERAS in patients undergoing elective cardiac surgery	Kirsty Graham, Golden Jubilee National Hospital	
	16011: Enhanced recovery pathway after pancreaticoduodenectomy; clinical outcomes and cost analysis	Bashar Jaber, University Hospital Southampton	
	16015: Cardioplummonary exercise testing does no predict complications following IRARC	Benjamin Lamb, University College London Hospital	
	16045: The impact of diabetes on infection rates in orthopaedic joint replacement surgery	Daneeshanan Vijayasingam, Cardiff University	
	16047: The effect of Prehabilitation programmes on post-operative clinical and functional outcomes in major abdominal surgery: a systematic review	Alison Luther, St Mary's Hospital, Isle of Wight	
	16051: Transdermal slow release fentanyl patches for the management of post-operative analgesia following major abdominal surgery: a systematic review	Roy Mahapatra, Countess of Chester Hospital	
12:50	Lunch, poster walk, trade exhibition		Calon 2

Time	Topic	Faculty	Location
13:40	Session 3: Breakout sessions for Special Interest Groups		
	ERAS Nurses group: Challenges with postoperative compliance	A Balfour, J Burch, I Fecher-Jones, I Fitt, R Meskell	Caernarfon Suit
	Metabolic optimisation (Prehab and Nutrition)	R Barlow, M Grocott	Calon 1
	Orthopaedics	T Wainwright, S White	Calon 1
	Colorectal	M Davies, N Francis, J Torkington	Calon 1
	Pain management	A Woollard, H Davis	Calon 1
	Urology	J Douglas, J Smith	Calon 1
14:30	Tea, trade exhibition		Calon 2
15:10	Feedback from breakout sessions	All session chairs	Calon 1
15:30	Session 4: Learning from exemplar sites	Chairs: Professor Wyn Lewis, Mr Simon White, Dr Adrian Woollard	Calon 1
	Enhanced recovery in joint replacement—marginal gains	Mr Paul Partington	
	Early discharge for Radical Cystectomy and pelvic exenteration—how we do it	Mr Julian Smith	
	New techniques for colorectal surgery	Mr Jared Torkington	
	Interactive discussion: Should all patients be discharged within 48 hours of surgery?	Panel: A Balfour, O Ljungqvist, P Partington, J Smith, J Torkington	
16:30	Prize session: Ken Fearon prize for best oral presentation and ERAS UK prizes for oral and poster presentations	Professor Wyn Lewis & Dr Rachael Barlow	Calon 1
16:45	Closing remarks	Professor Wyn Lewis	Calon 1
17:00	End of conference		

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Oral Presentations for the Ken Fearon Prize Session

16005 Enhanced Recovery After Surgery (ERAS) vs non Enhanced Recovery After Surgery in patients undergoing elective cardiac surgery. Kirsty Graham, S Singh, N Al-Attar, F Sutherland. Golden Jubilee National Hospital.

Objective: ERAS incorporates multi-modal interventions that synergistically improve patient outcome. Its goals include improving patients functionally pre-operatively, reducing stress of surgery intra-operatively to facilitate early return to daily activities. We conducted a pilot study at our unit recruiting patients undergoing elective coronary artery bypass grafting (CABG) and tissue aortic valve replacement (tAVR) into the ERAS pilot and compared them with the patients undergoing CABG and tAVR meeting the ERAS criteria but who were not included in the ERAS pilot (nonERAS).

Method: 71 ERAS patients were compared to 218 nonERAS patients from the period of July 2015 to March 2016. All ERAS patients received pre-operative counselling by a dedicated ERAS Practitioner to manage expectations of the patient journey, health promotion and pre-operative optimisation advice. Emphasis was made on educating the patient on daily goals for recovery and patients were followed up daily by the ERAS practitioner post-operatively. The nonERAS patients received education but did not have this focused support.

Results: ERAS patients were significantly younger (60.69 ± 9.22 vs 64.66 ± 7.14 ($p=0.0006$)) however EuroScore II and BMI were not found to be significantly different. Bypass time was shorter in the ERAS group, where cross clamp time was similar in both cohorts. Whilst critical care LOS was shorter in ERAS patients, this was not significant. Total hospital LOS was found to be significantly shorter in the ERAS cohort.

Conclusion: Larger numbers are required for these results to be more generalisable and the authors acknowledge that there are limitations within the groups as there is variation in operating surgeon. However, these findings suggest that ERAS can benefit cardiac patients to allow for earlier recovery and therefore shorter LOS.

16011 Enhanced recovery pathway after pancreaticoduodenectomy; clinical outcomes, and cost analysis. Bashar Jaber, A Shamali, S Barbaro, M Abu Awwad, M Abu Hilal. University Hospital Southampton.

Introduction: Enhanced recovery after surgery (ERAS) is a program designed to reduce the surgical stress response and its consequences by introduction of modifications to the traditional perioperative care.

The aim of this study is to assess safety and feasibility and to compare the clinical and economical outcomes of ERAS pathway to the traditional management after pancreaticoduodenectomy (PD).

Methods: This is an observational study including 250 patients undergoing PD in a tertiary referral centre. Data of 125 consecutive patients operated before the introduction of the ERAS pathway was compared to those of 125 consecutive patients managed on the ERAS pathway.

Results: Patients in the ERAS group had a significantly shorter time to restore normal gut function, including earlier removal of the NG tube, earlier start of liquid and normal diet. Postoperative length of stay was significantly reduced in the ERAS group (median days of 9

vs. 13, $p=0.0001$). Postoperative complications were overall less frequent in the ERAS group (42.4 % vs 52.8%, $p=0.128$). However, the readmission rate and chest infection were significantly less in the ERAS group, $p=0.008$ and 0.006 respectively.

There was a significant decrease of the total cost in the ERAS group compared to the traditional group (£17680 Vs £19585).

Conclusion: The implementation of ERAS after PD is safe and feasible with better clinical outcomes when compared to the traditional management approach. In addition, our results strongly support the cost effectiveness of the ERAS pathway against traditional management.

16015 Cardiopulmonary exercise testing does not predict complications following iRARC. Benjamin Lamb, W S Tan, P Eneje, D Bruce, A Jones, I Ahmad, A Sridhar, D J Lao, J Ong, H Baker, T P Briggs, J E Hines, S Nathan, D Martin, R C Stephens, J D Kelly. University College London Hospital.

Objective: Patients undergoing radical cystectomy are a comorbid cohort of patients often with poor cardiopulmonary function. Preoperative cardiopulmonary exercise testing (CPET) measures including anaerobic threshold (AT) has been shown to predict major complications and hospital length of stay (LOS) in patients treated with open or robotic cystectomy with extracorporeal diversion. In this study, we determine if CPET variables can predict outcome in patients undergoing robotic radical cystectomy with intracorporeal diversion (iRARC).

Patients & Methods: Prospective data was collected in a single institution in patients undergoing iRARC for muscle invasive and high-grade bladder cancer. All patients underwent CPET before iRARC. Data on CPET measures (AT, ventilatory equivalent for carbon dioxide [VE/VCO₂] at AT, peak oxygen uptake [VO₂]), and patient demographics prospectively collected. Complications were stratified according to Clavian-Dindo classification.

Results: 86.7% (111/128 patients) underwent iRARC and 82 patients who had CPET consented to the study. Median (interquartile range): age = 65 (58-73); body mass index = 27 (23-30); AT = 10.0 (9-11), Peak VO₂ = 15.0 (13-18.5), VE/VCO₂ (AT) = 33.0 (30-38). 30-day major complications were observed in 12.6% (14/111) of patients while 90-day mortality was 2.7% (3/111). AT, peak VO₂, and E/VCO₂ were not significant predictors of 30-day major complications or LOS.

Conclusions: Poor cardiorespiratory fitness does not predict increased hospital LOS or major complications in patients undergoing iRARC.

16045 The Impact of Diabetes on Infection Rates in Orthopaedic Joint Replacement Surgery. Daneeshanan Vijayasingam, S White. Cardiff University.

Background: There has been an abundance of research distinguishing an association between diabetes and post-operative infections and studying this preoperative factor is of particular relevance due to the rise in the prevalence of the condition.

Objective: To evaluate the adherence and effect of the new set of guidelines recently established by the Cardiff and Vale Orthopaedic Centre (CAVOC) with a focus on diabetic control.

Methods: Began by looking at the function of the department and historic infection rates, attending preoperative assessment clinics and undertaking relevant background reading. A

total of 321 patients, who had total hip/knee replacements, over a 3-month period were enrolled in a retrospective cohort study.

Results: The relative risk calculation showed that diabetic patients with an HbA1c $\geq 7\%$ have a 1.63 times higher risk of post-operative infection compared to those with an HbA1c

Conclusions: The link between HbA1c and infection rates is established but to understand its value as a preoperative measure and to determine a cut off, further research needs to be undertaken.

16047 The effect of prehabilitation programmes on post-operative clinical and functional outcomes in major abdominal surgery: A systematic review. Alison Luther, J Gabriel, R Watson, N Francis. St Mary's Hospital, Isle of Wight.

Introduction: Post-operative clinical and global functional outcomes after major abdominal surgery can often be poor. Peri/post-operative interventions, primarily the enhanced recovery after surgery programme (ERAS), however have improved the patient experience. There is no consensus although regarding the value of pre-operative prehabilitation. This systematic review therefore aims to assess the literature, looking at the effect of prehabilitation before major abdominal surgery.

Method: Relevant studies were identified through a search using the major databases. All studies published in a peer reviewed journal, that assessed post-operative clinical and functional outcomes, in patients who had undergone a prehabilitation programme, before major abdominal surgery were included. Studies with less than 10 patients, or an intervention lasting less than 7 days were excluded. Descriptive characteristics of the study participants, interventions, and outcomes were extracted.

Results: 11 studies were included, which incorporated 2150 patients, (1024 in intervention groups), with 4 main types of intervention; smoking cessation, inspiratory muscle training, exercise, and nutritional. The implementation method of the intervention differed widely between the studies, and 2 studies looked at multi-modal interventions. The duration of the intervention varied from 7-38 days. Five studies showed prehabilitation reduced post-operative complications, and 1 study demonstrated prehabilitation improved return to functional capacity.

