



# 5th ERAS UK Conference

Edinburgh Conference Centre  
@ Heriot Watt University

6th November, 2015

INTEGRATED HEALTH SOLUTIONS™

MOVING  
TOWARD  
**VALUE-BASED  
HEALTHCARE**  
TOGETHER

TAILORED SOLUTIONS  
HELPING YOU OPTIMISE  
OUTCOMES

**Medtronic**  
Further, Together

Dear colleague,

On behalf of the Western General Hospital and ERAS UK, I would like to welcome you all to the 5th Enhanced Recovery after Surgery (UK) Society Conference.

Building on the previous conferences, we felt there was a need to focus on measurement and compliance with ERAS elements across all specialties. This event will explore the performance of ERAS in England, Scotland and Wales. I am hoping that this will focus our discussions on the future direction of ERAS UK, with particular relevance to data measurement and allocation of resources.

We are always keen to explore the use of new technology, plus further research and developments in ERAS. There will be an opportunity for you to vote on the future research focus for ERAS UK.

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 Ken Fearon

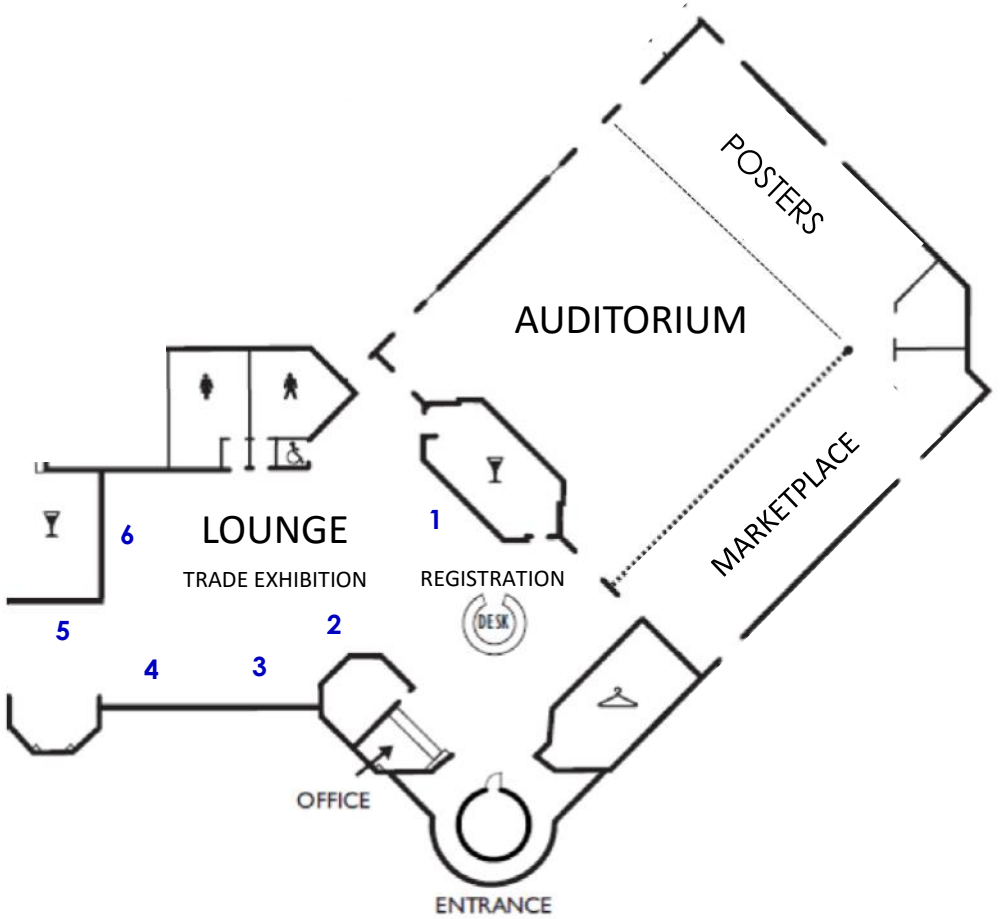
We are very grateful for the sponsorship from the following companies:



## Timetable

TIME	SESSION	FACULTY
07:45	<b>Registration and coffee</b>	Admin. Team
08:30	<b>Opening address</b>	Prof. K Fearon
08:45	<b>Session 1: Reality check</b> Progress for ERAS across UK over last 5 years  Discussion of ERAS Nurses survey	Chairs: Prof. K Fearon & Prof. O Ljungqvist T Wainwright D McDonald Dr R Barlow A Balfour & I Fecher-Jones
10:00	<b>Coffee break, marketplace &amp; trade exhibition</b>	
10:45	<b>Session 2: Enhancing research</b>  Results of initial surveys on research priorities in ERAS Interactive voting on top 10 research questions for ERAS <b>Oral abstract presentations</b> 15003 Self Medicating of Over-the Counter analgesics for Enhanced Recovery Programme 15006 Pre-operative Carbohydrate Supplementation in Patients undergoing Lung Resection: A pilot study. 15022 Use of wound infiltration catheters for enhanced recovery in laparoscopic live donor nephrectomies 15032 Does intracostal suture placement reduce postoperative pain in patients undergoing thoracotomy under paravertebral analgesia? 15033 Enhanced Recovery following Cardiac Surgery 15035 National implementation of enhanced recovery programme: Anaesthetists opinion 15041 Enhanced Recovery Programmes for Knee Arthroplasty within the NHS	Chairs: T Wainwright, S Nimmo, A Kinninmonth  N Francis  J Jones, Poole Hospital NHS Foundation Trust  T Fujiwara, Golden Jubilee National Hospital  T Brown, Belfast City Hospital  S Singh, Golden Jubilee National Hospital  J Hartley, Blackpool, Fylde & Wyre Hospitals M Tan, Royal Free Hospital  N Nagra, Oxford University Clinical Academic Graduate School
12:15	<b>Lunch, posters &amp; trade exhibition</b>	
13:30	<b>Session 3a: Measurement</b> <ul style="list-style-type: none"> <li>International &amp; National toolkits</li> </ul> <b>Session 3b: Prehabilitation</b> <ul style="list-style-type: none"> <li>Update on current and forthcoming UK studies</li> <li>Overview of challenges in UK for preoperative optimisation</li> </ul>	Chairs: M Scott, Dr R Barlow, N Francis Prof O.Ljungqvist D McDonald C Ball  Prof M Grocott  Dr E MacDonald
15:00	<b>Coffee break, networking &amp; trade exhibition</b>	
15:30	<b>Session 4a: Advances in pain management</b> <ul style="list-style-type: none"> <li>Advances in pain management</li> </ul> <b>Session 4b: Sharing our experiences</b>	Chairs: Prof. M Grocott, Prof. K Fearon S Nimmo & J Balson A Balfour, M Scott, N Francis, T Wainwright, E MacDonald, J Harvey, I Fecher-Jones
16:45	<b>Poster and oral presentation prizes</b>	Prof. K Fearon & N Francis
16:55	<b>Summing up</b>	Prof. K Fearon
17:00	<b>CLOSE</b>	

# FLOOR PLAN



1 **Medtronic**  
Further, Together



3 **MSD**

4 **Deltex**  
medical

5 **NUTRICIA**  
Advanced Medical Nutrition

6 **HALYARD**  
FORMERLY KIMBERLY-CLARK HEALTH CARE

**Angie Balfour**, RGN, Enhanced Recovery Research Nurse, Western General Hospital, Edinburgh

Since joining the Western General Hospital, Edinburgh in 1998, Angie has mainly worked in Critical Care areas, but for the last decade, she has been involved in the ERAS Colorectal programme led by Prof Fearon. Angie is now involved in the roll out of ERAS to other surgical specialties throughout Lothian. At present, Angie is a Senior Research Nurse; the main purpose of her role is to demonstrate the clinical benefits of ERAS and aid its implementation and sustainability in the Colorectal Unit. Her main roles are education, both patient and clinical staff, audit and data collection and she has just completed a prospective RCT looking at different analgesia used within an ERAS Programme. Angie also helps the ERAS Society with implementation programmes in the USA/ Canada and is currently reviewing care pathways and documentation across Europe, aiming to reduce variability across the world.

**Christine Ball**, Head of National Clinical Analysis and Specialised Applications Team (NATCANSAT)

**Jayne Balson**, Acute Pain Nurse Specialist, Western General Hospital, Edinburgh

Qualified as a nurse in 1988. Advanced nurse specialist in pain management with over 10 years experience in acute & inpatient pain management. Prior to specialising in pain, majority of experience gained in surgical and high dependency nursing with an emphasis on high quality patient focussed care. Long term interest and dedication to quality pain management. Member of a team of 3 nurse specialists and 3 pain Consultants in acute hospital with over 570 beds. Major colorectal, urology, neurosurgery, breast and cancer services.

**Dr Rachael Barlow**, Clinical Academic, Cardiff University

Dr Barlow qualified as a dietician in 1994 and has many years' experience as a Dietician and of service improvement. She has worked closely with surgeons and managers to raise the profile of nutritional care for surgical and high risk patients. In 2003, she won a Fellowship grant from the Health Foundation, entitled 'Leading Practice through research', which enabled Rachael to develop her clinical leadership skills, whilst conducting research. She obtained a PhD from Cardiff University School of Medicine in 2008.

She currently has a Clinical Academic role and is a Fellow of National Institute of Social and Healthcare Research (NISCHR) and teaches future health professionals about nutrition and ERAS.

Rachael has won several National prizes including the British Journal of Surgery prize, The Nutrition Society prize and British Association of Parenteral and Enteral Nutrition prize and the UK Advancing Healthcare Award. She sits on several UK committees. Rachael was instrumental in the launch of the Enhanced Recovery after Surgery (ERAS) Programme in Wales in 2010.

**Eleanor Dunn**, Senior Charge Nurse (Colorectal), Western General Hospital, Edinburgh

**Professor Ken Fearon**, Professor of Surgical Oncology, Edinburgh University  
Professor Fearon has conducted several of the largest prospective randomised intervention trials in cancer cachexia and had a major interest in nutritional pharmacology. He has also been a founding member of the Enhanced Recovery After Surgery (ERAS) Group and is Chairman of the Board of the ERAS Society. He was presented with the Cuthbertson Medal from the Nutrition Society in 1991, the Hippocrates Award from the Society on Sarcopenia, Cachexia and Wasting Disorders (SCWD) in 2009 and the Arvid Wretling Lectureship from the European Society for Clinical Nutrition and Metabolism in 2011. Peer reviewed original publications 153. Chapters and Reviews 75.

**Imogen Fecher-Jones**, Advanced Nurse Practitioner, University Hospitals Southampton. Imogen qualified in 2001 with a BSc (Hons) from Oxford Brookes University. Following three years working within oncology and gastrointestinal medicine and surgery at the John Radcliffe and Churchill Hospitals, she moved to University Hospital Southampton. After two years working within surgical high dependency she took on the specialist role of colorectal nurse practitioner in 2007. Imogen co-ordinated the introduction of the Enhanced Recovery programme into colorectal surgery in 2008 and HPB surgery in 2012. In 2012 she completed a Masters in Advance Practice within GI Nursing with a distinction at Kings College London. Following this, she moved to the new acute surgical admissions unit at UHS as a band seven nurse practitioner. In 2013 Imogen commenced a one year secondment as Nursing Lead for Enhanced Recovery. Following the implementation of ten new enhanced recovery pathways across UHS, Imogen intends to return to her role as GI Advanced Nurse Practitioner with the acute surgical admissions team.