Conclusion: A structured prehabilitation programme may be of benefit prior to major abdominal surgery, however, larger, more standardised studies are required to confirm the best methods and duration of prehabilitation. This could potentially be incorporated into the current ERAS programme, although more research is required to validate this.

16051 Transdermal slow release fentanyl patches for the management of post-operative analgesia following major abdominal surgery: a systematic review. Roy Mahapatra, M Fok, J Grainger, J Melling, D Cliff, D Vimalachandran. Countess of Chester Hospital.

Introduction : Pain control represents a significant barrier to the enhanced recovery of patients following major open abdominal surgery and has traditionally been achieved with potent opioids delivered through the intravenous route in combination with invasive techniques such as epidural analgesia. Recent evidence has suggested preoperative application of transdermal slow-release fentanyl patches (TDF) may not only provide

effective and better analgesic control but also offer logistical advantages for patient and nursing staff, along with an improved side effect profile. This systematic review aims to review the effectiveness of TDF in acute post-operative pain relief in major abdominal surgery.

Methods: Electronic searches were performed on five major databases from inception to October 2015 to identify relevant studies. Eligibility decisions, methodological quality, data extraction and analysis were performed according to predefined clinical criteria and endpoints.

Results: Ten studies were identified of which included nine randomised controlled trials (RCT) and one non-randomised controlled trial. In total, 429 and 329 patients received TDF patches and placebo patches respectively. There were significantly improved patient reported pain score, supplementary morphine usage for patients receiving TDF compared to placebo. No difference was found in reported nausea and vomiting between groups. Respiratory side effects were comparable between the two groups.

Discussion: This systematic review demonstrates that TDF may offer a safe and effective method for analgesia provision following major abdominal surgery. However, further research with high powered studies are required to more accurately define its effectiveness in major abdominal surgery and closely evaluate the side effect profile. Our future studies will look at usage of alternate analgesic techniques including fentanyl patches in open colorectal operations.

Poster presentations

16001 Pre-operative starvation times: do we all know what we're aiming for? Catherine Allen, M Alii, Kent and Canterbury Hospital.

Back ground: I conducted an audit prompted by a personal interest in the nil by mouth policy prior to surgery and how this is implemented, or conversely not implemented, in hospitals. Studies have shown that those who are more adequately hydrated or have had a carbohydrate-rich pre-operative supplement have better outcomes; and guidelines in place across UK hospitals reflect this fact. All too often, however, there remains a pervading culture of 'Nil by mouth from midnight'.

Methods: I produced a questionnaire based on the current East Kent Foundation Trust guidelines, and included a question which involved practical application of the guidelines. This included guidance on clear fluids, fluids with milk, food, chewing gum and boiled sweets. I asked a various staff groups at opportunistic times from March to April 2016. These questionnaires were collected in an anonymous fashion, in opaque envelopes, and at the start of the quiz itself there was a statement that each would be kept anonymous.

Results: I collected 45 responses in total, from surgical nursing staff, FY1/2, Surgeons and Anaesthetists. There was marked confusion concerning the last admissible time before surgery to consume drinks with added milk, boiled sweets and chewing gum; the latter two even amongst the anaesthetic group audited.

Follow up: I produced an educational poster, and will reaudit the groups in June/ July to assess whether the audit itself and this intervention have made and changes.

16002 Introducing a colorectal phone call follow up service post discharge. Hartley, J. Heath, J. & Hume, D. Blackpool Teaching Hospitals.

An ERAS programme has been established within colorectal surgery for many years but the nurse to facilitate and monitor this service had been withdrawn as part of the cost saving initiatives of the trust. After 12 months without a driver to lead ERAS the Los had increased, readmission figures had increased and patient satisfaction was reduced. The trust recruited to this position and relaunched the ERAS service within colorectal surgery.

Data collection was initiated from the outset which showed an elevated length of stay and readmission figures. The reasons for readmission were collated and analysed to identify themes. It was identified that many of the readmissions were potentially avoidable and as a team we developed a strategy to address this.

We initiated a phone call follow up service which aimed to reduce potentially avoidable readmissions to hospital. Patients were phoned 24 and 72 hour post hospital discharge.

Patients could then be triaged to appropriate support and assistance if problems were identified and readmissions could be directed promptly to the correct place within the hospital.

Results:	Length of stay Mode	Length of stay Median	Readmission rate
Pre ERAS relaunch	10.25 days	8 days	20.9%
After ERAS relaunch	7.9 days	7 days	7%

This resulted in a reduction of avoidable readmissions and prompt treatment of appropriate readmissions. Patients also reported an increase in patient satisfaction and that they were confident to go home with phone follow up support.

16003 Healthcare professionals' views of the Enhanced Recovery After Surgery programme: a qualitative investigation. Georgia Herbert, E Sutton, S Burden, S Lewis, S Thomas, A Ness, C Atkinson. The University of Bristol.

Background: The Enhanced Recovery After Surgery (ERAS) programme is an approach to the perioperative care of patients which aims to improve outcomes and speed up recovery after surgery.

Although the evidence base appears strong for this programme, the implementation of ERAS has been slow. This study aimed to gain an understanding of the facilitating factors and challenges of implementing the programme with a view to providing additional contextual information to aid implementation. The study had a particular focus on the nutritional elements within the programme as these have been highlighted as important.

Methods: The study employed qualitative research methods, guided by the Normalisation Process Theory (NPT) to explore the experiences and opinions of 26 healthcare professionals from a range of disciplines implementing the programme.

Results: This study identified facilitating factors to the implementation of ERAS: alignment with evidence based practice, standardising practice, drawing on the evidence base of other specialties, leadership, teamwork, ERAS meetings, patient involvement and education, a pre-operative assessment unit, staff education, resources attached to obtaining The Commissioning for Quality and Innovation (CQUIN) money, the ward layout, data collection and feedback, and adapting the care pathway.

A number of implementation challenges were also identified: resistance to change, standardisation affecting personalised patient care, the buy-in of relevant stakeholders, keeping ERAS visible, information provision to patients, resources, palatability of nutritional drinks, aligning different ward cultures, patients going to non-ERAS departments, spreading the programme within the hospital, differences in health issue, and utilising a segmental approach.

Conclusions: The findings presented here provide useful contextual information from diverse surgical specialties to inform healthcare providers when implementing ERAS in practice.

Addressing the challenges and utilising the facilitating factors identified in this study, could speed up the rate at which ERAS is adopted, implemented and embedded.

16007 Uptake Of Enhanced Recovery Amongst A Flexible Anaesthetic Workforce. Rachel E Jones, T Woodhouse, A J Woollard, G J Lilley. Nevill Hall Hospital.

Introduction: Enhanced recovery after surgery (ERAS) consists of a multidisciplinary approach to perioperative care. We considered the anaesthetist's role in ERAS for total knee replacement (TKR) to include appropriate use of 6 components: intra-operative magnesium, ketamine, tranexamic acid, dexamethasone (for analgesic properties), adductor canal block and perioperative gabapentin. Within our flexible workforce of 20 anaesthetists, an ERAS "recipe" is available, but significant variation in practice exists.

Objective: The purpose of this service evaluation was to assess compliance with components of ERAS and how this impacted the patient journey, as well to review attitudes towards enhanced recovery.

Methods: We prospectively collected data on 50 patients undergoing TKR. Information on all aspects of anaesthetic and intraoperative medication was recorded, plus post-operative adverse events, analgesia requirements and length of stay. Consultant anaesthetists were anonymously surveyed regarding barriers to ERAS component use.

Results: Procedures were undertaken by 7 surgeons with 19 different anaesthetists. 18% of patients were given none of the 6 ERAS components, 20% had only 1, 22% had 2, 20% had 3, 14% had 4, 2% had 5 and only 4% received all 6 components. Adductor canal block was the most infrequent component used (14%). Response rate for the survey was 90% (18/20). The most common reasons for not using components were personal disbelief of efficacy, concern over side-effects or accidental omission.

Conclusion: Although many recognise the benefits of ERAS, the protocols are not well implemented resulting in a spectrum of practice across the department. Anaesthetic drug choices are inconsistent and often influenced by anaesthetists' personal experiences and use of clinical judgment for individual cases.

16008 ERAS pathway for patients undergoing coronary artery bypass grafting (CABG). Jo Hartley, H Saunders, A Bose, A Tang, A Walker. Blackpool Teaching Hospitals.

The benefits to enhanced recovery after surgery (ERAS) are well proven and documented but at the commencement of this pilot there were no other centres reporting to have implemented it for cardiac surgery. A pilot study was commenced to see if ERAS would have a positive impact upon length of stay and patient satisfaction without an increase in postoperative pain and nausea.

Method: Patients requiring 1st time CABG surgery with good home support following discharge were recruited to the ERAS pilot. Prior to the introduction of ERAS 50 patients who met the criteria completed a patient satisfaction survey. The same survey has then been completed by 100% of the patients following the ERAS pathway. Comparisons were then made between the two groups.

Results: 50 patients successfully followed the ERAS pathway post CABG surgery. There was a significant reduction in the length of stay in this initial group of 1.5 days. There was no increase in nausea or vomiting scores but there was a slight increase in the worst pain score post operatively. This group of patients also had a significantly lower than average rate of post-operative atrial fibrillation.

Over 100 patients have now followed this pathway with decreased length of stay and post-operative complications demonstrated in the data.

The ERAS programme has undergone development and has rolled out to all first time CABG surgeries. Pathways have been developed for minimal access surgeries and there is a planned rollout to these surgeries later in the year.

16012 A modified enhanced recovery pathway approach for laparoscopic transabdominal preperitoneal inguinal hernia repair. Anastasiia Glagolieva, S.I. Savolyuk, S.N. Byshovets, M.Yu. Krestyanov, O.A. Potapov. P.L. Shupyk National medical academy, Kiev, Ukraine.

A multimodal enhanced recovery pathway (ERP) was applied for patients with primary and recurrent inguinal hernias (60 patients) who underwent laparoscopic transabdominal preperitoneal hernia repair (TAPP). Short-term treatment results were assessed. ERP included spinal anesthesia with superficial cervical plexus block (SCPB) on the right side to reduce the aftereffects of pneumoperitoneum (phrenic nerve irritation), local anesthesia of the skin and soft tissues with bupivacaine hydrochloride solution before trocar intervention, hydropreparation of peritoneum and hernia sac. SCPB point was chosen where external jugular vein crosses the posterior aspect of sternocleidomastoid muscle. After infiltrating the

abovementioned muscle caudally and cranially with 6 ml of 0.8% lidocaine, a needle was directed from a top of interscalene space inferiorly parallel to a neck axis toward the I rib with injection of 3 ml of the same solution. In the control group (56 patients), an endotracheal anesthesia was performed. For all patients from the both groups the anatomically shaped Bard 3DMax™ polypropylene prosthesis was used, which does not require additional fixation. Reconstruction of the peritoneum was performed by biological tissue welding. A postoperative day one pain level according to the Visual Analogue Score (VAS) was 2.5 ± 0.3 in a main group and 5.5 ± 0.3 in control group ($p > 0.05$). Conclusion: applying a modified ERP for patients undergoing TAPP hernia repair significantly reduced both postoperative pain severity and overall recovery period and can be alternative to the standard perioperative care strategy for patients with groin hernias.

16013 The impact of ERAS strategy implementation on long-term treatment outcomes of stage III and high-risk stage II colorectal cancer patients. D.E. Makhmudov. National cancer institute, Kiev, Ukraine

Patients with stage III and high-risk stage II colorectal cancer (CRC) require adjuvant chemotherapy (ACT). The impact of ERAS strategy on oncologic outcomes is undefined. Patients with primary stage II-III CRC were enrolled in the ERAS arm (N=130) and traditional care (TC) arm (N=200).

Overall postoperative complications (PCs) rate was 7.8% and 21.6% for ERAS and TC arm ($p < .01$). Patients without PCs showed an overall survival (OS) benefit - $85,8 \pm 4,1\%$ and $81,7 \pm 4,5\%$ vs $53,3 \pm 17\%$ and $45,7 \pm 9,6\%$ ($p < .05$). Multivariate analysis in the ERAS arm confirmed PCs as an independent risk factor (RF) for the delay of ACT $\geq 4w$ ($p = .029$, HR = .399); in TC arm – both delay and failure. In the ERAS arm 3-year OS had no significant difference for those, who underwent ACT within 4 and 8w - $72,3 \pm 12,2\%$ and $58,3 \pm 10,2\%$ ($p = .320$). Patients with no-use and $\geq 8w$ delay had significantly worse OS and DFS ($29,6 \pm 22,2\%$ and $30,5 \pm 26,8\%$) comparing to ACT start within 4w ($p = .023$). No significant difference in the TC arm was observed in OS for those, who started ACT within 4, 8w and with $\geq 8w$ delay ($64,2 \pm 19\%$, $52,5 \pm 20\%$, $46,1 \pm 9\%$). In both groups no significant difference in DFS, was observed. No-use of ACT was strongly associated with poor OS ($18,2 \pm 16\%$). Cox regression analysis defined $\geq 8w$ delay and no-use of ACT as independent RF for OS and DFS deterioration ($p < .001$, HR=1.639) in the ERAS arm and PCs ($p = .021$, HR=0.615) – in the TC arm. ERAS strategy has significant impact on long-term treatment outcomes for stage III and high-risk stage II CRC.

16014 Enhanced Recovery for Lower Limb Primary Arthroplasty: Who Should be Catheterised? Rebecca Binks, Ian Lyons, Rik Kapila. Nottingham University Hospitals.

Introduction: Enhanced Recovery pathways for lower limb arthroplasty often recommend avoidance of routine urinary catheterisation. We assessed whether specific patient groups at risk of retention, incontinence or Acute Kidney Injury (AKI) would benefit from elective catheterisation.

Methods: 91 consecutive patients undergoing primary lower limb arthroplasty between October and November 2014 were reviewed. One was excluded due to incomplete data.

Results: The mean age was $66 (\pm 12)$ years; 22(24.4%) were 75 or older. 88/91(97.8%) received spinal anaesthesia; 4(4.4%) received general anaesthesia (2 converting from spinal).

31(34.4%) were catheterised pre-operatively and 21(23.3%) required post-operative catheterisation. Pre-operative catheterisation was more common in older patients [11/22(50%) vs 20/68(29%)]. 20/45(44%) who received intrathecal opiate (ITO) and were not catheterised pre-operatively, subsequently required catheterisation; compared with 1/13(7.7%) not receiving ITO ($p=0.02$). All 3 patients with a starting eGFR $<45\text{ml}/\text{min}/1.73\text{m}^2$ were catheterised pre-op. Where the starting eGFR was $45\text{--}60\text{ml}/\text{min}/1.73\text{m}^2$, there was a mean 10.1% decrease in eGFR ($n=11$); in those with a mean eGFR $>60\text{ml}/\text{min}/1.73\text{m}^2$, the mean change was -1.1% ($n=76$).

Mobilisation on day 1 occurred in 18/31(58.1%) who were catheterised pre-operatively and 41/59(69.5%) who were not catheterized. 22/30(73.3%) of those catheterised pre-op were discharged by day 4, rising to 54/58(93.1%) in those not pre-operatively catheterised ($p=0.018$).

Discussion: Whilst routine catheterisation reduces mobilisation and delay discharge, specific groups may benefit. Patient specific factors include poor starting renal function (75 years). In these groups catheterisation may reduce urinary retention, incontinence (affecting tissue viability), patient discomfort, and reduce the risk of AKI by facilitating timely recognition and rescue.

16016 Preoperative Anaemia is not associated with Perioperative Complications following iRARC. Wei Shen Tan, B Lamb, P Khetrpal, M Y Tan, M Tan, A Sridhar, G Busuttill, L Lei, A Soo, S Nathan, J Hines, G Shaw, A Mohammed, H Baker, T P Briggs, T Richards, J D Kelly. UCL. Objectives: Preoperative anaemia is associated with increased risk of complications in patients undergoing open surgery. We assessed if robotic assisted radical cystectomy with intracorporeal urinary diversion (iRARC) was associated with reduced risk of complications related to preoperative anaemia or blood transfusion.

Patients & methods: Prospective data was collected for patient demographics, clinical and pathological characteristics, perioperative variables, transfusion requirements and hospital length of stay for 166 patients. Thirty- and 90-day complications were classified according to the Clavian-Dindo classification.

Results: Preoperative anaemia was common (43.4%) more so in patients treated with neoadjuvant chemotherapy. Overall, intraoperative and postoperative transfusion rate was 10.2% and 13.9% respectively. 30-day all complication rate and 30-day major complication rate was 55.4% and 15.7% respectively while 90-day all complication rate and 90-day major complication rate were 65.7% and 19.3% respectively. Intraoperative blood transfusion was not associated with increased complications however, postoperative blood transfusion requirement was independently associated with perioperative morbidity: all 30 day complications ($p=0.9003$), 30-day major complications ($p=0.003$, all 90-day complications ($p=0.009$) and 90-day major complications ($p=0.004$).

Conclusion: iRARC was not associated with increased surgical risk in patients with preoperative anaemia however, postoperative blood transfusion was independently associated with perioperative morbidity.

16017 Total shoulder replacement and the relevance of Enhanced Recovery After Surgery (ERAS). Thomas Wainwright, Tikki Immins, Robert Middleton. Bournemouth University.

Introduction: In 2013, 4,319 total shoulder replacement (TSR) procedures were recorded in the National Joint Registry (NJR), with osteoarthritis (58%) and cuff tear arthropathy (23%)

being the main indications for surgery. ERAS pathways have been proven to reduce length of stay (LOS) and improve outcomes for other orthopaedic surgeries such as hip and knee replacement surgery, where day case (outpatient) surgery is now being reported. This study reviews the UK national data to examine whether there is scope to improve LOS in TSR by implementing ERAS.

Methods: Hospital Episode Statistics (HES) data was analysed for the primary total shoulder replacement OPCS procedure codes used by the NJR from April 2015 to March 2016.

Results: 2323 superspells for TSR were recorded, and there were 31 day cases recorded. Average LOS WAS 2.75 days, and across hospitals ranged from 1.0 to 6.4 days, and the range of case mix-adjusted expected LOS was 1.0 to 3.93 days.

Conclusions: The range of LOS may be due to differences in local pathways. Trusts with the shortest LOS are likely to be utilising ambulatory surgery pathways including multi-modal techniques equivalent to the small number of ERAS pathways for TSR reported in the literature. We propose that implementation of ERAS to TSR pathways could further improve patient outcomes and increase day-case rates across the UK.

16018 Enhanced Recovery After Surgery (ERAS) and its applicability to total ankle replacement. Thomas Wainwright, Tikki Immins, Robert Middleton. Bournemouth University.

Introduction: In the UK 29,000 cases of symptomatic ankle OA are referred to specialists each year and until recently arthrodesis was standard practice. However total ankle replacement (TAR) is becoming more recognised. There is strong evidence to support the use of ERAS pathways in other orthopaedic surgeries such as hip and knee replacement surgery, and so this study analyses the literature to see if there is any evidence of ERAS being used in TAR surgery, and reviews national length of stay data to examine whether there is scope for improvement using ERAS.

Methods: A literature search was undertaken in June 2016 to ascertain whether any evidence had been published on the use of ERAS pathways in ankle replacement surgery. Hospital Episode Statistics (HES) data was analysed for the OPCS coding O321 from April 2015 to March 2016.

Results: The literature search found 3 papers, but none were relevant. 432 superspells for TAR were recorded. No day cases were recorded. Average LOS across hospitals ranged from 1.0 to 9.9 days, and the range of case mix-adjusted expected LOS was 2.0 to 5.7 days.