**Mr Nader Francis**, Consultant Colorectal Surgeon, Yeovil District Hospital NHS Foundation Trust. Nader is an Honorary Senior Lecturer (University of Bristol, University of Exeter), Director of the South West Surgical Training Network, National Educational Tutor for ACPGBI, SW representative of ALSGBI and Chairman of ERAS-UK. Since taking up his post in 2006, Mr Francis has maintained the role of Yeovil as a training centre for laparoscopic colorectal surgery and enhanced recovery. Nader's research background underpinned his involvement as a mentor in two national training programmes for colorectal surgery (lapco and LOREC) and his development of a 'Training the Laparoscopic Colorectal Trainers' course. Nader is the lead for surgery at the South West Peninsula CRN and sits on the research committee of the European Association of Endoscopic Surgery. Nader is the chief investigator of two NIHR randomised controlled trials (EWIC and STARRCAT) and has several publications in the fields of ERAS, education and training including two text books on Colorectal ERAS and Training in Minimal Access Surgery Manual.

**Professor Michael Grocott**, Professor of Anaesthesia and Critical Care Medicine, University of Southampton . Mike is a consultant in Critical Care Medicine at University Hospital Southampton NHS Foundation Trust (UHS) where he leads the UoS Centre of Human Integrative Physiology and the critical care research area of the UHS-UoS NIHR Respiratory Biomedical Research Unit. Mike is the clinical lead for enhanced recovery (ER) at UHS and previously led the introduction of ER at the Whittington Hospital. He is Director of the NIAA Health Services Research Centre and chairs the National Emergency Laparotomy Audit. Mike also leads the Xtreme-Everest Oxygen Research Consortium and the Fit-4-Surgery Group. His research interests include human responses to hypoxia, measuring and improving outcome following surgery, acute lung injury, and fluid therapy.

**Janice Harvey**, Senior Physiotherapist, Western General Hospital, Edinburgh

**Mr Andrew Kinninmonth**, Consultant Orthopaedic Surgeon, Golden Jubilee National Hospital. Andrew has been a Consultant since 1990, initially at Glasgow Royal Infirmary and, since 2003, at the Golden Jubilee National Hospital. The unit has expanded during the last 12 years to perform over 3000 lower limb arthroplasties per annum. Since 2007, the unit has developed a programme of enhanced recovery in relation to arthroplasty, which has been responsible for halving the length of stay. I have been involved in the national programme of E.R. education within Orthopaedics. I was a member of the E.R group which undertook annual audit of performance in all units in Scotland. This was responsible for promoting E.R. and improving practice within Scotland . Research/audit has included the benefits of ER and we have published articles showing that E.R. is not detrimental to the results of joint replacement. The unit is currently exploring the possibility of 24 hr hip replacement and will be starting a pilot study soon.

**Professor Olle Ljungqvist**, Professor of Surgery, Örebro University Hospital, Örebro. Affiliated Professor of Surgery, Metabolism & Nutrition, Karolinska Institutet, Stockholm, Sweden. His clinical is field colorectal surgery. Professor Ljungqvist received his training mainly at the Karolinska Institutet and Hospital, including his MD 1985, and PhD 1987 . He is a co-author of about 200 original publications, reviews and book chapters, editorials. Invited to give key lectures at approximately 20 major conferences annually world wide the last 10 years in the field of surgical nutrition, metabolism and perioperative care. He gave the Arvid Wretling lecture at ESPEN Istanbul 2006 and was awarded the Jonathan Rhoades lecture at ASPEN in Vancouver 2011. Olle Ljungqvist initiated the idea of preoperative carbohydrate treatment instead of fasting, now recommended in international and national fasting guidelines. He has served the European Society for Clinical Nutrition and Metabolism (ESPEN) as General Secretary 2000-2004 and Chairman 2006-2010. He is the Past President of the International Association for Surgical Metabolism and Nutrition (IASMEN) served on the Executive Committee of the International Surgical Society. 2009-2013 He is chairing the European



Nutrition for Health Alliance. Olle Ljungqvist cofounded the Enhanced Recovery After Surgery study group in 2001 and initiated the ERAS Society in 2010, where he is serving as the Chairman .

**Mr Param Mariappan**, FRCS(Urol). Param is a consultant urological surgeon in Edinburgh. Having completed general surgery and then Urology training, he underwent training in pelvic oncology, reconstruction and laparoscopy in Edinburgh where he now specialises in pelvic oncology, specifically bladder cancer. Param leads the bladder cancer service in Edinburgh and having performed more than 500 cystectomies, has one of the UKs largest contemporary series. In addition, Param has extensive experience in multi-speciality pelvic exenterations for non-urological cancers. He is passionate about the quality control in bladder cancer surgery and enhanced recovery in cystectomy patients, pioneering this work in Edinburgh. Param has published more than 60 peer-reviewed original papers, reviews, abstracts and text book chapters. His clinical research has won several awards, many of which contribute to international guidelines. Param's current research interests include improving outcomes in high risk bladder cancer patients.

**Dr Susan Nimmo**, Consultant Anaesthetist, Western General Hospital  
Susan has worked as a Consultant in the Department of Anaesthesia, Critical Care and Pain Medicine at the Western General Hospital in Edinburgh since 2002. She has a special interest in acute pain management and has completed a distance learning MSc in Pain Management from the University of Sydney. Dr Nimmo has an ongoing commitment to education and training in acute pain management. She has major involvement in perioperative care of patients undergoing elective and emergency colorectal surgery and is involved with implementation of the Enhanced Recovery After Surgery (ERAS) programme in the unit.

**Dr Elizabeth MacDonald**, Consultant Physician in Medicine of the Elderly, Western General Hospital, Edinburgh. After training in Glasgow, Dr MacDonald now works as a full time NHS consultant in Acute Medicine of the Elderly in Western General Hospital, Edinburgh. Her main interest is in early identification and management of frail elderly within speciality areas including cancer services and surgery. At present, she leads the development of local elective and emergency frailty pathways within surgical specialities.

**Mr David McDonald**, Scottish Government. David McDonald graduated as a physiotherapist in 2001, from Glasgow and became the lead orthopaedic physiotherapist in 2005 at the Golden Jubilee National Hospital (GJNH) in Clydebank, Scotland. In 2007, David formed a key role in development of their ERP. From 2010 he supported the Scottish Government part-time to develop and implement ERP in orthopaedics across Scotland and improve the standards of care by decreasing variation around the country.

David has completed his Doctoral Thesis which considered the impact of peri-operative analgesic techniques on rehabilitation outcomes following total knee arthroplasty. Recently he moved full time to the Whole Patient Flow Improvement Programme within the Scottish Government Health Directorate and has taken on the National Role for ERAS which for the coming year is concentrating on the role out across Colorectal Surgery.

**Dr Mike Scott** is a consultant in anaesthesia and perioperative care with an interest in Upper and Lower GI major cancer surgery. He was one of the first clinicians in the UK to adopt ERAS and has championed it ever since. He was a member of the working party for ER in Colorectal Surgery and co-organises the Association of Anaesthetists of Great Britain and Ireland (AAGBI) 'Enhanced Recovery for Colorectal Surgery' Seminars. He was appointed a Clinical Advisor in Enhanced Recovery for NHS Improvement in 2012. Mike has a keen research interest and has been investigator / Chief Investigator for multiple studies in analgesia, haemodynamic monitoring and fluid therapy within an ERAS Protocol. The BJS paper on analgesia in laparoscopic colorectal surgery won the Farndon Prize. He is supervisor for several MDs including 2 on the stress response in open and laparoscopic surgery. He has given over 30 National and International Lectures on Enhanced Recovery.

**Tom Wainwright**, Associate Professor of Orthopaedics, University of Bournemouth. Tom is a physiotherapist, clinical researcher and quality improvement specialist. He has published and presented internationally on orthopaedic research topics relating to surgical technique and bearing surfaces. In addition to his clinical and research work he has held managerial roles within the National Health Service (NHS) including a crucial leadership role in the design, implementation, and delivery of an award winning orthopaedic enhanced recovery pathway. The results and methods of this work have been published and presented at peer-reviewed conferences internationally. He is passionate about improving the quality of healthcare systems and now works to help other healthcare providers improve the quality of their services.

## Oral Abstracts

**15003 Self Medicating of Over-the Counter analgesics for Enhanced Recovery Programme.** Jan Jones, Sue Turner, Tas Qureshi, Poole Hospital NHS Foundation Trust. janice.jones@poole.nhs.uk

As part of the ERP, a trial was undertaken allowing patients to self medicate with simple analgesia.

Rationale: With the development of ERP pathway patients are discharged home between day two and four. To embed this, patients can be equipped with knowledge and confidence to manage their own pain relief during admission as well as on discharge. Normally, patient's medications are taken and locked away then dispensed by nurses at patient's request; this can often be delayed due to staff workload causing escalation of pain.

Aim: To promote patient independence and ownership of their pain management. This will potentially encourage concordance once discharged.

Method: A hospital protocol for self-medication with OTC medicines was already in place and a staff education programme was implemented. Patients are informed of the self-medication programme at the pre-assessment clinic and assessed for suitability to self-administer. Patients are supplied with "P" packs (pharmacy only medicine) which contain a controlled amount of Paracetamol and Ibuprofen, together with a written plan of administration. These are kept in a labelled box in the patient's locker. Pain assessment and concordance is performed by nursing staff at each medicine round. A feedback questionnaire is completed on discharge.

Results: 90% of trial participants expressed confidence in self administration of simple analgesics, both in hospital and at home.

Conclusion: Current studies indicate that the length of stay for colorectal patients on the ERP is significantly reduced. Self-medication embraces the whole concept of ERP.

**15006 Pre-operative Carbohydrate Supplementation in Patients undergoing Lung Resection: A pilot study.** Tomoyo Fujiwara, Sanjeet Singh Avtaar Singh Alan Kirk. Golden Jubilee National Hospital. tomoyo.fujiwara@nhs.net

Many enhanced recovery programmes have employed carbohydrate loading as a strategy aimed at reducing post-operative stress and improving the recovery process. Studies examining the benefits of these have demonstrated significantly shorter post-operative hospital stays, faster return to normal functions and lower occurrences of surgical complications. These studies have primarily been in the general surgical setting. Is there a similar benefit in Thoracic Surgery?

Aims: To ascertain patients satisfaction with the implementation of pre-operative carbohydrate supplementation

Methods: 20 patients undergoing major lung resection (lobectomy/pneumonectomy) were selected. A Hospital Anxiety and Depression (HADS) score was noted during admission. They were required to mark on Visual Analogue Scales feelings of weakness, hunger, thirst, malaise fatigue, nausea and concentration on a scale of 0-10. They were given 2 bottles of Pre-OpTM

carbohydrate drinks taken 2 hours prior to surgery). The VAS scales were noted on the night before surgery, 2 hours before surgery and 6 hours post-operatively. 7 patients who underwent major lung resection were used as controls.

Results: Mean age of the patients selected for the intervention group was 64.5 (SD=14.7) and the control group was 70.3 (SD=8.8) ( $p=0.233$ ). There was no significant difference between the HADS scores for both groups. There was no significant difference between preoperative, 2-3 hours preoperative and postoperative scores for weakness, hunger, thirst, malaise, fatigue, nausea and concentration between the two groups.

Conclusion: Carbohydrate supplementation does not appear to have any effect on self-reported patient outcomes in the immediate perioperative period.

Limitations to this study include the small numbers of patients in the control group and the non-randomization of patients to groups.

**15022 Use of wound infiltration catheters for enhanced recovery in laparoscopic live donor nephrectomies.** Tim Brown, S Kanabar, J Monserez, N Beckett, J MCDaid, P Veitch, F Magill. Belfast City Hospital. [tjbrown55@icloud.com](mailto:tjbrown55@icloud.com)

Introduction: To compensate for falling numbers of cadaveric kidney donors, disincentives to living donation must be removed. This can be achieved by minimizing post operative pain and morbidity whilst maximizing the donor experience.