Conclusions: The wide range of LOS is most likely due to differences in local pathways. Trusts with the shortest LOS are likely to be using multi-modal approaches which are analogous to ERAS pathways. We suggest that there is scope to improve the quality of efficiency of TAR care if ERAS was to be formally adopted.

16019 Does the choice of postoperative management in colorectal surgery influence the length of hospital stay? Sonal Sonwalkar, D Miskovic, O Martin, S Limbert, A Marjoram. Leeds Teaching Hospitals NHS Trust.

Aim: To determine what impact the choice of postoperative analgesia has on length of stay in colorectal surgery patients within an ERAS program.

Method: We undertook a retrospective analysis of prospectively collected data within the Leeds colorectal ERAS program. Colonic resections, rectal resections and stoma reversals were included. Postoperative analgesia was chosen by individual anaesthetists.

Four groups were identified: patients with epidurals, patient controlled analgesia systems (PCAS), single shot spinals or IV/oral medication alone.

Comparative statistical tests were applied. All factors with a p

Results: 216 patients were included.

We identified several significant inter-group differences: gender ($p=0.042$), operation type (p

Length of stay was significantly longer for patients with epidural analgesia (median 8 vs 7

days, p IV fluids administered intra-operatively (3045mls vs 2191mls, p

In the multivariate analysis epidural use was demonstrated to be a strong independent predictor for longer hospital stay [OR 3.363 (95%CI 0.991-11.408)].

Furthermore, the use of more than 2.5L of IV fluids in the first 24 hours post-surgery was a significant predictor of greater length of stay [OR 2.509 (95%CI 1.166-5.4)].

Conclusions: Our data demonstrates that using large amounts of post-operative IV fluid prolongs length of stay in these patients. It also suggests the use of epidural analgesia may lengthen hospital stay in this group.

16020 Five years on..... Are we still walking the walk. Sarah Grady, A Bendall, Cardiff and Vale UHB

Background: Enhanced Recovery After Surgery (ERAS) was successfully introduced in colorectal surgery in Cardiff in 2010. Implementation was supported by a core multi disciplinary team led by a consultant surgeon and dedicated ERAS nurse. Having successfully embedded ERAS principles into practice much of the dedicated funding for staff was withdrawn, challenging staff to sustain ERAS success in an environment of increasing austerity. Early mobilisation in the post operative period is recognised within ERAS as fundamental to recovery. With the reduction in nursing and physiotherapy input, the capacity to facilitate supported mobilisation was threatened.

Objective: A 'mobility' board was developed to help motivate patients to mobilise. The aim was to encourage patients to mobilise independently when they were deemed safe by staff and to record their activity on a board.

Method: Engaging staff and patients in the use of the board was key to its' success. All members of the MDT deliver the same message, encouraging patients to mobilise at least 60m four times a day. A simple whiteboard was wall mounted and patients names added, patients would then mark the board having completed a 60m walk.

Results: The use of the 'mobility' board to motivate patients has ensured that patients continue to meet their goals despite a reduction in input.

Despite being developed for use by ERAS patients, the 'mobility' board has proved very popular with all patients!

Conclusion: Introduction of a simple but effective tool has helped sustain protocol adherence, without compromising safety.

16021 An audit to evaluate the implementation and sustainability of ERAS for total knee replacement patients on elective orthopaedic wards. Kate Williams, H wyn Humphreys, M Rees-Jones, L Osborne, LWilliams, C Miller. Cardiff & Vale UHB.

ERAS in orthopaedics was introduced in Cardiff and Vale Orthopaedic Centre in June 2011, trialling all total knee replacement patients for one surgeon. Initial implementation was successful; however achieving sustainability of ERAS has proved challenging due to staff engagement and willingness to change traditional practice. As part of a health board

improvement initiative, a multi disciplinary team was tasked with the challenge of engaging staff in order to achieve sustainability with two key ERAS features – day of surgery mobilisation and effective pain management. Early mobilisation is a key element of the ERAS pathway and in order for this to be achieved, appropriate, effective analgesia is essential.

A number of education sessions for ward staff were conducted along with the production of ward information folders and boards.

Patients were measured for a walking aid pre operatively in order to facilitate early mobilisation and a pain management protocol was agreed.

An audit to evaluate our effectiveness at achieving day of surgery mobilisation and adherence to the pain management protocol was implemented.

Data collection commenced in June 2016 and will continue until August 2016. The audit will be completed by September for presentation back to the Improvement group and to the orthopaedic directorate. Initial results show an improvement in day of surgery mobilisation and compliance with the pain management protocol and a reduction in length of stay compared with pre audit data.

16022 Development of Local Infiltration Analgesia (LIA) formulation for Total Knee Arthroplasty (TKA). Sarah Hiom, A Cosslett, A Sully, S Dooley, M Meredith, P Spark, S Williams. Cardiff and Vale UHB.

LIA use in TKA has been associated with reduced post operative pain, more rapid mobilisation, earlier discharge and decreased NHS costs (Kosev 2015) and is often used as part of Enhanced Recovery After Surgery (ERAS) programmes. LIA mixtures are currently prepared aseptically in theatres prior to administration with associated risks of microbial contamination, administration and drug calculation errors. NHS pharmacy manufacturing departments have received requests to manufacture "ready-to-use" LIA. This study presents a literature search and survey to determine any standardised practices relating to LIA formulations and use, followed by development of an appropriate product and stability study by St Mary's Pharmaceutical Unit, C&V UHB. The literature search and Welsh survey (60% response rate) found no standardised procedure or formulation for the use of LIA for TKA. A terminally sterilised solution of Bupivacaine 0.1% w/v and Adrenaline 6mcg/ml was subsequently developed (based on local hospital clinical needs) and assigned a shelf life of 6 months. The risks associated with the aseptic preparation of LIA in theatres prior to administration can be managed by the manufacture of "ready-to-use" pharmaceutical "Specials" by pharmacy under Good Manufacturing Practice (GMP) and Quality Assurance guidelines. Batch manufactured, terminally sterilised products have assured microbial and chemical quality and have longer shelf lives than aseptic products. A formulation has subsequently been developed using International Committee of Harmonisation and GMP validated methods and is now available for use across the UK, enhancing patient safety. Further work is required to standardise UK practice.

16023 Oral Oxycodone vs Oral Morphine: a prospective study in enhanced recovery total knee arthroplasty surgery. Matthew Horner, S Parker, A Ved, T Key, M Forster, S White. Cardiff & Vale UHB.

Background: Enhanced recovery (ERAS) after total knee replacement (TKR) is the standard of care in many units worldwide. A key concept within ERAS is the use of multi-modal

analgesia. Research exists for regional anaesthetic techniques but evidence on the most effective oral analgesic is lacking.

Methods: This prospective audit of 81 primary TKR patients assessed post-operative pain, opiate consumption and time to full mobilisation following surgery for two orthopaedic surgeons using identical ERAS regimens, except oral analgesia. Surgeon 1 used oxycodone (OXY) with surgeon 2 using morphine (MST). In re-audit both surgeons had moved to OXY. **Results:** Patients in the MST group required greater amounts of opioids on all post-operative days. Mean opiate consumption was significantly greater in the MST cohort on post-operative days 2 (46.7mg vs 30.7mg $p=0.005$) and 3 (33.7mg vs 24.3mg $p=0.016$). Despite increased opiate consumption there was a trend for higher pain scores in the MST group, reaching significance on day 3 post-operatively ($p=0.048$). Mean time to physiotherapy discharge was significantly lower in the OXY group (4.3 vs 5.9 days $p=0.043$). In re-audit there were no significant differences between surgeons with surgeon 2 assuming the OXY profile of surgeon 1.

Conclusions: To our knowledge this is the first study to compare oral opiate analgesia in the context of orthopaedic surgery or ERAS. Our results suggest that oxycodone provides superior pain relief, with lower opioid requirements and a shorter time to full mobilisation. This is clearly an important consideration, particularly as prudent healthcare is becoming increasingly important.

16024 Re-energising the Diep protocol – taking ERAS one step further. Caroline Oates, D Hocking, D Gane, A Pullyblank, S Wilson. North Bristol NHS Trust.

Introduction: Free tissue transfer breast reconstruction is the gold standard for autologous breast reconstruction. Enhanced recovery (ERAS) protocols reduce length of stay (LOS) by standardising post-operative care however, continuous analysis of results is essential for sustainability. ERAS was introduced in our department for patients who had Deep Inferior Epigastric Perforator (DIEP) flap breast reconstruction in 2008 initially with good results. Re-analysis demonstrated that not all elements of ERAS were being adhered to so the protocol was re-implemented in February 2015. Prior to ERAS LOS for a DIEP flap was 6.94 days. We present a further reduction in LOS.

Material and methods: 53 patients underwent DIEP reconstruction in 2015. Initial results were good with a mean LOS of 5.43 days (median 5) in 2015. 64% of patients were discharged with a stay of 5 days or less. So far in 2016 there have been 34 patients and although the median LOS remains 5 days, the variation in LOS has reduced to a mean of 4.76 days and 91% of patients now stay 5 days or less. Standardisation of practice between surgeons was key to this reduction. Analysis of day of operation demonstrated that patients operated on a Tuesday had a higher LOS and this was resolved with a new weekend discharge protocol. There was no increase in complications or re admissions.

Early evaluation demonstrates a 97% patient satisfaction with a 77% response rate.

Conclusion: An ERAS protocol can reduce LOS for DIEP breast reconstruction without compromising patient safety

16025 Does the Enhanced Recovery Protocol for Total Knee Arthroplasty have any effect on renal function? Rahul Kakar, P Gooley, R Abu-Rajab, S Chitnis. Cardiff & Vale UHB.

Acute kidney injury is a major problem in hospitals, with a fifth of inpatients being affected in some way. The enhanced recovery protocol (ERP) for total knee arthroplasty is designed to

decrease hospital stay and improve recovery time. One aspect of ERP involves limiting peri-operative IV fluids, instead encouraging early oral intake. The aim of this study was to assess the effect of this fluid regime on renal function.

This was a retrospective casenote review. Renal function data was collected from 22 ERP knee arthroplasty patients, and compared to 22 control (non-ERP) knee arthroplasties. The Greater Glasgow and Clyde therapeutics handbook defines an Acute Kidney Injury (AKI) class 1 as a $>25\mu\text{mol}$ increase in serum creatinine.

Patients in both groups were similarly matched for age, sex and ASA status. In the ERP group 4 out of 22 (18.2%) sustained an AKI Class 1, and 6 out of 22 (27.3%) had an abnormal eGFR (We conclude that the enhanced recovery protocol does appear to have an effect on a patient's renal function following total knee arthroplasty. However this seems to be short lived, although the long-term effect is unknown.

16026 Initial outcomes following the implementation of a Scottish National Enhanced Recovery Colorectal Initiative for patients undergoing laparoscopic colonic surgery. Craig Parnaby, A Naganti-Rose, D Garioch, N Perkins, S Coull. Aberdeen Royal Infirmary.

Introduction: Enhanced recovery after surgery (ERAS) has become the standard approach to perioperative care for patients undergoing elective colorectal resection. Implementation of all ERAS elements has been difficult, this may prevent patients realising the true benefits. A Scottish National Enhanced Recovery Colorectal Initiative (NERCI) was introduced to allow the sustained standardized implementation of all ERAS elements. Data collection started in Feb 2016.

Aim: To assess outcomes pre and post implementation of NERCI for patients undergoing elective laparoscopic colonic resections in our unit.

Methods: In this observational study, patient outcome measures were analysed in two groups: pre- NERCI (Jan 2015- Dec 2015) and post-NERCI (Feb 2016-June 2016). Primary outcome was total postoperative hospital stay (THS). Secondary outcomes were solid diet attempted on post-op day 1, IV fluids discontinued post-op day1, mobilisation post-op day 1 and telephone follow-up after discharge.

Results: 118 patients underwent colonic surgery in the pre-NERCI group, 53 were laparoscopic. 70 patients underwent colonic surgery in the post-NERCI group, 47 were laparoscopic. Patients undergoing laparoscopic resection, median THS in the pre-NERCI group was 8 days (IQR6.5-12) versus 7days (IQR5-9) in the post-NERCI group, p Conclusion Initial results following the introduction of the Scottish NERCI programme has demonstrated improved outcomes for patients undergoing elective laparoscopic colon resection.

16027 Does Body Mass Index(BMI) affect outcomes post lung resection surgery? Logan E, Avtaar Singh S, Fujiwara T, Kirk A, Klimatsidas M. Golden Jubilee National Hospital.

Introduction: Increased BMI increases the surgical risk, atelectasis and postoperative complications in patients considered obese ($\text{BMI} \geq 30$) , . Several published studies have shown a protective effect of increased BMI,. The introduction of Enhanced Recovery Programmes (ERP) in surgical units has greatly benefited obese patients in other surgical specialties but its impact in patients undergoing thoracic surgery is uncertain. We looked at the outcomes of patients at our unit since its implementation.

Methods: A retrospective cohort study was performed on all patients undergoing first time lobectomies for primary lung cancer between January 2015-June 2016. Patients with $\text{BMI} < 18$

were excluded from the study. Student's T-test, Mann-Whitney-U Test and Chi-Squared analysis was used for statistical analysis of demographics and outcomes.

Results: *Please see poster for table of results*

Preoperatively, the FEV1 and DLCO were both significantly higher in patients with BMI \geq 30. There were no statistically significant postoperative differences between the two groups.

Conclusion: Patients with a BMI \geq 30 can do just as well as patients with BMI $<$ 30 in an ERP for patients with lung cancer undergoing lobectomy.

16028 Lymph node sampling in 3-Port Video Assisted Thoracoscopic Surgery (VATS) vs Uniportal VATS, does increasing the number of ports increase the number of lymph nodes sampled? Hui Cheng, Avtaar Singh S., Lang P, Gardiner A, Klimatsidas M, Kirk A. Golden Jubilee National Hospital.

Introduction: VATS is fast overtaking thoracotomy as the approach to lobectomies due to faster recovery times. Uniportal VATS lobectomies are slowly becoming more popular throughout the world but the advantages of Uniportal VATS over the standard 3-port approach is unclear. The lung resection can often be performed via a Uniportal approach although concurrent lymphadenectomy/lymph node sampling, may be more challenging. We explored the adequacy of lymph node sampling at our unit as per the ESTS 2006 guidelines on intraoperative lymph node staging.

Methods: All Primary Lung cancers (Non-small cell lung cancers) performed by 4 VATS surgeons from May 2015-July 2016 were included in the study. A single surgeon performed all the Uniportal VATS lobectomies. The standard 3-port approach was employed by 4 VATS surgeons. Patient demographic details and length of stay were obtained from our Cardiothoracic Database (CaTHi) alongside pathological findings.

Results: *Please see poster for table of results.*

The patients in the standard cohort had a higher ThoracoScore indicating increased risk of surgery. There was no statistically significant demographic difference between the two groups. The rate of lymph node dissection was similar in both groups.

Conclusion: Despite the perceived limited access, uniportal VATS has shown to be as good as standard 3 port VATS for lymph node sampling intraoperatively

16029 Adherence to ERAS protocol in colorectal surgery is definitely valuable to improve our surgical outcome; a prospective study in district general hospital. Charef Raslan, Sajal Rai. Oxford University Hospital.

Background: Introducing Enhanced Recovery After colorectal Surgery (ERAS) protocol in district general hospital has shown to be successful & effective in improving recovery outcome.

Aim: The aim of this study was to review the recovery for patients who had elective colorectal surgery in district general hospital following introducing ERAS protocol, which has been established in 2011.

Method: A prospective single cohort study was conducted over 6 months period. Data of 65 patients underwent elective colon resections were collected. Data collection and analysis were performed according to the ERAS protocol. Results were compared to those from previous pilot study.

Results: Fifty-eight patients (89.2%) had resections for malignant disease; 7pt (10.8%) had resections for benign disease. Median total Length Of Stay (LOS) was 10 days. Median length of HDU stay was 3 days. There was no significant difference in comparison with previous pilot study. But the complication rate was significantly less than the rate in previous pilot study in 2011 with $P < 0.0001$. The complication rate in current practice (30pt, 46.1%), where as it was (76pt, 76%) in the previous pilot study. Complications were observed in 30 patients: Anastomotic leak (3pt, 4.6%); 1pt required re-operation where as the other 2 treated conservatively; post-op ileus (16pt, 24.6%), wound infection (11pt, 16.9%), pneumonia (3pt, 4.6%), cardio-vascular complications (5pt, 7.7%). Mortality rate was 0 %; it was 2 % in previous pilot study.

Conclusion: Our study confirms that adherence to ERAS protocol for colorectal surgery is substantial in reducing morbidity and mortality rates.

16030 Enhanced recovery in the real world – still working 5 years on? Venetia Barrett, C Jones, L Kelliher. Royal Surrey County Hospital.

Introduction: The success of enhanced recovery in colorectal surgery¹ has led to intense interest in developing this model of care for other patient groups. In 2011 we published the results of an RCT conducted at our centre demonstrating the benefits of an enhanced recovery pathway (ERP) for liver resection surgery². 5 years on, this audit aims to evaluate the current compliance rates with the ERP and determine whether adherence continues to confer the benefits demonstrated in the original study.

Methods: Compliance with ERP elements and postoperative length of stay (LoS) was established from a retrospective review of case-notes for 21 consecutive patients undergoing open liver resection in early 2016. Results were compared with data from the original 2011 RCT.

Please see poster for table of results

Conclusion: This audit revealed there has been a decrease in overall compliance with the ERP, in particular with the pre and postoperative elements. This coincides with a trend toward increasing LoS, although this was not significant and LoS is still better than with no ERP, highlighting the importance of compliance for maintaining clinical outcomes. This project illustrates the essential role audit plays in maintaining clinical standards and demonstrates why it forms a key part of a successful ERP.

16031 Differences in average patient length of stay following elective joint arthroplasty in the private sector and National Health Service . Powell S, White S, Doherty N, Carter P. Spire Healthcare Group.

Background: The length of stay following joint replacement surgery has reduced significantly in recent years due to Enhanced Recovery techniques, earlier ambulation and improved surgical techniques

40% shorter in the private sector compared to National Health Services (NHS) for Total Hip Replacements as a result of efficiency not selectivity.

Aims: To compare average length of stay (AVLOS) data following Unicondylar Knee Replacement (UKR), Total knee replacement (TKR) and Total Hip Replacement (THR) for NHS patients treated at Spire Cardiff Hospital and local NHS trusts controlling for age and ASA grading, following the introduction of enhanced recovery principles.

Method: Retrospective data from 360 NHS patients at Spire Cardiff Hospital and 360 patients from a local NHS hospital who underwent elective joint arthroplasty was analysed to determine mean and median length of stay. An unpaired t-test was applied to compare average mean data to determine a significant difference ($p < 0.01$). Comparison between ASA grading, age and length of stay was then analysed further to establish if significant results were as a result of efficiency not selectivity.

Results: Data has been collected and is due to be analysed fully using the above method ahead of conference. Preliminary data For NHS patients treated in the Local trust are TKR mean AVLOS 7.63 Median 6 THR Mean AVLOS 8.45 Median 5. NHS patients treated at Spire Cardiff Hospital for both THR and TKR are Mean AVLOS 2.15 Mean 2. This is clinically significant.

Conclusions: Although the data for ASA grading needs to be analysed and cross referenced with AVLOS and Spire AVLOS needs to be split to distinguish TKR and THR separately early indicators suggest a far lower LOS for NHS joint arthroplasty patients treated at spire Cardiff hospital in comparison with the local NHS. Suggesting that efficiency not selectivity is responsible for AVLOS.