The use of continuous wound infiltration (CWI) of local anaesthetic has not been described for laparoscopic living donor nephrectomies (LLDN).

Methods: We retrospectively examined 83 LLDN. Two groups: CWI of levobupivacaine to the pre-peritoneal plane of the Pfannenstiel incision (ON-Q group;  $n=35$ ) and parenteral morphine (Control group;  $n=48$ ). Both received paracetamol and/or oxycodone for breakthrough analgesia.

Results: Over 48 hours, the ON-Q group used significantly less morphine: 5.09mg (5.18) Vs 16.8mg (11.7)[mean (SD)]; required less breakthrough analgesia morphine equivalents 16.4mg (12.8) Vs 21.1mg (12.2) morphine equivalents; and experienced less constipation. The ON-Q group had longer to first request for analgesia 280 vs 90 mins and shorter time to mobilization 633 vs 1250 mins [ $p<0.05$ ]. There was no difference in pain scores or length of hospital stay.

Conclusion: The provision of effective multimodal, morphine sparing analgesia in LLDN presents an opportunity to both improve patient experience and reduce morbidity.

Using CWI to target the incisional and parietal peritoneal nociceptors directly, may prevent central pain sensitization and reduce post operative ileus.

This is a simple and safe technique that can be incorporated into enhanced recovery programmes. We are the first to show it reduces 48 hour morphine consumption by 70%; reduces time to first breakthrough analgesia and facilitates early mobilization.

**15032 Does intracostal suture placement reduce postoperative pain in patients undergoing thoracotomy under paravertebral analgesia?**

Sanjeet Singh, Helen Monaghan, Alan Kirk, West of Scotland Regional Heart and Lung Centre, Golden Jubilee National Hospital. sanjeetsingh@nhs.net

Background: Postero-lateral thoracotomies are still routinely performed in thoracic surgery. A multitude of factors contribute to the incapacitating pain post-operatively. This maybe due to retraction, resection, fracture of ribs, dislocation of costovertebral joints, neurovascular bundle (NVB) injury and further irritation of the pleura by chest tube(s). Routinely, pericostal sutures are used to close thoracotomies thus potentially crushing the NVB on apposition. As part of the Enhanced Recovery After Surgery (ERAS) protocol we explored the role of NVB protection in reducing pain post-thoracotomy by utilizing intracostal sutures for closure.

Aims: Intracostal suture placement may reduce acute postoperative thoracotomy pain and length of stay thus improves patient outcomes.

Methods: A retrospective cohort study involving 596 patients who underwent primary thoracotomies for the listed procedures in the past 3 years at the Golden Jubilee National Hospital was conducted.

5 different surgeons, 4 using pericostal sutures and 1 Intracostal sutures placement performed the surgeries. Patients' primary method of analgesia was Paravertebral analgesia (PVA). After completion of the appropriate procedure, all patients had one or two soft chest tubes placed as per surgeon's preference.

In the pericostal group, Vicryl 2.0 sutures were placed around their ribs in the standard pericostal fashion. The intracostal group and had their thoracotomies closed by drilling approximately four evenly spaced holes using a 5-mm bit attached to the end of a pneumatic drill. Vicryl 2.0 sutures were placed through the hole and just over the top of the rib above. Chest tubes were removed as per surgeons' preference. A visual analogue scale objectified pain at post op day 0, 1, 2 and 3. Pain scores and length of admission were outcomes measured.

Results: There were 325 patients in the pericostal group and 80 patients in the intracostal group. Preoperative characteristics (age, gender, types of procedures, side) were similar in both groups. The mean pain score for the intracostal group was significantly lower at post op day 3 (mean  $3.0 \pm 1.3$  vs  $2.7 \pm 1.1$ ) ( $p=0.026$ ). The length of stay was also significantly shorter ( $p=0.014$ ).

Conclusion: Intracostal suture placements seem reduce post-thoracotomy pain, with a significant difference noted on day 3. It also resulted in a shorter length of stay in keeping with ERAS.

**15033 Enhanced Recovery following Cardiac Surgery.** J Hartley, L Cross, H Saunders, A Bose, A Walker, A Tang. Blackpool, Fylde and Wyre Hospitals.

Introduction: The benefits to enhanced recovery after surgery (ERAS) are well proven and documented (1) but at the commencement of this pilot there were no other centres reporting to have implemented it for cardiac surgery.

In late 2013 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 within the first 12 months. 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.

Patient focus groups were held to establish the patient's experience of the pathway. Overall they viewed enhanced recovery positively, liked having targets to work towards, could see their progress with the diaries and demonstrated a significant increase of their perception of involvement in their care from an average of 8.8 in the pre ERAS group to 9.5 in the ERAS group.

This pilot study although small has demonstrated that the ERAS programme can be applied to patients following cardiac surgery and has significant benefits. Enhanced recovery is now in the process of being rolled out to all first time CABG patients.

### **15035 National implementation of enhanced recovery programme:**

**Anaesthetists opinion.** Tan ME, Ayub K, McFerran S, Dinner L, Jenkins N, Read J. Royal Free Hospital

Background: In 2009 the National Health Service (NHS) Institute for Innovation and Improvement launched its Enhanced Recovery Programme (ERP) in the UK based on principles outlined by Kehlet in 1997.

Objectives: To assess Consultant Anaesthetists' experience of ERP implementation across England.

Methods: All 163 NHS trust anaesthetic departments across England were contacted. An anaesthetist with an interest in enhanced recovery was identified in 161 hospitals and online survey link was emailed.

Results: We received 89 responses representing 55.2% of the acute care NHS beds across England. Colorectal (87.6%), Orthopaedics (83.1%), Gynaecology (48.3%) cohorts were most common ERPs. Commonly Anaesthetists (64.9%), Surgeons (47.3%) and Nurses (29.7%) act as ERAS lead. However, 21.6% NHS trusts do not have ERAS leads. Only 30.1% of NHS trusts have a dedicated ERAS nurse and only 4.1% have ERAS trainee fellowship posts. 75.5% of trusts have regular dedicated MDT meetings. Only 19.2% anaesthetic consultants have negotiated ERAS activity in job planning. Surgeons (45.7%) and Anaesthetists (42.9%) lead implementation of first ERP. In 39.7% of instances anaesthetists felt a resistance to implementation in their trust. 78.6% felt that Surgeons were resistant but 50% also reported resistance from their anaesthetic colleagues. Only 28.2% trusts had applied CQUIN. 66.7% respondents consider CQUIN to be helpful in implementation. Currently, 51.4%

feel that ERP has been fully embraced in their organization.

Conclusions: The ERP has not been fully implemented in NHS Trusts across England. Staffing and resources are identified as the main obstacles. CQUIN application would be helpful.

#### **15041 Enhanced Recovery Programmes for Knee Arthroplasty within the NHS.**

Navraj S Nagra, Thomas W Hamilton, Louise Strickland, David W Murray The BONE Collaborative & Hemant Pandit. Oxford University Clinical Academic Graduate School

Enhanced Recovery Programmes (ERPs) reduce patient morbidity and mortality and provide significant cost savings by reducing length of stay (LOS). No uniform ERP guideline exists for TKR across the UK. This study aimed to identify variations in ERPs across the NHS and determine adherence to local policy.

Methods: Directed through BONE (British Orthopaedic Network Environment, an online system from BOTA), 23 NHS hospitals offering elective TKR contributed details of their TKR ERP and performed an audit (15 patients/centre) to assess compliance.

Results: Contrasting content and detail of ERPs was noted across centres. Mean LOS was 3.9days (national average: 4.5). Adherence to ERPs varied significantly (range 40-100%). Pre-operative education was used in 76% centres, with patients receiving pre-operative education, spending 1.1days longer in hospital compared to those who did not. Tranexamic acid was used in 62% of centres and associated with reduced LOS by 2.6days ( $p<0.001$ ). Patients receiving dexamethasone spent 1.4days less in hospital ( $p<0.001$ ). Early physiotherapy input (within 24-hours post-operatively) was associated with reduced LOS by 2.4days ( $p<0.05$ ).

Discussion: There is no consensus regarding the ERP gold standard with protocols contradicting the evidence base. Despite meta-analysis questioning efficacy of pre-operative education it continues to be commissioned. Conversely, utilisation of drugs such as gabapentinoids, tranexamic acid and dexamethasone remains suboptimal despite evidence of efficacy.

This study highlights variation in practice and poor compliance with local ERPs in the NHS. Considering proven benefits of ERPs, evidence-based guidelines should be established to optimise the patient care pathway.

## Posters Abstracts

### **15001 Patient Satisfaction: a service evaluation of Enhanced Recovery After Thoracic Surgery** . Kirsty Graham, Golden Jubilee National Hospital.

Background: Enhanced Recovery after Surgery (ERAS) has been implemented to fast-track patients amidst their surgery to improve patient outcomes and cost. It has been widely utilized in most surgical specialties but it is in its infancy in thoracic surgery. We have implemented several evidence-based interventions at our unit but has this improved patients outcomes and satisfaction?

Aim: To investigate overall patient satisfaction and the relationship between specific facets of care provision in patients undergoing ERAS in thoracic surgery.

Methods: Patients suitable for ERAS pathway were surveyed pertaining satisfaction with their care using a qualitative and quantitative questionnaire. Patient reported scores comprising of overall service, communication, pre-operative expectations, early mobilisation, pain relief and length of stay to assess its impact on satisfaction. Key factors contributing to patient satisfaction were identified along with areas for quality improvement.

Results: 48 out 110 patients completed the questionnaire (44%). Overall patient satisfaction was rated at 95.4%. Lower scores were noted around use and engagement of the patient booklet; completion of booklet scored 48% and following the pathway within the booklet scored 79%. The results demonstrate that despite patients finding the booklet useful (87.5%), engagement was low and found to be poorer in those over 65 years.

Conclusion: This study demonstrated that patients overall very satisfied with our Thoracic ERAS pathway. However, key facets were identified for improvement. This data can inform practice and guide areas for improvement within the pathway primarily in patient engagement and communication.

### **15002 Introduction of a 23 hour closure of ileostomy protocol within an existing enhanced recovery programme.** David Hocking, Anne Pullyblank, Dawn Gane. North Bristol NHS Trust.

We have an established enhanced recovery (ERAS) protocol for colorectal resection. Closure of ileostomy, whilst not without complications, is a gastrointestinal procedure performed through a minimally invasive incision and is ideal for ERAS principles. In addition, other centres have implemented 23 hour closure.

A baseline audit of 148 patients undergoing closure of ileostomy demonstrated that although a small number (13%) went home on day 1, 48% stayed between 2 and 3 days and 39% stayed greater than 3 days suggesting there was scope for improvement. Readmission rate was 14%.

We have recently introduced an 'ERAS light' protocol for closure of ileostomy with an aim of delivering 50% of ileostomy closure as 23 hour stay. There is no



face to face specialist pre-assessment as with standard ERAS, but patients are given an information pack preoperatively. There is a discharge checklist but no formal care pathway. If problems arise, patients have a route back into the hospital initiated by them contacting the ward. Early data (18 patients) has shown an increase in 23 hour stay to 38%. 45% stayed 2-3 days and 17% more than 3 days. There were 3 re-admissions (16%). Delays appear to be lack of flatus and post-operative pain. Once embedded, reviewing discharge criteria might further increase 23 hour discharge. Compared to ERAS for major colonic resection, attempting to change practice for this procedure has been easier, requiring less input from our ERAS nurses.