16032 Normal C-Reactive Protein Levels: One of the Essential Criterion for a Safe Early Discharge in a Colorectal ERAS Programme? Ahmed Latif, P Kumar D Rao; G J Stuart; J Horwood. University Hospital of Wales.

AIMS: Anastomotic leaks (ALs) are recognised complications of laparoscopic colorectal resections. C-reactive protein (CRP) levels of $>150\text{mg/L}$ on post-operative days 2 or 3 have previously been identified as predictive of ALs. This retrospective study investigates whether post-operative CRP levels between days 2-4 predict ALs in our unit, and whether this could be used in the setting of Enhanced Recovery Programmes to aid safe early discharge.

METHODS: All patients who underwent laparoscopic and laparoscopically assisted colorectal anastomoses between January 2011 and October 2015 were identified from the prospectively maintained institutional database. ALs were determined from the database and cross-referenced with radiological investigations. Post-operative CRP levels from days 2-4 were correlated to complications using electronic case records.

RESULTS: During the study period, 474 patients (319 cancer and 155 benign) underwent colorectal anastomoses. 29 patients (6.1%) had ALs (20 cancer and 9 benign). 19 patients (65.5%) with ALs had a day 2-4 CRP $>150\text{mg/L}$ compared to 76 patients (17.1%) in the non-leaks cohort (p

CONCLUSION: CRP is a valuable negative predictive tool for the development of ALs in patients undergoing laparoscopic colorectal resections. Moreover, it may play a role in the context of Enhanced Recovery Programmes by facilitating early safe discharge of patients with low post-operative CRP levels.

16033 Happy Homecomings: Maternal satisfaction with day of discharge following elective caesarean delivery aided by an enhanced recovery program. Cara Marshall, A Clark, K Fraser, K Litchfield. Princess Royal Maternity, Glasgow Royal Infirmary.

NICE guidelines recommend offering discharge after 24 hours for mothers recovering well following caesarean delivery. In response to this an enhanced recovery after surgery pilot (ERAS) was (Maempel and Walmsley, 2015). There remains a perception that length of stay is reduced in private hospitals because of differences in patient selection. Scillan et al (2012) state average length of stay is established. This encompassed preparatory education

and standardised clinical measures to assist maternal engagement and early return to pre delivery function. We present a follow-up survey of maternal satisfaction with the pilot and discharge timing.

Methods: For one month all mothers undergoing elective caesarean delivery at Princess Royal Maternity were telephoned 4 weeks following delivery. They were asked: 'Did they feel they had been discharged at the correct time for them?' and 'Would they recommend the service to friends & family?' Feedback was also requested on aspects of the service they recommended highly and suggestions for improvement.

Results: 47/70 (67%) patients were contactable. Discharge day varied between one and six days postoperatively. 42 out of 47 (89.3 %) respondents felt their discharge was timed appropriately, 3 (6.4%) felt they had been discharged at the wrong time, and 2 (4.3%) unsure. There was no correlation between dissatisfaction and early discharge: 12 mothers (26%) were discharged on day one; 91% of these were satisfied (p-value 0.6818). 46 out of 47 mothers (97.8%) would recommend the service.

Discussion: Our results demonstrate the ERAS pilot has increased the number of mothers returning home day one following elective caesarean delivery, and appropriately met their needs. The high satisfaction rates indicate that individual discharge dates were suitably selected and supported. We plan to feedback mothers comments to the postnatal forum.

16035 Lumbar decompression spinal surgery and the relevance of Enhanced Recovery After Surgery (ERAS). Thomas Wainwright, T Immins, R Middleton. Bournemouth University.

Introduction: Lumbar decompression surgery is a type of surgery used to treat compressed nerves in the lower (lumbar) spine. Given the success of ERAS pathways in other orthopaedic procedures, it has recently been suggested in the literature that ERAS may be applicable to major spinal surgery procedures. This study reviews the UK national data to examine whether there is scope to improve LOS in this patient group by implementing ERAS.

Methods: Hospital Episode Statistics (HES) data was analysed for the OPCS procedure codes V254 and V255 from April 2015 to March 2016. These codes are for Primary posterior laminectomy decompression of lumbar spine (V254) and Primary posterior decompression of lumbar spine (V255).

Results: 7522 superspells for were recorded, and 236 of these were recorded as a day cases. Average LOS was 2.6 days (3.16 for V254 and 2.29 for V255) and across hospitals ranged from 1.0 to 10.14 days, and the range of case mix-adjusted expected LOS was 1.0 to 7.76 days.

Conclusions: The data highlights the range of LOS achieved for the same procedure across different hospitals. We propose that there appears to be scope for more of these procedures to be performed as day cases if multi-modal ERAS techniques are adopted. This could provide clinical to the patient and economic benefits to the NHS.

16036 Implementation and Patient Evaluation of a Perioperative Fit for Surgery School. Imogen Fecher-Jones, M Edwards, D Levett, S Jack, J Forrester, M Grocott. University Hospital Southampton NHS Foundation Trust.

Aims: To design, implement and pilot a pre-operative surgery school for patients within an acute NHS Trust. In order to provide patients with advice and tools to enable behaviour modification and improve fitness for major surgery.

Method: A steering group was established which included the perioperative medicine

project manager, an anaesthetist, dietitian, physiotherapist and representatives of the Trust smoking and alcohol cessation teams. A two hour classroom based session was compiled with topics including the benefits of exercise, preoperative nutrition, enhanced recovery, and lifestyle modification advice regarding smoking and alcohol intake. Tips for behaviour change and practicalities for sustaining improvements were also included. The session was offered to all patients under going elective major colorectal and urology resections was run weekly by the project manager together with members of the steering group.

Results: During the first 2 months of the pilot, 47 patients attended Fit 4 Surgery School. See Table of patient feedback relating to usefulness and relevance of the sessions

Percentage of patients finding session useful :

Preparing for surgery / Enhanced recovery 92%

Exercise is Medicine 80%

Pre-operative Nutrition 76%

Alcohol Awareness 35%

Smoking Cessation 21%

Further to the topic review, 44% of patients stated that they were planning on changing their behaviour as a result of attending the surgical school. 26% were undecided if they would change their behaviour. Finally, 93% of patients stated that they would recommend a friend having surgery to surgery school.

Conclusion: Introduction of a Fit 4 Surgery School has been shown to be of use to patients and it likely to result in positive behaviour and lifestyle change prior to surgery. More work is required to assess whether this planned behaviour change is instigated and maintained to improve surgical outcome.

16037 The operative day of the week does not alter ERAS outcomes and long term survival following colorectal cancer resection. Nathan Curtis, E Noble, R Hipkiss, R Dalton, A Allison, J Ockrim, N Francis. Yeovil District Hospital.

Purpose - Seven day NHS working patterns are under high public, media and political scrutiny. The association of operative day of the week on length of stay, day of discharge, need for readmission and overall survival is unknown.

Method - A prospectively populated colorectal cancer surgery patient database was reviewed. All patients were managed within an established ERAS pathway. Surgical, discharge and readmission day of the week was calculated and used as a co-variant against surgical approach, TNM stage and length of stay. Overall survival at 5 years was calculated by Kaplan-Meier analysis.

Results - 854 colorectal cancer patients underwent elective surgery (43% female, median age 72 [25- 96, IQR 15]) between 2002 and 2015. Median follow up was 54 months. 481 patients (56.3%) underwent laparoscopic surgery with a 20% conversion rate. Operations were not equally distributed across weekdays (p

Conclusion - The operative day does not alter length of stay or long term overall survival following colorectal cancer resection. Fewer discharges take place on weekends.

16038 Frequency, causes and severity of hospital readmission in 1023 colorectal cancer patients managed within an established enhanced recovery protocol. Nathan Curtis, E Noble, E Salib, R Hipkiss, R Dalton, A Allison, J Ockrim, N Francis. Yeovil District Hospital.

Purpose - ERAS facilitates shorter length of stays which may lead to complications presenting

after discharge. Additionally, the reasons for re-attendance are not well described for colorectal patients managed within ERAS programs. We aimed to identify the frequency and severity of reasons causing patient readmission following colorectal cancer resection and ERAS care.

Method - A dedicated, prospectively populated database from a single UK site was reviewed between 2002 and 2015. All patients were managed within an established ERAS program. Data was captured on readmissions (unplanned hospital re-attendance within 30 days of surgery) with the primary reason graded using the validated Clavien-Dindo (CD) classification. **Results** - 1023 patients underwent colorectal cancer resections (median age 73 [25-96], 454 (44%) were female). 854 (83.5%) were planned operations. 166 (16%) patients were readmitted within 30 days of surgery (median age 71 [25-88], 68 (41%) female). Median readmission stay was 3 days (IQR 0-8). 54 reasons for readmission were identified. Gut and wound problems were most frequent, together accounting for 33% of readmissions. There were nine anastomotic leaks (5%) and twelve (7%) abdominal abscesses seen in the 166 cases. The majority of complications were minor (73% CDI-II). 27 (CDIII, 16%) required an intervention of which 13 (7.8%) returned to theatre. 5% (CDIV) required ICU care and two readmitted patients died (CDV, 1%).

Conclusion - There is a wide variety of reasons behind readmission after ERAS colorectal cancer resection. The majority of reasons are minor with an acceptable serious complication rate seen amongst those readmitted.

16039 Cardiopulmonary exercise testing for collaborative decision making prior to major hepatobiliary surgery. Mark Edwards, T Sharp, S Jack, T Armstrong, J Primrose, M Grocott, D Levett. University Hospital Southampton NHS Foundation Trust.

Background/Introduction: Cardiopulmonary exercise testing (CPET) is increasingly used for preoperative risk assessment. Evidence to date suggests utility for predicting risk of postoperative morbidity and mortality across a number of surgical specialties. It is commonly used to triage patients to postoperative critical care and to inform preoperative risk discussions. We report its use for preoperative collaborative decision making in a large University hepatopancreatobiliary (HPB) surgical unit in which postoperative critical care admission is routine.

Methods: Patients undergoing assessment for liver resection and pancreaticoduodenectomy in 2014 and 2015 underwent symptom limited incremental exercise testing at the surgeons' discretion. Data collected included anaerobic threshold (AT), peak oxygen consumption (peakVO₂) and ventilatory equivalents for carbon dioxide at AT (VE/VCO₂), clinical plan made on the basis of CPET, intensive care and hospital length of stay (LOS) in operated patients. Based on prior literature, physiological risk was reported to the clinical team as "low risk" (AT > 10mlO₂.min⁻¹.kg⁻¹), "high risk" (AT 8-10mlO₂.min⁻¹.kg⁻¹) or "very high risk" (AT

Results: 146 patients underwent CPET. Median (IQR) age was 69 (62-74), with mean (SD) AT 9.6 (2.6) mlO₂.min⁻¹.kg⁻¹. This is lower than previously published series of HPB patients and may reflect selective referral of patients where the surgeon has concern about baseline physiological status. 31 patients did not ultimately have surgery. Of these 13 (8.9%) had disease that was assessed as non-resectable whereas 18 (12.3%) had very high physiological risk (mean AT 6.5 mlO₂.min⁻¹.kg⁻¹; p

Furthermore, in nine "high-/very high- risk" cases undergoing surgery (8% of operated

group), perioperative care was significantly modified based on CPET findings. This included four cases of optimization of cardiac medication for exercise-induced ischemia / arrhythmia and two respiratory interventions. This preoperative optimization group proceeded to surgery in a timely fashion (median time from test to surgery 9 days, range 1-20) and had postoperative outcomes in line with the lower risk CPET group: critical care LOS 1 day (range 1-6 days), hospital LOS 8 days (range 2-9 days).

Conclusion: Even in centres and surgical specialties where postoperative critical care admission is routine, preoperative CPET in a higher risk subset of the overall patient group has utility in guiding shared decision making. This includes consideration of non-surgical options in patients at very high risk of postoperative morbidity and mortality, and timely optimization of cardio-respiratory limitations revealed during CPET.

16040 Compliance with enhanced recovery principles is poor without a specified pathway: A prospective audit of practice. De Jun Lao, ES Cervi, SJ Ong, LYP Lei, AJX Soo, B Lamb, MEL Tan. University College London.

Patients undergoing major pelvic cancer surgery benefit from enhanced recovery programs. Compliance with such programs by staff and patients can be variable, impacting on recovery from surgery.

Aims: To quantify compliance with Enhanced Recovery principles for patients undergoing robotic radical cystectomy with intracorporeal diversion (iRARC) as a baseline, prior to re-launching a revised Enhanced Recovery protocol.

Methods: Data on eight consecutive patients undergoing iRARC was prospectively collected during their hospital stay using a patient questionnaire and hospital records.

Results: Between 23/02/2016 and 29/03/2016 eight patients underwent iRARC with a mean age of 66 and M:F ratio of 7:1.

Two had orthotopic neobladder and six had ileal conduit formation. SORT assessment score showed a mean 30 day mortality risk of 3.54% (range 1.25-10.14%).

Preoperatively: Four remember having stoma education.

Three had a discharge risk assessment done at preassessment.

Three patients complied with oral carbohydrate pre-loading.

Perioperatively: All patients had neuraxial blocks as part of their anesthetic technique.

Postoperatively:

Mean time to targets: Normal diet 6 days (range 1-22); Mobilisation 3.6 days (1-7)

Passing flatus 3 days (1-7); Epidurals were removed at 2.6 days (1-5); Two patients had an NGT reinserted

Conclusions / Discussion: Our baseline data identified a need for greater staff education and patient engagement. As part of our improved staff education program, the data has been used to illustrate current lack of compliance and the need for better patient management. We are also developing an app to guide patients through the pathway and facilitate real time data collection.

16041 Cardiopulmonary Exercise Testing for Preoperative Risk Stratification in Major Hepatopancreaticobiliary Surgery. Mark Edwards, T Sharp, S Jack, T Armstrong, J Primrose, M Grocott, D Levett. University Hospital Southampton HNS Foundation Trust.

Introduction: Cardiopulmonary Exercise Testing (CPET) is a dynamic and integrative method

of objectively evaluating functional capacity (1). Low functional capacity is linked to poor surgical outcome (2). CPET is increasingly being used for preoperative risk stratification across a number of surgical specialties but there is still a need to further define its role (3). This retrospective service evaluation aimed to investigate the relationship between preoperative CPET and postoperative outcome in patients undergoing major hepatopancreaticobiliary surgery in Southampton

Methods: All patients receiving major hepatopancreaticobiliary surgery between January 2014 and March 2016 underwent a symptom limited incremental exercise test. Data collected included anaerobic threshold (AT), peak oxygen consumption (VO₂ Peak), and the ventilatory equivalents for carbon dioxide (VE/VCO₂) at AT. Mortality, readmission rates, discharge summary complications and hospital and critical care length of stay were collected from patient notes. Clavien Dindo postoperative surgical complications were collected from the surgical database.

Results: 172 patients underwent CPET as part of their preoperative assessment of which 140 progressed to surgery.

VE/VCO₂ at AT and AT were associated with the development of postoperative complications.

VE/VCO₂ at AT had an AUC of 0.646 (95% CI 0.553 to 0.740, P=0.004), sensitivity 56.9%, specificity 66.7% for predicting postoperative complication development.

VE/VCO₂ at AT, age, and VO₂ Peak were predictive of hospital length of stay.

VE/VCO₂ at AT over 31.05 was predictive of a prolonged hospital length of stay with an AUC of 0.660 (95% CI 0.567 to 0.754, P= 0.001), sensitivity 81%, specificity 49.3%.

AT VE/VCO₂ at AT

Postoperative complications

(multivariate regression model) N = 132

B = 0.880 P = 0.037 N= 132 B = 1.116 P = 0.005

ROC Curve analysis for postoperative complications AUC = 0.597

Threshold = 8.65 P = 0.056 AUC = 0.646 Threshold = 33.3 P = 0.004

Length of stay (multivariate regression model) N = 132

B = -0.484 P = 0.090 N = 132 B = 0.694

P = ROC Curve analysis for prolonged length of stay Not statistically significant AUC = 0.660

Threshold = 31.05 P = 0.001

Conclusion: There is an association between preoperative exercise capacity and pulmonary dead space and postoperative outcome in this surgical population. VE/VCO₂ at AT predicts outcome with the greatest precision and could be used to identify high risk patients who may benefit from modified perioperative care.

16042 Enhanced recovery after surgery (ERAS) in Open Liver Resection (OLR): Initial Leeds experience. Julie Jeffery, Upasani V, Igasan R, Ward D, Toogood G, Prasad KR, Lodge JP, Hidalgo E. Leeds Teaching Hospitals NHS Trust.

Background: ERAS was developed to improve surgical outcomes. The evidence in LR remains scarce.

Aim: To evaluate applicability of ERAS in OLR and to compare its outcome with a historical cohort after OLR.

Methods: Only OLR were included. Two groups were defined, Group Pre-ERAS (July 2012 – December 2014) and Group-ERAS (January 2015-June 2016). This was not a controlled study. The Primary endpoint was length of hospital stay (mean \pm SD). Secondary endpoints were HDU stay, postoperative complications. Significance was defined as p < 0.05. Results: Between July 2012 and June 2016 a total of 630 OLR were performed. The group Pre-ERAS included 419 patients and the group-ERAS had 211. After comparing the main demographics in both cohorts, patients in the ERAS group were significantly younger. Re-do OLR were more frequent in the non ERAS group.

We were able to implement our ERAS-LR in all cases. We saw a significant reduction in the overall LOS in the ERAS group. Within the subset of patients older than 70 and major resections only, a significantly shorter LOS was observed. The incidence of postoperative complications was reduced within the ERAS group (p < 0.05). Conclusion: The ERAS Program for liver surgery was feasible in all patients. No detrimental effects were recorded and we perceived a benefit, with a reduced length of hospital stay, and possibly reduced overall morbidity rates. We believe that ERAS in LR can improve outcomes as it has been shown in other surgical disciplines. Stronger evidence is required.

16043 Has Tranexamic Acid Reduced Blood Requirements Following Joint Replacement Surgery? Robyn Milne, Peter Lewis. Cardiff University.

Aim: To determine the effectiveness of the use of tranexamic acid (TXA) in joint replacement surgery. The primary objective is the impact TXA has on the amount of blood requirements following the procedure. The secondary objectives were, to evaluate the blood loss in both sets of patients by analysing the Haemoglobin (Hb) difference, compare the length of stay in hospital between the cases, and to see if there was any increase in embolic events after the surgery.

Method: Retrospective service evaluation of primary hip and knee joint replacements. All cases were performed by Mr Peter Lewis at Prince Charles Hospital, Cwm Taf, within the years 2010 to 2016.

Results: Out of the 123 cases analysed 13 needed a blood transfusion. 6.25% of the cases who received TXA received a blood transfusion, compared to 25.93% of the cases who did not receive TXA. The amount of units of blood transfused in each case was not affected by the use of TXA. The difference in haemoglobin (Hb) pre-and post-surgery was not statistically significant between the cohorts, with the overall average Hb loss being 25 g/L. The average length of stay in hospital was also statistically insignificant between cases. In the cases who received TXA the incidence of having an embolic event post-surgery was 1.04%.

Conclusion: TXA does reduce the amount of blood transfusions needed and is safe to use. There was no statistical significance to show that its use had any further, secondary effects on the Hb difference or length of admission.

16044 Investigation of alternatives to high BMI in rationing joint replacement surgery. Louise Bakewell, Peter Lewis. Cardiff University.

Objectives: To examine whether the outcomes of total primary hip and knee replacement surgery are affected by hip, neck and waist measurements.

· To examine whether patients with a BMI below 18.50 are at increased risk of complications post-surgery.

Design: Retrospective review of prospectively collected data.

Setting: Royal Glamorgan and Prince Charles hospitals.

Population/Participants: 47 retrospectively identified total hip and knee replacements (2010-2014)

· Further retrospectively identified data included 530 patients who underwent hip & knee replacement surgery.