**15005 Comparing Recovery after Immediate and Delayed Breast Reconstruction, LD versus ADM.** Mina Youssef, Tomasz Graja, Katherine Kennedy. Royal Devon & Exeter NHS Foundation Trust.

The use of ADM for breast reconstruction is increasing in frequency as it becomes more available and surgeons are gaining experience in this technique for lower pole coverage in implant-based reconstruction. Our team started using ADM since 2013 while we continued using LD for whenever suitable. We compared the 2 techniques in terms of outcomes and patient satisfaction.

Method: 20 patients who had breast reconstruction with ADM (Strattice) and LD flap from 2013 to 2015 at Dorset County Hospital. 12 patients had ADM reconstruction and 8 had LD.

Results: Median operative time was 2 hours 45 minutes for ADM versus 4 hours 50 minutes for LD. Median hospital stay was 3.16 days for ADM versus 5 days for LD. Median number of clinic visits in 3 months was 4.58 for ADM versus 3.625 for LD. It was higher with ADM because of delay in histology report (1), wound dehiscence and implant loss (1) and serial expansions (1). Median score of patient satisfaction using modified EORTC 10801 Questionnaire was 2.6 for ADM versus 1.16 for LD. Complications with ADM were 25% non-seroma (3), 16% seroma (2) and 8.3% implant loss (1). Complications with LD were 50% seroma (4), 12.5% non-seroma (1), 12.5% shoulder stiffness (1) and 0% implant loss (0).

Discussion: ADM was associated with less hospital stay, less complications and less operative time, therefore it is more cost effective. LD had with higher seroma rate. Patient satisfaction was higher with LD. This could be due to lower patient expectations with delayed reconstruction.

**15007 Qualitative review of a de novo Caesarean Delivery Preparation Class as part of an obstetric enhanced recovery program.** Andrew Clark, Kerry Litchfield, Kirsty Fraser, NHS Greater Glasgow & Clyde.

Offering early discharge, after 24 hours, to women who are recovering well following caesarean delivery is now recommended. Subsequently, enhanced recovery following caesarean delivery is emerging as a new frontier, of which patient education is a key element. The project aim was to develop and assess a de novo multidisciplinary Caesarean Delivery Preparation Class.

Methods: Mothers were invited to attend a 30 minute face to face group session on the Friday before their scheduled delivery. Here midwives, physiotherapists and anaesthetists explained their anticipated journey and recovery. A qualitative feedback questionnaire facilitated by Healthcare Improvement Scotland was conducted following three sessions.

Results: Twenty four mothers completed the questionnaire. Almost all respondents said the benefit of gaining new information was what they liked most: one stated '[the] midwife explanation helped relieve anxiety... [I] was scared about anaesthetist (sic) - feel better now'. Fourteen mothers (58%) said they had learned something new, citing 'pain relief', 'postnatal exercises', 'recovery' and 'discharge after 24 hours'. The median score (scale of 1 - 10) for confidence regarding delivery was 8 (IQR 7-10); speakers 10 (IQR 9-10); interest 10 (IQR 9-10), relevance 10 (IQR 9-10), learning new information 10 (IQR 8-10), venue 10 (IQR 8-10) and timing 10 (IQR 8-10). Two mothers noted areas for improvement, stating: 'could have covered more about... the baby and feeding'.

Conclusions: Our results reflect a well received initiative which has achieved its purpose: to improve patient education and engagement. We believe this model of multidisciplinary preoperative education is a cornerstone of enhanced recovery for obstetric surgery.

**15008 Maternal attitudes to early discharge following elective caesarean delivery before and after the introduction of a novel multidisciplinary preparation class.** Andrew Clark, Kirsty Fraser, Kerry Litchfield, NHS Greater Glasgow & Clyde.

National guidance recommends early discharge, after 24 hours, for women who are recovering well following caesarean delivery. Subsequently, enhanced recovery following caesarean delivery is emerging as a new frontier. In our centre, a novel multidisciplinary Caesarean Delivery Preparation Class (CDPC) has been successfully introduced. We hypothesized this may impact attitude towards discharge on the day after surgery.

Methods: A consecutive group of mothers before and after the introduction of a CDPC were interviewed at 4pm on the day following delivery. They were asked: Would you have liked to have been offered the opportunity to go home today? What do you think are the reasons preventing you from going home today? Analysis was performed using the chi squared test.

Results: Prior to the CDPC 8 of 25 (32%) answered yes to the first question, compared to 15 of 27 (59%) following ( $p=0.0569$ ). Median parity before was 1 (IQR 1 - 2) and after 1 (IQR 1-1). Reasons documented as preventing discharge were, pain (66%,  $n=20$ ), fatigue (17%,  $n=5$ ), worried about coping (13%,  $n=4$ ), worried about feeding (13%,  $n=4$ ), and concern regarding baby's health (13%,  $n=4$ ).

Discussion: Our results show a rise in maternal desire to return home on the first postoperative day following attendance at the CDPC. Although not quite reaching statistical significance, we believe this emphasises patient education and engagement as a key element of enhanced perioperative

care. The largest barrier to discharge is pain. In response, we are trialling the addition of slow release oral opiate.

**15009 Physical Activity and Technology in ERAS.** Aliza Abeles, Richard Mark Kwasnicki, Ara Darzi. Imperial College London.

Background: Enhanced Recovery After Surgery (ERAS) is a multi-faceted paradigm and it is difficult to quantify the contribution of each component as to how it improves patient outcomes. Furthermore, it is challenging to monitor how well ERAS is implemented.

Physical activity/mobilising is one such component that can be monitored and assessed, particularly given the recent technological advances in wearable activity monitors.

Our aim was to explore current opinions and use of technology to optimise ERAS, and suggest future implementation of new devices in this setting.

Method: A questionnaire regarding technology in ERAS was distributed to a multi-disciplinary cohort of attendees at the London Enhanced Recovery Workshop March 2015. Responses were collated and used to form the basis of a doctoral research programme. Pilot data were collected from a range of activity monitors and a protocol for clinical studies was drafted.

Results: Sixty-three percent of attendees responded. Physical activity was thought to be highly important both pre (77%) and post-operatively (86%) as part of ERAS. Sixty-two percent and 60% of respondents thought that technology would be a useful adjunct to ERAS for activity optimisation and mobilisation in the peri-operative period, respectively.

Conclusion: It is evident that physical activity and technological adjuncts are important in ERAS. Our next step will be to conduct a study in which we monitor patient activity using wearable technology in the peri-operative period. We aim to show how this component of the ERAS paradigm can be easily monitored and the data collected used to improve patient outcomes.

**15010 Impact of Enhanced Recovery Programme on surgical outcomes in Elderly patients undergoing elective colorectal cancer surgery.** Smith H, Akhtar NM, Mitropoulou P, Merchant J, Martin I, Aslam MI, Evans R, Kang P. Northampton General Hospital NHS Trust .

Introduction: With the introduction of enhanced recovery after surgery (ERAS) framework and improved perioperative monitoring, advanced age is rarely considered a contraindication for major elective colorectal surgery. Whether these measures have resulted in improved postoperative outcomes is not clear. We aimed to analyse the impact of age on postoperative outcomes for patients cared on ERAS pathways following elective colorectal surgery.

Method: Data was collected prospectively over five years (March, 2010 – Feb, 2015) for a single colorectal surgeon performing elective colorectal surgery. All patients were cared on ERAS pathways. Three groups of patients aged  $\leq 60$  years, 61-74 years &  $\geq 75$  years were compared for length of hospital stay, 30 day postoperative mortality, morbidity and readmission rates following surgery.

Results: For all participants, overall 30 day post operative mortality and morbidity rates were 1.3% and 27%, respectively. There was a trend toward higher post-operative morbidity (20% - 24.3% - 32.5%,  $p=0.05$ ) for patients with increasing age. Elderly patients ( $\geq 75$  years) had significantly prolonged length of stay in the hospital in comparison to patients under the age of  $<75$  years (8 vs. 6 days,  $p<0.01$ ). Multivariate analysis showed increasing age ( $p<0.01$ ) and higher ASA grade ( $p<0.01$ ) were associated with increased risk of postoperative morbidity and prolonged length of hospital stay.

Conclusion: Elderly patients are at higher risk for postoperative complications and increased length of stay despite being cared on ERAS pathways following major elective colorectal surgery.

**15012 A new frontier: Establishing a QI framework for enhanced recovery following elective caesarean delivery, a Scottish Government pilot at the Princess Royal Maternity, Glasgow.** Kirsty Fraser, Kerry Litchfield, Andrew Clark. NHS Greater Glasgow and Clyde.

National guidance recommends offering early discharge (after 24 hours) to women who are recovering well following caesarean delivery. Subsequently, enhanced recovery for obstetric surgery is emerging as a new frontier.

Methods

A de novo multidisciplinary (midwifery, physiotherapy and anaesthetic Caesarean Delivery Preparation Class (CDPC) and a perioperative care bundle were introduced. Bundle compliance (oral diet in recovery; intravenous fluids discontinued before discharge from recovery; mobilising by 8 hours following delivery; catheter removed by 7am on the day following delivery), attendance at CDPC and readmissions within 30 days were recorded for every fourth planned caesarean delivery on a rolling basis. Discharges on the first post-operative day were recorded for all planned caesarean deliveries. Fisher's exact test (two tailed) was used for analysis.

Results: Sixty four deliveries were reviewed for June (20), July (22) and August (22) 2015. CDPC attendance was 70%, 82% and 55% for each month respectively. Complete bundle compliance rose from 5% in June to 45% in August. Number of day one discharges rose from 6 in April and May to 21 in July and August ( $p=0.01$ ). There was no significant rise in readmissions.

Discussion: The successful introduction of a CDPC and perioperative care bundle appears, from our preliminary data, to facilitate a prompt return to the mother's community environment - in line with the national agenda. Compliance with the bundle has considerably improved over the first three months with a corresponding and significant rise in the number of day one discharges with no rise in readmissions.

**15013 A designated Nurse Specialist optimises The ERAS Programme resulting in significant cost reductions for the NHS.** Claire McCutcheon, Porteous J, Khan, J, Renwick A, Vella M, Alcorn D, Fletcher G, Moug SJ. NHS Greater Glasgow and Clyde.

Introduction: Many colorectal surgical units have designated ERAS nurse specialists who lead the programme, but their role has rarely been evaluated. In addition, there has been limited work assessing potential cost savings that

could result from this specialist role.

Methods: This study analysed outcomes in patients undergoing elective colorectal surgery across three consecutive time periods from 2013 to 2014 in one surgical unit in Scotland. The three time periods were defined as:

Phase 1: ERAS previously established (>5 years), no designated nurse.

Phase 2: ERAS established with the introduction of a designated nurse specialist.

Phase 3: ERAS established with established nurse specialist.

The following data was prospectively recorded: total numbers of patients undergoing surgery; length of hospital stay and re-admission rates. Daily costs of a surgical bed were estimated at £541.

Results: The establishment of a designated ERAS nurse increased the number of ERAS patients from 12 per month to 17 per month. The median length of hospital stay decreased by 2 days from phase 1 to 3. The re-admission rate declined from 8% to 5.4%.

Reduction in length of stay led to a cost reduction of £1082 per patient per elective surgical stay. Per year, total cost savings were estimated at £220, 728 (no of patients 204 x 1082) or alternatively, 408 saved hospital bed stays.

Conclusion: A designated ERAS nurse is vital in allowing ERAS to optimise patient outcomes, resulting in significant cost savings for the NHS.

#### **15014 Evolution of Enhanced Recovery after Thoracic Surgery (ERAS) at the Golden Jubilee National Hospital.** Rohith Govindraj, K Graham, A Kirk, M Asif

Background: At GJNH, we perform one of the highest numbers of lung resections in UK. ERAS was implemented here in September 2013 involving a multimodal approach involving changes to our clinical practice, in keeping with the ERAS philosophy.

Aim: Has the evolution of our clinical practice in Thoracic Surgery supported the desired outcomes of the ERAS program?

Methods: We identified areas of potential benefit from ERAS and structured care pathways accordingly. Pre-operative clinics were started to optimise patients and allow Day of Surgery Admission (DOSA). Video Assisted Thoracoscopic (VATS) lung resection was implemented. Paravertebral and intercostal analgesia replaced epidural analgesia. An ERAS administrator was assigned to monitor the program and goals were set for total stay of less than 7 days for open resections and less than 5 for VATS.

Results: The median length of stay for open and VATS resection groups reduced from 10 to 8 and 7 to 6 days respectively. 68% of lung resections were performed via VATS, 78% with Paravertebral analgesia. 66% of patients were discharged from HDU on Post-Operative Day 1. Digital drainage systems were used in 94% of patients facilitating early mobilisation. ERAS targets of being discharged home in 7 or 5 days were achieved in 71% and 60% in the two groups respectively in the most recent months.

Conclusion: ERAS has proven to be effective in improving the patient outcome after Thoracic surgery. However, adaptation of ERAS into current practice requires building the infrastructure and training of staff for effective implementation of ERAS.

**15015 Audit: Rectus Sheath Catheters - how effective are they at controlling post operative pain and when is the optimal time for removal?** Simon Davey, R Lowe, Joanne Jones, Reuben West. Weston Area Health Trust.

Rectus Sheath Catheters (RSC) appear to be effective and safe in managing post operative pain in patients where a laparotomy has been performed. We wished to assess this method of pain relief in a "real world" setting both in terms of how effective they are and what the optimal timeframe for removal should be.

Aims: 1. To assess efficacy of RSCs in controlling post operative abdominal pain after a laparotomy. 2. To assess optimal length of time for catheter use post operatively

Outcome Measures: 1. Numerical assessment of pain (0-10 rating scale) pre and post top up of RSC. 2. Time to removal of RSC

Standard: Model for audit is based on prior research work – we expect to see a reduction in pain post top up of catheters and that pain relief is effective for 3 days.

Eligibility: All patients undergoing open surgery under all colorectal surgeons in our hospital which will include the ERAS patients

Method: Prospective Audit. Patients will be asked to rate their pain (numeric) pre and post top up of RSCs. Anonymised data. We anticipate approximately 50 patients to be included.

This is a "real world" audit in as much as we are going to accept all patients, without exclusions, in whom RSCs have been placed. Individual techniques do vary by surgeon but this appears to be in the way the external routing of the catheters is managed. The similarities are that all surgeons place the RSCs under direct vision before closure.

**15016 Is there any value in obtaining patient feedback on Enhanced Recovery After Surgery (ERAS) in Colorectal Surgery?** Wendy Cunningham, Amin Al, Yalamarthi S. NHS Fife

Introduction: ERAS in colorectal surgery has proven positive clinical outcomes. Patient's views and feedback on such a programme is key to its success. We analysed patients' experience of the programme by means of a questionnaire, as a quality measure.

Methods: All patients undergoing elective colorectal resections (Dec 2012-May 2015) through the ERAS programme in our hospital since its inception, were sent a postal questionnaire on various aspects of the programme with particular focus on the information provided in the booklet, pre-operative counselling, hospital stay and post-discharge support.

Results: We had a response rate of 84% (288/341 patients). Amongst the responses, information provided within the ERAS booklet was felt to be adequate by 95%, "too much" by 3% and "too little" by 2%. With the pre-operative counselling, 96.4% felt sufficiently prepared for their operation and hospital stay. 99% felt satisfied with the admission day (day of surgery / previous day). No problems were experienced with the home bowel preparation and pre-operative carbohydrate loading drinks.

94.3% felt that their postoperative pain control was managed well. Similarly

95% felt that they were discharged at an appropriate time and the rest (5%) felt it was either "too soon" or "could have been earlier".

On the support provided following discharge, 93% felt this to be adequate and 7% thought it could have been better.

Conclusions: Obtaining regular patient feedback has been useful to ensure provision of a high quality care locally and to identify areas for improvement, especially post-discharge support and pain control.

### **15017 Enhanced Recovery After Surgery (ERAS) in Colorectal Surgery: Our early experience.** Satheesh Yalamarthi, Cunningham W, Amin Al. NHS Fife.

Introduction: Enhanced recovery after surgery has been increasingly adopted various NHS hospitals in colorectal surgery with beneficial results. We analyzed our early experience with ERAS in patients undergoing elective colorectal resections.

Methods: A prospective study (Dec 2012- May 2015) was carried out on patients undergoing elective colorectal resections (laparoscopic and open) through ERAS. Demographic details, day of admission, type of procedure, hospital stay, complications and re-admissions were recorded.

Results: 352 patients (Males-53.4%) went through the ERAS programme. Median age was 68 years (20-92yrs) with 44% were over 70 years.

Admission day varied (41% day before; 59% day of surgery) with 60% of >70 admitted on the day before surgery. Laparoscopic resections were carried out in 235 patients (67%).

Overall complication rates were 23.2% with a nearly 2.5-fold increase with open resections (36% Vs 14.8%). Majority of the complications were minor with only 2 patients having serious complications (1 anastomotic leak and another with pelvic sepsis). Reoperations were required in 3 patients (0.8%).

Overall median length of stay was 6 days (2-63), with shorter stay for laparoscopic compared to open resections (5 Vs. 8 days). 24 patients (6.8%) were readmitted within 30 days, predominantly with minor problems.

Conclusions: Our results are consistent with other published studies and we have demonstrated better outcomes in ERAS patients with laparoscopic resections with lesser complications and shorter hospital stay.

### **15018 Does age determine the outcome after elective colorectal resections though ERAS programme?** Satheesh Yalamarthi, Cunningham W, Amin Al. NHS Fife.

Introduction: With ERAS programme being increasingly adopted across various hospitals, the selection criteria based on chronological age does not appear to be very important. We analyzed our outcomes based on different age groups in patients undergoing elective colorectal resections.

Methods: All patients undergoing elective laparoscopic and open colorectal resections through the ERAS programme between Dec 2012 and May 2015 were identified from a prospective database. Demographic details, hospital stay, complications and re-admissions were recorded.

Results: 352 patients were treated through this programme (53.4% males). The overall median age was 68years (20-92 years). The age group distribution was as follows: <50 years- 41 (12%), 50-69 years- 157(45%) and 70 or more-154 (44%). Admission day varied according to the age groups with 80% of < 50years admitted on the day of surgery and 60% of >70years admitted on the day prior to surgery. The overall median length of stay (LOS) was 6 days (2-63). The LOS in the respective age groups was 5 days (<50 years); 6 days (50-69years) and 7 days (>70 years). There was no difference in the complications rates, readmission rates amongst the groups.

Conclusions: Our study has shown that patients belonging to the older age group had similar outcomes to other groups but with only a marginal increase in the median length of stay.

### **15019 Enhancing Recovery in non-critical care emergency bowel resection.**

Caroline Stupples, Jackie Campbell, Saleem El-Rabaa. Kettering General Hospital.

Introduction: The aim of this study was to investigate whether an enhanced recovery approach incorporating avoidance of routine Nasogastric decompression and early introduction of oral fluids and diet as tolerated is associated with improved outcomes when compared to traditional care in Level 0/1 patients undergoing emergency bowel resection.

Method: A single centre comparative observational study was used to compare outcomes between two existing parallel groups of Level 0/1 emergency bowel resection patients. Strict inclusion criteria governed eligibility. Groups were differentiated according to presence (Traditional care, TRAD) or absence (Enhanced care, ERP) of nasogastric tube at the end of surgery. Primary outcome: toleration of oral diet. Secondary outcomes: post-operative complications and length of hospital stay. Endpoints: inpatient discharge home, transfer to another speciality, death, insertion/re-insertion of NG tube and re-operation.

Results: Between October 2013 and February 2015, 61 patients (27 ERP, 34 TRAD) met the eligibility criteria. Study groups were comparable. On average, the ERP group tolerated oral fluids ( $p=0.001$ ) and oral diet ( $p=0.019$ ) significantly earlier than the TRAD group. No statistically significant differences were found between groups in incidence of post-operative complication ( $p=0.589$ ), length of hospital stay ( $p=0.189$ ) or study endpoints  $p=0.386$

Conclusion: An enhanced care approach incorporating avoidance of routine NG decompression and re-introduction of early oral diet is tolerated in Level 0/1 emergency bowel resection patients with no significant difference in (post-operative complication or length of hospital stay when compared to traditional care. Traditional care of these patients should be reconsidered.

### **15021 Perioperative vitamin D status of patients with oesophagogastric cancer.**

Alison Gardiner, Orla Hynes. Guy's and St Thomas' NHS Foundation Trust.

Vitamin D has an important role to play in bone health, immunity and regulation of serum calcium levels. Low vitamin D levels are a recognised problem after gastrectomy surgery. This study looks at the perioperative



prevalence of low Vitamin D levels in patients with OG cancer.

A retrospective observational study was carried out looking at perioperative vitamin D levels of patients with OG cancer at GSTFT in 2014. Sixty six patients had one or more results available (at diagnosis, post neoadjuvant chemotherapy, 2 weeks post discharge). Data on vitamin D supplementation and percentage weight loss at vitamin D assessment was collated.

Eighty percent of the population had a vitamin D insufficiency/deficiency perioperatively. Pre and post supplementation levels were only available for 8 patients; all responded. Thirteen patients with two results available had sufficient levels but became deficient during treatment. At least one fifth of patients with insufficiency/deficiency were weight stable/gained weight at the time of vitamin D assessment.

The prevalence of Vitamin D deficiency/insufficiency in this study population was higher than that of the general UK population (80% vs. 66%). Symptoms of Vitamin D deficiency include tiredness, aches and pains, and generally feeling unwell. These can often be assumed consequences of the cancer and/or its treatment; thereby masking deficiency. The possible implications of vitamin D deficiency on postoperative infectious complications, and the role of supplementation, have yet to be studied in this patient population. Vitamin D assessment should be considered for all patients, not just those who have lost weight.

### **15023 Colorectal Surgery and Post-operative Intra-venous Fluid Use: the problem and the role of Enhanced Recovery Nurse in preventing them.**

Louise Boyson, Ruth Sankey, Sami Michaels, Anjana Singh. Milton Keynes University Hospital NHS Foundation Trust.

Fluid overloading colorectal patients post-operatively increases cardiac morbidity, ileus and sepsis. The Enhanced Recovery Programme (ERP) aims to reduce post-operative intravenous (IV) fluid administration and encourage oral intake. Previous departmental audits demonstrated post-operative IV fluid administration rates consistently exceeded ERP guidelines. To improve adherence to ERP protocols, an ERP nurse was employed and regular teaching was provided to junior doctors.

We retrospectively analysed post-operative IV fluid administration in 70 patients undergoing major colorectal surgery on ERP between August and December 2014. An ERP nurse was in attendance during this time. Post-operative complications and length of hospital stay were also analysed. The results were compared with previous departmental audits.

The cohort of patients in this audit was similar to previous in demographics. However, there were more ASA III/IV patients in the current audit. Despite this, the results showed a 20% (5.1L to 4.0L) median reduction in total post-results were compared with previous departmental audits.