Results: Analysis of the results implied slight correlation between smaller neck, waist or hip measurements and poorer improvements in outcomes. When waist measurement was compared with Oxford knee and hip score at 6 weeks post-operatively the results were significant ($p=0.029$) and suggested patients with a waist measurement greater than or equal to 35 inches had a greater improvement in outcome than those with a waist measuring less than 35 inches.

Patients with a BMI below 18.50 were at increased risk of having complications
Conclusions: Lower hip, neck and waist measurements seem to lead to poorer outcomes. Patients with a BMI lower than 18.50 who undergo hip replacement surgery seem to be at greater risk of complications.

16046 A One-stop multidisciplinary radical cystectomy clinic improves patient experience and process efficiency. Melanie Tan, B Lamb, W Tan, H Baker, C Miller, C Tucker, S Fell, E Cervi, C Dimen, J LeCouteur, H Larkin, T Briggs, J Kelly. University College London Hospitals NHS Trust.

Background: As a tertiary referral centre for radical cystectomy our patients often travel a long distance to numerous appointments and can experience delays between referral and treatment, which can result in a negative experience.

Aims: To reduce the number of outpatient visits prior to major surgery

To reduce time from referral to surgery

To improve patient experience

Methods: A multidisciplinary stakeholder group was formed to include surgeons, anaesthetists, uro-oncology clinical nurse specialist (CNS) and urinary diversion CNS. The pathway was process mapped and a clinic schedule devised. Patients see all the above disciplines as well as have a pre-assessment and CPEX appointment on a single all-day work up.

Results: Mean number of outpatient appointments attended since ERP clinic established was improved from 4.8 before initiation of clinic to 4.3 after. Mean time from referral to treatment improved since initiation of ERP clinic improved from 155 days before clinic initiated to 78 days after. Feedback on patient experience was positive. Exemplar quotes include: "All my questions were answered. Everyone renewed my confidence in the NHS today"

"Thorough. Human element & taken the time to listen. No waiting"

"Good job all round. Friendly & informative"

"Explained well. Made things better"

Conclusion: A one stop clinic strategy improves the efficiency of the cystectomy pathway, and patients have given positive feedback. These benefits appear to arise from improved multidisciplinary staff engagement, team working and decision-making.

16048 Perioperative Fluid Management in the Colorectal ERAS Population. Michael McCusker, Grant Haldane. NHS Lanarkshire.

Introduction: Recent evidence suggests that a restrictive perioperative fluid management confers benefits, such as reduced length of hospital stay and a reduction in patient complications.

Aims

- Assess the perioperative fluid management practice in the patient population.
- Determine if this has an effect on length of stay and patient complications.

Method: Patients were classified into 3 groups as per fluid balance: 4500mls. The length of stay (LOS) and complications developed were then determined for these 3 groups.

Results: 70% of the patients had a fluid balance in excess of 2500mls. In the population 4500mls median LOS 13 days. It can be seen that with a greater mean positive fluid balance there is an increase in complications developed. Of particular relevance is the increase in the rate of wound infections and the occurrence of ileus.

Discussion: From our results it can be seen that patients who had a greater fluid balance were more likely to have a longer length of stay, and were more likely to develop complications of surgery. However, it must be noted that perioperative fluid balance is complex, and therefore not possible to attribute causality to an increased fluid balance.

Conclusion: An excessive positive fluid balance can lead to increased morbidity in this patient population.

16049 Development of an integrated perioperative medicine care pathway. Mark Edwards, D Levett, T Chapman, I Fecher-Jones, J Smith, J Knight, M Grocott. University Hospital Southampton NHS Foundation Trust.

Background/Introduction: Perioperative medicine is the patient-centered, multidisciplinary and integrated medical care of patients from the moment of contemplation of surgery until full recovery. It builds on the Enhanced Recovery approach to capitalize on five key opportunities: collaborative decision-making, preoperative lifestyle modification, standardization of perioperative care, achieving full postoperative recovery and using data to drive quality improvement. We hypothesize that redesigning the perioperative pathway will add value through improved quality and reduced resource utilization.

Methods: Our multidisciplinary team is developing an integrated Perioperative Medicine care pathway at a large tertiary referral University hospital. Current pathways were mapped, analyzed and redesigned with particular focus on specific factors including defining the pathway boundaries, engaging patients and time constraints.

Results: Current preoperative pathways were mapped and analyzed. Pathway redesign addressed a number of specific aims: identification of the "moment of contemplation of surgery", early targeted preoperative information gathering through a patient-driven online system; routine physiological assessment to stratify risk early in the preoperative pathway ("patient staging") by cardiopulmonary exercise testing; a dedicated clinic for patients at high perioperative morbidity/mortality risk, collaborative decision-making and early medical optimization; Fit4Surgery School for all patients undergoing major surgery, targeting patient education, expectation management and lifestyle optimization; standardized perioperative management based on risk strata; postoperative care team clinical ward reviews for "at-risk" patients; postoperative electronic data capture to monitor Enhanced Recovery targets,

morbidity, and patient-reported outcomes.

Conclusion: Perioperative medicine offers a unique opportunity to add value through improved outcomes and reduced resource utilization in patients undergoing major surgery. Extensive pathway redesign may be needed to ensure an integrated approach, maximizing the opportunities for improvements in preoperative optimization and postoperative care. Moving the evaluation of risk to a position earlier in the pre-operative pathway offers opportunities for risk mitigation, collaborative decision-making and optimization of patient health before surgery.

16050 The use of digital media in patient education – Can interactive videos better prepare patients for major thoracic operations? N. Ahmad, A. Donnelly, A. Ali, R. Govindraj, K. Graham, S. Singh, M. Klimatsidas, M. Asif, A. Kirk. Golden Jubilee National Hospital.

Objectives: Providing adequate information prior to elective surgery is essential to patient-centred care which encourages patient compliance and manages expectations. We examine whether patient education using digital media could enhance their surgical experience.

Methods: A film was created highlighting key areas of the pre- and post-operative phase of the patient journey. Viewers were introduced to the wards, multi-disciplinary team and shown steps involved in their recovery. In an interactive format the film was made available via DVD, online, and touch screen computer. Patients were invited to engage with the application and complete anonymous feedback.

Results: We received 20 responses to the 18 point questionnaire which assessed quality and content of the film, its impact on their knowledge and how it affected their in-patient experience.

Film: 97.5% of respondents felt that the film was professional and well presented, with 90% preferring the video to the traditional paper alternative.

Content: 98.7% of responses found the information in the film to be clear, easy to understand and answered most questions adequately.

Experience: 100% responses indicated better understanding of their journey. 95% respondents felt more motivation and would recommend the film to others. 80% responses felt that the film helped them feel less anxious and gave a clear idea about the steps in their recovery.

Conclusion: Interactive multimedia has proven to be an effective medium in providing patients with an insight into details surrounding their procedure and recovery. This enhances their inpatient experience and better prepares them for their surgery.

16052 Addressing a Dressing in Hip and Knee Replacement. Julie Caunt, I Fitt. Luton & Dunstable Hospital.

Introduction: Within our busy orthopaedic surgery department we have adopted the Enhanced Recovery Programme. Noticing that a high number of our patients following knee and hip surgery were developing blisters as a result of our dressings, in some cases a factor to increased length of stay or increased care by our Hospital at Home team.

It was determined that our dressings required reviewing; this poster describes the challenges and outcomes following the introduction of a new post-operative dressing within our orthopaedic department.

Method: The dressing was to be evaluated primarily following TKR. If successful the regime

would then be extended to include THR.

Discussion: The outcomes following the successful implementation of the new dressings include, a reduction in dressing changes, reduction in skin blistering, improved patient comfort, including showering, extending now to THR .

The introduction of the new surgical cover dressing supports Enhanced Recovery by working as an MDT, reducing post-operative complications such as skin blistering thus reducing risk of delayed discharge and SSI. We have identified that we need to monitor our infection rates more closely, as a result of this should the patient or our H@H team query a wound infection, patients come back to the next clinic regardless of Consultant for consultation . We continue to receive clinical support and education from the company to ensure continued positive patient outcomes.

16054 Implementation of Enhanced Recovery Protocols (ERP) in Oesophago-gastric (OG) cancer surgery: a collaborative quality improvement initiative. K Moorthy, N McLaren, L McLeland, L Halliday, J Whibley, V Wynter-Blyth, A Poots, R Matthews, S Barber. Imperial College London.

Background: The challenges to implementing ERP in OG cancer surgery are complexity of the operations, the high post-operative morbidity rate and the lack of robust evidence for many of the elements. ERPs are developed and implemented within silos with little transfer of learning to improve compliance. There is also no standardization of ERPs.

Methods: An ERP implementation collaborative has been established across 2 specialist units with the aim of improving compliance. This quality improvement (QI) programme is being facilitated by The National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care (NIHR-CLAHRC).

The aims of the collaborative are (1) Sharing of process and outcome data (2) peer to peer learning through workshops and site visits and (3) patient engagement to improve compliance

We have held at 3 multi-disciplinary workshops, 2 patient engagement events and cross-site visits in the past 9 months. The 1st workshop was directed at development of an action-effect diagram (AED) to prioritise the aims and workstreams for the project, the 2nd workshop was devoted to prioritizing the ERP elements and the 3rd workshop was devoted to building consensus on the definition of elements.

The two patient engagement events were devoted to developing a framework for information and goal setting.

Results: The AED workshop led to the development of 4 workstreams- (1) Patient information (2) Patient preparation (3) Patient self- monitoring (4) ERP implementation and compliance.

The elements prioritized for the first wave of QI are (1) multi-modal analgesia, (2) fluid therapy (3) mobilization and (4) carbohydrate loading.

Data is collected across the two sites and fed back to the clinical teams on a monthly basis. Patient engagement events have revealed insights into how patients would like information given and how goals should be assigned or negotiated.

Conclusions: This collaborative QI will lead to the development of a framework for patient engagement in ERPs and an improvement in compliance through data feedback and peer to peer learning.



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