The cohort of patients in this audit was similar to previous in demographics. However, there were more ASA III/IV patients in the current audit. Despite this, the results showed a 20% (5.1L to 4.0L) median reduction in total post-operative IV fluid administration and 25% (1.38ml/kg/hr to 1.04ml/kg/hr)

reduced rate in the first 24 hours post-operatively. This correlated with 18% lower mortality (1.7 to 1.4%), 66% fewer major post-operative complications (8.6 to 2.9%) and 53% fewer minor complications (24.0 to 11.4%). Mean length of hospital stay decreased by 1.5 days (7.9 to 6.4 days).

The introduction of an ERP nurse and teaching of junior doctors appears to reduce post-operative IV fluid administration in colorectal ERP patients. This correlated with significant reductions in major and minor post-operative complications and hospital stay despite the re-audit cohort having higher average ASA grades and complexity of operations.

#### **15024 A decline in the incremental shuttle walk test result following chemo is associated with an increased incidence of postoperative complications.**

Jessica Whibley, Christopher J Peters, Asif M Chaudry, William H Allum. Royal Marsden NHS Trust.

Introduction: A proportion of patients undergoing neoadjuvant chemotherapy will deteriorate in general fitness during their treatment but this can be difficult to quantify. The

Incremental shuttle walk test (ISWT) and cardiopulmonary exercise testing (CPET) are methods that can assess this. This study aimed to determine if these tests could be correlated with perioperative and longer-term outcome.

Method: ISWT and CPET data was available for seventy patients who had surgical resection for oesophago-gastric cancer between 2010 and 2014. Data for perioperative complications and survival was also collated.

Results: When ISWT results pre and post chemotherapy were compared for a subset of patients (n=37), those that had a deterioration in their result had a 40% incidence of postoperative respiratory complications compared to 26.7% and 8.3% respectively for those where the result did not change or improved, though this only approached significance (p=0.087). Neither the ISWT result, anaerobic threshold (AT) or VO<sub>2</sub> Max on their own correlated well with perioperative complications. Longer term ISWT (p=0.002), AT (p=0.006) and VO<sub>2</sub>Max (p=0.018) all correlated strongly with overall survival. No patient with an ISWT result of <350m survived beyond 26 months.

Conclusion: Patients with a decline in functional status during chemotherapy seem to do worse than those where it is maintained or improved. This creates a compelling case for exercise interventions during this period to either arrest this decline or even manage a degree of preconditioning.

#### **15025 A review of the use of Elastomeric pumps for local infiltration analgesia in TKR in Enhanced recovery.**

MarieAnn Smith, Emma Lamont, Kalvinder Sandhu, Frederic Picard. Golden Jubilee National Hospital.

Local wound infiltration (LIA) is part of our institution's ERAS for total knee arthroplasty (TKA). LIA delivery via Elastomeric pump replaced McKinley pump use to allow easier patient mobilisation. This retrospective audit compares pain and mobility between these methods.

All TKA who had LIA via McKinley (June-September 2013) and LIA via Elastomeric (January-March 2014) were reviewed. Due to change in practice, where the elastomeric was only removed after delivery dose was completed,

a further group(June 2014) were reviewed. Groups were referred to as McKinley, Elasto-time and Elasto-dose groups. Visual analogue pain scores (VAS) were grouped Low(0-3), medium(4-6), high(7+).

McKinley n=227; Elasto-time n=345 and Elasto-dose n=89. Demographics were similar: Gender=McKinley 58%Female, Elasto-time 56%Female and Elasto-dose 60%Female. Mean age McKinley=70, Elasto-time=69, Elasto-dose=67. Mean BMI McKinley=32, Elasto-time =31, Elasto-dose=33.

Day 0 Pain scores on movement were higher in both elastomeric groups (Elasto-time p=0.004, Elasto-dose p=0.047). For McKinley 55% reported low pain scores compared to 42% (Elasto-time) and 41% (Elasto-dose).

For Day 1 pain scores on movement were higher in both elastomeric groups (Elasto-time p=0.029, Elasto-dose p=0.003). For McKinley 44% of patients reported low pain scores compared to 38% (Elasto-time) and 23% (Elasto-dose). On day 0 more patients mobilised in elastomeric groups. In McKinley 33% were mobilised on day 0 compared to 39% (Elasto-time) and 45% (Elasto-dose) p=0.050. In McKinley 55% were discharged by day 4 compared to 56% elasto-time and 72% elasto-dose. Elastomeric groups reported higher VAS day 0 and 1 compared to the McKinley group; however there was a trend towards quicker postoperative mobilisation.

**15026 Use of wound infiltration catheters in live donor renal recipients.** Tim Brown, Neal Beckett, Fergus Magill. Belfast City Hospital.

Background: Effective post operative analgesia for renal recipients remains a challenge. Unrelieved pain may promote respiratory complications yet morphine metabolites can accumulate in this patient group. The use of continuous wound infiltration (CWI) use has not been described in renal transplant recipients.

Methods: We examined 16 live donor recipients. Two groups: 48 hour CWI to transversus abdominis plane (TAP) (n=7; ON-Q TAP group); morphine only (n=9; control group). Both received paracetamol and/or oxycodone for breakthrough.

Results: TAP ON-Q group used less morphine over 48 hours: 4.29 vs 18.8; and required less breakthrough analgesia at 24 and 48 hours [5.6 vs 15.1; 3.3 vs 5.7]. They had a median length of stay of 7 days (5 – 12 days) compared to the control group of 8.5 (6 -15 days). They experienced less constipation.

Conclusion: There is a clear need for a multimodal, morphine sparing analgesic technique in renal recipients. Evidence for TAP blocks in this group has been conflicting, and where benefit is shown the analgesic effect is short lived. The ability to provide CWI may overcome this limitation and negate the risks of TAP injections. CWI is a simple and safe method, it eliminates variability of TAP block techniques and facilitates enhanced recovery protocols.

We are the first to report CWI in renal recipients. We have shown that its use reduces 48 hour morphine consumption by 77% and it may reduce length of hospital stay and in turn have significant financial benefits.

**15027 Reduction in Blood Transfusions and Length of Stay following the Introduction of an Enhanced Recovery Programme.** Kathryn James, Jenna Morgan, Jennifer Quinton, Jayne Sutherland, Huw Davis. Cwm Taf University Health Board.

We conducted a retrospective analysis of all primary hip replacements that have been undertaken within our hospital over the past five years. The analysis of over 1000 patients demonstrates that mean length of stay has reduced following the introduction of our Enhanced Recovery After Surgery (ERAS) programme. We have also demonstrated a reduction in the rate and amount of perioperative blood transfused to patients since its' introduction. The reduction in transfusion rate is likely to be as a result of the multi-disciplinary pathway of the ERAS programme. A number of aspects of the pathway may have contributed to this decrease in blood product requirements. These include investigation and treatment of preoperative anaemia's diagnosed at surgical pre assessment clinic, the routine administration of intraoperative tranexamic acid at the time of surgery, a reduction in intravenous crystalloid administration reducing dilutional anaemia, and a reduction in surgical drain use.

There is significant risk and cost associated with blood transfusions. More recent evidence suggests that it is not associated with increased rates of infection or prolonged immunosuppression as has been previously thought<sup>1</sup>, but is associated with increased rates of mortality. Any reduction in transfusion rate is an additional benefit of the introduction of an ERAS programme for joint replacement surgery.

**15028 Does intra-operative blood loss affects the postoperative outcomes for patients undergoing elective laparoscopic colorectal surgery within an Enhanced Recovery Programme.** Harriet Smith, Akhtar NM, Merchant J, Mitropoulou P, Martin I, Aslam MI, Kang P, Ihedioha U. Northampton General Hospital NHS Trust.

Introduction: Intraoperative bleeding plays a role in determining the postoperative outcomes of patients on Enhanced Recovery after Surgery (ERAS) pathways. Bleeding may lead to a need for fluid replacement, via goal-directed fluid therapy as specified in the ERAS guidelines. This study aims to determine whether estimated intra-operative blood loss is a reliable predictor of postoperative outcomes in patients undergoing elective laparoscopic colorectal surgery, following the ERAS pathway.

Methods: Data was collected prospectively over five years (March, 2010 – Feb, 2015) for a single colorectal surgeon performing elective laparoscopic colorectal surgery. All patients were cared on ERAS pathways. Patients were divided into two groups based on intra-operative estimated blood loss: Group I ( $\leq 100$ mls intra-operative blood loss, n=84) and Group II (intraoperative blood loss  $>100$  mls, n=87). Comparisons were made for following postoperative outcomes; morbidity, mortality and readmission within 30 days and total length of hospital stay.

Results: There was no post-operative 30 day mortality for both groups. Significantly, higher number of patients had post-operative complications

(Clavien-Dindo I-IV) in group II in comparison to group I (26 vs. 18). There were no significant differences in re-admission rates for two groups and the median length of hospital stay was shorter for group 1 (5 vs. 7 days).

Conclusion: Increased intra-operative blood loss is associated with longer hospital stays and higher risk of complications for patients undergoing elective colorectal surgery and cared on ERAS pathways.

**15029 Outcomes following reversal of loop-ileostomy pre and post introduction of the Enhanced Recovery After Surgery program.** Jessica Ovens, David Messenger, Jamshed Shabbir, Bristol Royal Infirmary.

Introduction and aim: Reversal of loop ileostomy is a frequently performed procedure with an associated morbidity of 30%. Enhanced recovery after surgery (ERAS) programmes have been shown to improve short-term outcomes following large bowel resection, but little is known about its impact following reversal of loop-ileostomy. The aim of this study was to evaluate the impact of an ERAS programme on length of stay (LOS) and morbidity following reversal of loop-ileostomy.

Methods: This was a retrospective, comparative cohort study using data from a prospectively maintained database. Data was collected on patients undergoing reversal of loop ileostomy before and after the introduction of an ERAS programme in February 2012.

Results: There were 91 patients pre-ERAS cohort and 79 patients post-ERAS cohort. Cohorts were comparable with respect to age, gender and underlying pathology that necessitated loop-ileostomy formation. The median LOS decreased from 7 days (range 1-84 days) to 5 days (2-29 days) ( $p=0.003$ ) following the introduction of ERAS. There was a non-significant increase in overall morbidity from 30.5% to 42% ( $p=0.08$ ). Sub-group analysis of the ERAS cohort revealed that avoidance of opiates was the only ERAS element associated with a reduction in LOS ( $p=0.03$ ).

Conclusion and interpretation: The introduction of the ERAS programme resulted in a significant reduction in the LOS. However, it had no significant impact on morbidity. While the outcomes from this study should be viewed with caution due to its retrospective nature and small sample size, further studies should look at individual factors associated with adverse outcomes.

**15030 Feasibility Study of Volatile biomarker Detection of anastomotic Dehiscence In Colorectal surgery (VERDDICT).** Ceri Rowlands, E Lent, O Gould, B De Lacy, A Pullyblank, D Jayne, H Widnall, J Allison, N Ratcliffe, NK Francis. Yeovil District Hospital NHS Foundation Trust.

Background: Following colorectal surgery, anastomotic dehiscence (AD) significantly impacts upon enhanced recovery, leading to prolonged hospital stay, increased stoma formation and mortality rate. There is consequently a need for a reliable bedside investigation to aid AD detection.

Exhaled volatile organic compounds (VOC) have been evaluated for diagnosing malignancy and inflammatory bowel disease, but may also be increased in septic conditions. The aim of this study was to evaluate the feasibility of measuring VOC following colorectal surgery, to inform a

larger study to test its efficacy in detecting AD within ERAS.

Methods: After ethical approval, all patients at one centre (Yeovil) undergoing colorectal resection and primary anastomosis within ERAS programme from January to April 2015 were eligible for inclusion.

Patients were asked to provide breath tests pre-operatively and from post-operative days 1-3. Samples were captured in sealed bags, and transported to University of the West of England, Bristol for testing using a GastroCheck instrument (Bedfont Scientific).

Feasibility was determined by 1) the rate of recruitment to the study 2) the successful biochemical analysis of VOC samples and 3) collection of short-term clinical outcomes

Results: Of the 14 patients approached for this study, all 14 were successfully recruited. All patients underwent laparoscopic surgery, with 6/14 converted to open. Four VOC samples were successfully analysed from all patients. One patient experienced ileus (7%) but no patient experienced AD.

Conclusion: This study has confirmed the practicability of this simple potential bedside test and demonstrated that a large-scale study into its use for early detection of AD would be feasible.

**15031 Total Knee Arthroplasty patients in an enhanced recovery programme have low rates of allogenic blood transfusion.** MarieAnne Smith, Angela Deakin, Andrew Kinninmonth, Martin Sarungi, Niall Munro. Golden Jubilee National Hospital.

Some studies report allogenic blood transfusion rates in total knee arthroplasty (TKA) of over 20%. An Enhanced recovery programme incorporating tranexamic acid use may help reduce blood transfusion rate in TKA. This study reports transfusion rate at our institution and describes corresponding clinical practice. We retrospectively reviewed all TKA in our institution from May 2004-December 2010 to determine whether changes in clinical practice coincided with reduced blood transfusion.

N=3173, 58% female, mean age=69, mean BMI=32. Mean preoperative Hb in transfused group=120 (g/L) (92-145). Mean Hb postoperative day 2 in transfused group=88 (g/L) (63-124). Mean preoperative Hb in non-transfused group=137 (g/L) (90-183). Mean Hb postoperative day 2 in non-transfused group=116 (g/L) (70-162). Transfusion rate decreased from 8.0% (0.0-8.0) (95% CI) in 2004 to 1.2% (0.2 – 2.1) (95% CI) in 2010. In 2005 transfusion rate is 6.3% (2.7 – 9.8) (95%CI) compared to 3.7% (1.9 – 5.5) (95% CI) in 2006, 2.2% (0.9 – 3.5) in 2007 and 0.7% (0.0 – 1.3) (95% CI) in 2008. % PE/DVT rate was consistently low over time 0.0 (0.0-0.1) to 1.2 (0.2-2.2) (95%CI).

Clinical practice timeline

2004-2006: Tranexamic acid (TA) is used by anaesthetists at this institution; some anaesthetists do not use TA.

2006-2007: TA is given routinely. ERAS pilot is introduced.

2008: ERAS is standard practice, all patients receive TA.

We found low incidence of blood transfusion in TKA which decreased over time. The introduction of an enhanced recovery programme which incorporates the use of tranexamic acid use coincides with decreased rate of blood transfusion at this institution.

### **15034 Impact on Quality of life (QoL) for the Hepatic Resection Enhanced Recovery After Surgery (ERAS) Pathway.**

Ayub K, Oyewole M, Gordon N, Kenny S, Jenkins N, Read J. Royal Free Hospital.

Background: Hepatic resection for metastases is aimed at improving survival. About 25% to 40% of people who have this surgery are still alive after 5 years. Currently it is not known whether the improved survival comes at a cost of deterioration in the quality of life (QoL). In February 2014 a Hepatic resection ERAS pathway was introduced at the Royal Free Hospital. We analysed pre and post-operative QoL data for patients enrolled during the first year of this programme.

Methods: The patients at enrolment and at first post-op follow-up filled a standard questionnaire comprising EuroQol EQ-5D instrument. VAS scores were compared using t-test and multi-dimensional data using chi-square (X<sup>2</sup>) test. A p-value <0.05 was considered significant (\*).

Results: 151 hepatic resections were carried out during this period. Pre and post-operative complete datasets for VAS were available for 56 patients and EQ-5D for 59 patients. There was no significant difference  $p=0.548$  for VAS score pre operatively (mean 74.32 SD 17.12) and post operatively (mean 73.19 SD 19.12). Patients reported problems with mobility (6.7% pre vs. 18.6% post)  $p=0.053$  NS; self-care (pre 3.38% vs. post 5%)  $p=0.156$  NS; usual activity (pre 13.5% vs. post 23.7%)  $p=0.156$  NS; pain (pre 38.9% vs. post 33.8%)  $p=0.566$  NS; and anxiety (pre 37.2% vs. post 20.3%)  $p=0.042$ \*

Conclusions: Hepatic resection may be performed without significant reduction in QoL in this patient population. Although overall QoL was not statistically improved, notable improvements in patient anxiety scores were reported.

### **15036 Polypharmacy in frail surgical patients: a contributory factor in postoperative complications?**

Jessica Joseph, Elizabeth MacDonald. Western General Hospital.

Background: Older frail surgical patients have poorer postoperative outcomes with complications often relating to medical co-morbidities. The number of co-morbidities increases with age, as does polypharmacy. Polypharmacy is recognised to be associated with adverse events and many commonly used medications increase the risk of falls or confusion. This audit assessed the prevalence of polypharmacy in an elderly urology in patient population identifying medications known to increase risk of falls or confusion. Methodology Consecutive patients aged over 65 were identified on admission to Urology unit.. Clinical data collected included basic demography, number of co-morbidities and admission medications. Medications were reviewed and those with potential to increase risk of falls or confusion noted. Data was entered into an excel database and analysed using simple statistics.

Results 140 patients were studied. 81% were male. Mean age was 80.5 (range 66-97). 65% had greater than 3 co-morbidities. 81% were taking 4 or more medications. 67% were prescribed medications that could increase falls risk and 74% medications that could increase risk of confusion.

Conclusion Polypharmacy is common in elderly patients cared for in surgical wards. This audit identified that many medications prescribed had potential to increase risk of falls and confusion - adverse events which can contribute to poorer outcomes and prolonged length of stay. Management of polypharmacy requires a complex assessment of balance of risk and benefit. As the majority of medications prescribed relate to co-existent medical comorbidities, we would suggest routine MOE specialist input to this frail surgical population may be of benefit.

**15037 Frailty in Older Surgical Patients.** Elizabeth MacDonald, Sarah McDonald, Susan Gordon. Western General Hospital.

Introduction: As the surgical population ages, the challenge of managing medical co-morbidities and frailty in the surgical setting increases. This poses a particular problem in the postoperative period where a significant proportion of care needs, and complications may not relate directly to surgical issues. Surgical units are often not optimally resourced to manage these frailer patients. This study reviewed frailty risk factors in older surgical inpatients to determine the prevalence of aspects of frailty and the broader clinical needs of this group.

Methods: Clinical data was collected prospectively, in consecutive admissions, aged over 65, to urology and colorectal wards. Data was obtained from clinical notes and by direct clinical assessment. Data included common co-morbidities, falls, nutritional, cognitive and functional status and therapy input postoperatively. Data was entered into excel database and analysed using simple statistics.

Results: 407 patents were studied, mean age 78 (range 65-96). 58.3% were emergency admissions, 41.7% elective. 36% had at least one medical co-morbidity; 24.1% more than one; 12.6% had reduced functional status; 9.4% poor nutritional status; 7.2% cognitive impairment; 3% recent falls; 17% required Multidisciplinary input postoperatively. 28.6% of this population had two or more 'markers of frailty', with 34.8% of emergency patients having two or more markers and 19.6% of elective patients.

Summary: There is a significant burden of frailty in older surgical patients particularly in the emergency population. In order to optimally address the broader needs associated with frailty, surgical pathways should be supported by Elderly Medicine and the wider Multidisciplinary team.

**15038 Go with your Gut!! Implementation of an information booklet for colorectal patients.** Tracy Russell, Lynsey Mavor, Angie Balfour. Western General Hospital.

Background: It has been described throughout the literature over the last few years that elective colorectal patients and clinical staff currently receive "mixed messages" or inconsistent information about what they can or can't eat following colorectal surgery. Also – as part of the pre-operative preparation for surgery, patients should be given up-to-date information and advice about their recovery however, this pre-op information can often be dated and in need of updating to keep it in line with current evidence. With the advent of the Enhanced Recovery after Surgery (ERAS) programme, the current literature supports patients being encouraged to resume a normal diet as



quickly as possible after surgery whereas traditional practice has left patients Nil By Mouth or on "Sloppy" or "Light" diets thus causing further confusion resulting in patients not being fed appropriately in many cases. Other evidence available highlights that recovery is enhanced by using supplementary nutrition in the form of drinks or snacks. Again, these are not well utilised in the colorectal wards at present.

Intervention: We have produced an information booklet for patients to give them advice about what food and drinks should be available and eaten while they are in hospital and also some guidance about what to expect following bowel surgery i.e. tips for symptom management.

The booklet was produced in conjunction with the multi-disciplinary team including stoma team/ dietitians/ colorectal nurses/ ERAS Nurse and lead colorectal surgeon. The aim of this booklet was to improve the patients' knowledge about diet and to empower the patients to make better decisions about their dietary choices whilst in hospital and following discharge.

A questionnaire was used prior to and following implementation of the new patient booklet.

Outcomes: This initiative is currently underway and results will be reported as part of the final poster presentation. We anticipate the results will show an overall improvement of patients understanding and confidence of their dietary choices and overall nutritional care following surgery. Furthermore, this initiative should improve staff awareness as an additional benefit as the staff involved in this pilot will be more visible on the wards conducting the questionnaires so we would expect staff to learn more about diet following surgery. This initiative links in with the Quality Improvement programme and also meets some of the recommendations in the Food, Fluid and Nutritional care standards.

**15039 Early Mobilisation – One small step for Surgical HDU.** Angie Balfour, Ruth Alldridge, Janis Harvey. Western General Hospital.

Background: Enhanced Recovery after Surgery (ERAS) guidelines have highlighted early mobilisation as a cornerstone of all ERAS pathways over the last decade but it is still one area of compliance that surgical units struggle with. In our centre, patients are routinely admitted to the High Dependency Unit immediately following elective colorectal surgery and this is often thought to delay their overall stay in hospital and lead to poor compliance with post operative mobilisation. Our aim was to highlight the realities and challenges of achieving consistent mobilisation goals within an Enhanced Recovery programme in a busy colorectal unit. The general feeling in the unit prior to this audit was that patients were transferred out of bed or "Up to Sit" but were rarely mobilised from the bed side. The ERAS programme has always recommended set periods of time out of bed (2 hours on the evening of surgery and 6 hours each sequential day) but this has perhaps been mis-interpreted to mean sitting out of bed for hours rather than walking and changing positions regularly throughout the day. The physio team and ERAS team decided to look more closely at this phenomenon in practice.

Audit Process: We conducted two periods of audit – the first during July 2014 and again in March 2015 in order to establish whether or not this pattern was the reality in our unit. We hypothesized that most patients would be up to sit every day following surgery (unless clinically unwell) but that few patients would be actively mobilised away from the bed space.

We used the first period of data collection as a baseline to educate and inform the ward staff about how well they were meeting the mobilization goals expected within an ERAS pathway. As anticipated, this snap-shot audit demonstrated that 60-100% of patients were indeed being transferred or sat out of bed for periods of time from Day One onwards. However, only 17-50% of patients were truly being mobilised i.e. being walked away from their bedside. The follow-up audit demonstrated a marked

improvement in the number of patients that were out of bed and also more patients were mobilising away from the bed space (25-80% of appropriate patients)

Conclusion: No intervention as such was used during this audit that could account for the improvement observed. However, the process of auditing early mobilisation naturally included staff and patient education around the importance of mobilisation and the opportunity to work collaboratively between the physio and nursing staff to minimise barriers and establish individualised mobilisation goals and the importance of meeting these targets when possible.

This process has obviously increased staff and patient awareness of the importance of early mobilisation however, more work is still needed to ensure this improvement is sustained and continues within the unit. We have introduced an Enhanced Recovery Walkway and patient diaries to encourage and support this process. Perhaps our next step could be introducing a specific resource specifically to walk patients at set times of the day. (10:00 – 12:00hrs for example) We have discussed this concept at unit level and aim to produce a business case to test the concept using PDSA methodology. Highlighting to staff the importance of risk assessing each patient and setting their mobilisation goals appropriately is essential to success in this endeavour.

**15040 Go with your Gut (ii) Nutritional initiatives used to improve surgical recovery.** Tracy Russell, Lynsey Mavor, Angie Balfour. Western General Hospital.

Background: With the advent of the Enhanced Recovery after Surgery (ERAS) programme, the current literature supports patients being encouraged to resume a normal diet as quickly as possible after surgery whereas traditional practice has left patients Nil By Mouth or on "Sloppy" or "Light" diets thus resulting in patients not being fed appropriately in many cases. Other evidence available highlights that recovery is enhanced by using supplementary nutrition in the form of drinks or snacks. Despite the evidence, these are not well utilised in the colorectal wards at present. We felt that there was a lack of continuity within our unit regarding nutritional care and we sought to improve the service by introducing a variety of initiatives.

Initiatives implemented: We identified key team members and held regular meetings to discuss issues around nutrition in the unit. These included representatives from the catering dept, dietetic dept, stoma service, cancer nurses, ERAS team, ward staff and surgeons. We agreed that there were 3 key areas for improvement to enhance our patients' dietary journey following elective bowel surgery.

Key areas for improvement:

Patient information: We have produced an information booklet for patients to give them advice about what food and drinks should be available and eaten while they are in hospital and also some guidance about what to expect following bowel surgery i.e. tips for symptom management. We have also worked in conjunction with the catering department Adapting the menu choices available: This required extensive collaboration between the catering and dietetic team. There was an apparent gap in the current menu that did not meet the needs of certain patients in the unit i.e. ileostomy patients so the menu was adapted to include a new option that is targeted specifically to those patients that require a low Fibrous option. This will hopefully lead to a more varied choice of food for patients requiring a special diet as well as give patients the confidence to select the right food by using a specific dietary code for their individual nutritional needs.

Snacks and Oral Nutritional Supplement (ONS) provision: Snack fridges and scales were purchased by the dietetic department in order to allow patients to "help themselves" to snacks and ONS drinks out-with mealtimes.

Education sessions were conducted for all members of the clinical teams however, we focused our attention on the Clinical Support Workers as they are the staff most likely to

deliver food and assist patients with menus and selection of food.

Outcomes: Certain elements of this work are ongoing and results will be reported as part of the final poster presentation. We anticipate the results will show an overall improvement of patients understanding and confidence of their dietary choices and better overall nutritional care following surgery. We are also confident that the staff will have a better understanding of dietary requirements for their patients and challenge the traditional care currently practiced in the unit. By collaborating as a team on these initiatives, there is a more cohesive relationship within the team and we feel confident that these improvements will be sustainable and improve patient care.

**15042 Enhanced Recovery Programmes for Hip Replacement.: Where are we now?** An audit of current NHS practice across the UK. Thomas W Hamilton, Navraj S Nagra, Louise Strickland, David W Murray, The BONE Collaborative, & Hemant Pandit. Nuffield Orthopaedic Centre.

Enhanced recovery programmes (ERP) have been demonstrated to be clinically and cost effective. What constitutes the gold standard ERP, and which components are most important in optimising patient outcomes both in the short term and long term remain undefined. This study investigates current practice with regards to the ERP for primary total hip replacement within the National Health Service (NHS) as well as compliance with local ERP policies at the patient level.

Methods: Conducted through the British Orthopaedic Network Environment (BONE), a trainee led research network, a nationwide multicentre audit was performed between October 2014 and April 2015 to assess current practice and compliance with local ERP protocols for primary THR within the NHS.

Results: A total of 37 NHS hospitals registered with BONE to complete the audit. The components of local ERP policy for hip replacement were received from 22 hospitals and compliance with local policy received from 16 hospitals. Of the 240 patients in which compliance data was received they received between 17 and 94% of the specified interventions. Patients who underwent primary THR at teaching hospital, were admitted to a specialist ward post operatively and who received greater than 50% of the specified ERP components has a significantly shorter length of stay. Assessing each component of ERPs independently no significant difference was seen in length of stay between those who received the intervention and those who did not.

Conclusions: This study supports the use of ERPs for primary THR in the NHS and indicates greater compliance with local ERP policy is associated with a reduced length of stay which may indicate a better recovery. This study supports a multi-modal, multi-disciplinary, approach to patient recovery

## NOTES

## NOTES

### Innovative Solutions for Surgery

MSD has been investing in anaesthesia since 1968 and more recently introduced the biggest advance in this area for 30 years – reshaping anaesthesia and highlighting our commitment to providing the best for patients.



Muscle relaxation is vital to ensure that a patient remains still during surgery to provide the surgeon with the best possible operating conditions. Just as important is the reversal of this paralysis at the end of surgery, allowing a patient's recovery from anaesthesia at the planned time.

# Nutricia: Your Nutrition Partner in Enhanced Recovery



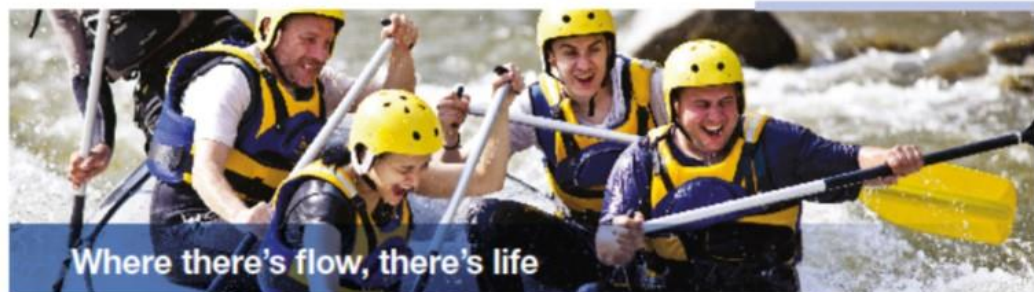
Nutricia Ltd, White Horse Business Park, Trowbridge, Wiltshire BA14 0XO  
[www.nutricia.co.uk](http://www.nutricia.co.uk)

For further information contact the Nutricia Resource Centre  
on 01225 751098 or [resourcecentre@nutricia.com](mailto:resourcecentre@nutricia.com)

**NUTRICIA**  
Advanced Medical Nutrition

[www.deltexmedical.com](http://www.deltexmedical.com)

**Deltex**  
medical



Where there's flow, there's life

## CardioQ-ODM+

Oesophageal Doppler guided fluid management –  
cornerstone of your Enhanced Recovery Protocol

For further information:

Email: [uksales@deltexmedical.com](mailto:uksales@deltexmedical.com) or

Call: +44(0)1243 774 837

Deltex Medical, Terminus Road, Chichester, West Sussex, PO19 8TX



[www.thinkdoppler.com](http://www.thinkdoppler.com)



**ODM+**

As incisional pain management and peripheral nerve block techniques have progressed, more patients are benefiting from multi modal post operative pain control, reducing the need for opioids and their related side effects.

## WE TAKE PAIN PERSONALLY



- Optimal postoperative pain relief<sup>1,2,3,4,5</sup>
- Significant reduction in opioid use<sup>1</sup>
- Simple and safe techniques<sup>6,7,8,9</sup>
- Reduction in hospital stay and treatment costs<sup>1,3,4,10,11,12,13</sup>
- High patient satisfaction score<sup>2,5,11,14</sup>

### Incisional pain management

WOUND INFUSION/INFILTRATION

### Peripheral nerve blocks

TUNNELING TECHNIQUES ENABLING ACCESS TO KEY NERVE BUNDLES

SINGLE SHOT BLOCK

CONTINUOUS BLOCK

1. Liu SS, Richman JM, Thirby RC, Wu CI. Efficacy of continuous wound catheters delivering local anesthetics for postoperative analgesia: a quantitative and qualitative systematic review of randomized controlled trials. *J Am Coll Surg*. 2006;203(6):914-932. 2. Beaussez M, ElAyoubi H, Schiffler E, et al. Continuous preperitoneal infusion of ropivacaine provides effective analgesia and accelerates recovery after colorectal surgery. *Anesthesiology*. 2007;107(3):461-468. 3. Fornazaro E, Sofka M, Giannelli D, Fabrizi I, Sionne G. Effectiveness of continuous wound infusion of 0.5% ropivacaine by On-Q pain relief system for post-operative pain management after open nephrectomy. *Br J Anaesth*. 2008;101(6):841-847. 4. Cansler V, OGB Team. Patient Pain Survey (GMRSA Summary Study). 26/09. July 2002. 5. Shevlin DA, Ghazirani AM, Spinner D, Sawal RH, Mecurs JM, Adler H. Continuous infusion of intraperitoneal bupivacaine after laparoscopic surgery: a randomized controlled trial. *Obstet Surg*. 2008;110(12):1581-1586. 6. Ahmad M, Mandadi G, Pantoli J, Hager H, Pestal G. Local anesthetic infiltration increases subcutaneous tissue oxygenation after lower abdominal surgery. Paper presented at: American Society of Anesthesiologists Annual Meeting, October 2004, San Francisco, CA. 7. Wang J, Burke RA, Charbonneau R, Roy S. Morphine impairs host innate immune response and increases susceptibility to *Streptococcus pneumoniae* lung infection. *J Immunol*. 2005;174(1):426-434. 8. The Source, The Joint Commission. The Fish 'Vital Sign'. November 2002. 9. Rothwell M, Reardon D, Wright K, Barlow D. Bacterial contamination of PCA and epidural infusion devices. *Anesthesia*. 2009; 64(7):751-753. 10. Singh J, Hamm M, Cohen S, et al. Multicenter infections surveillance study: Comparing two types of post-operative pain management: surgical site using On-Q Silver Soaker® and local anesthetics vs. systemic narcotics following colorectal procedures. Presented at the 47th Annual Intensive Care Conference on Antimicrobial Agents and Chemotherapy (ICACC), Chicago IL, September 2007. 11. White PF, Rawal S, Laitam P, et al. Use of continuous local anesthetic infusion for pain management after median sternotomy. *Anesthesiology*. 2003;99(4):918-923. 12. Dowling R, Thielmeier K, Chaly A, Barber D, Boko T, Dine A. Improved pain control after cardiac surgery: results of a randomized, double-blind, clinical trial. *J Thorac Cardiovasc Surg*. 2003;126(5):1274-1278. 13. Zimberg SE. Reducing pain and cost with innovative post-operative pain management. *Manag Care Q*. 2003;13(1):34-36. 14. Heller L, Kowalski AM, Wei C, Butler CE. Prospective, randomized, double-blind trial of local anesthetic infusion and intravenous narcotic patient-controlled anesthesia pump for pain management after TRAM flap breast reconstruction. *Plast Reconstr Surg*. 2008;122(4):1010-1018.



[www.erasuk.net](http://www.erasuk.net)



[contact@erasuk.org](mailto:contact@erasuk.org)



[@ERASsocietyUK](https://twitter.com/ERASsocietyUK)

ERAS UK aims to improve patient recovery after surgery by promoting knowledge, understanding and research regarding optimal outcomes.

