PRIORITY BRIEFING

The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation research project. This paper was compiled in 2-3 days.

What are the barriers to widespread organisational adoption of enhanced recovery (ER) programmes?

Question ID: 1

Question type: Implementation

Question: What are the barriers to widespread organisational adoption of enhanced recovery (ER) programmes?

Current problem: Enhanced Recovery (ER) programmes lead to improved quality of care with reduced length of stay. Their evidence base is established but their widespread implementation and adoption is piecemeal.

Service and setting: Whole patient pathway - primary care through secondary / tertiary and back to primary care. May involve social care as well.

Population: NHS population undergoing surgery in colorectal, urology, gynaecology and musculoskeletal areas.

Proposed solution: To identify areas of support studying exemplar sites as well as 'partial or failed implementers'.

Outcome: Reduced variation in healthcare delivery as measured by compliance with enhanced recovery measures. Consistent mean length of stay for any given procedure across differing organisations.

*Please note that the details included in the box are from the original submission and have been edited where necessary for clarity and precision

Enhanced Recovery: Enhanced recovery pathways are a novel approach to improving elective surgery outcomes. The pathways use a selected number of individual evidence-based interventions which when implemented as a group have been shown to produce better outcomes for pre-, intra- and post-operative care than the individual interventions implemented alone. Enhanced recovery pathways start in primary care with GP referral to the specialist and continue through to follow-up of the patient at home after discharge from hospital.

The underlying principle is to ensure that patients recover and leave hospital sooner by reducing stress responses of the body during surgery. In order to achieve this there are three main aims; *to ensure that the patient is in the best possible condition prior to surgery* e.g. by identifying and stabilizing co-morbidities and fully informing patients of the treatment options with associated risks and benefits to ensure that the patient has realistic expectations, *to ensure the best possible management during the operation, and to ensure the patient experiences optimal post-operative rehabilitation*. Implementing an enhanced

recovery pathway may require changes to surgical technique, anaesthetic technique, pain management, fluid and nutrition management and mobilization.

The Enhanced Recovery Implementation Toolkit contains several implementation guides (http://www.improvement.nhs.uk/enhancedrecovery/).

The Health Problem:

Between April 2009 and March 2011, the Department of Health in partnership with NHS Improvement, the National Cancer Action team and the NHS Institute for Innovation and Improvement have led the Enhanced Recovery Partnership (ERP) Programme to accelerate and provide support for the spread and adoption of enhanced recovery in colorectal, musculoskeletal, gynaecology and urology major elective surgical pathways. Fifteen organisations were chosen as innovation sites and agreed to share their experiences of adoption, spread and sustainability; these are contained within a guide to implementing enhanced recovery[1]. In addition, the key elements necessary to ensure best practice derived from the shared experiences and outcomes from around 90 clinicians across a range of specialties and disciplines are presented.

The ERP Programme report produced in March 2011[2], estimates that 86% of acute provider organisations nationally have implemented enhanced recovery in at least one specialty. However, there is still considerable variation in mean length of stay between providers, with most operations having at least a three-fold difference in length of stay.

South Devon Healthcare NHS Foundation Trust (Torbay Hospital) was one of the innovation sites and is working on implementing enhanced recovery in all of the four main areas. The Royal Devon and Exeter NHS Foundation Trust is implementing enhanced recovery in all four specialties; Plymouth Hospitals NHS Trust is implementing enhanced recovery in orthopaedics, colorectal, urology, gynaecology and Upper GI (OGD).

As National Clinical Advisors, the Question Submitters have access to all the National data for implementation of Enhanced Recovery; permission would be required in order to use the data.

Guidelines:

Part of the Enhanced Recovery Partnership was to create some influential policy levers to maintain momentum for continued implementation.

These include:

- *Payment by Results* – enhanced recovery is cited as a source of evidence in the Hip & Knee PbR best practice tariff guidance. A nomination for best practice tariff to be developed in urology, colorectal and gynaecology has also been put forward for 2012-13 tariff development work.
- *Commissioning for Quality and Innovation (CQUIN)* – enhanced recovery has been included as one of the national exemplars.
- Cancer Improving Outcomes Strategy, 2011.

NHS Priority:
Enhanced recovery is a key elective workstream in the NHS and prioritised by the Department of Health.

Regional

SW SHA Priorities framework 2008-11 (please note this has not yet been updated for 2012)

- Planned Care
- Staying Healthy

Local

- *Quality, Innovation, Productivity and Prevention (QIPP)* – enhanced recovery is an independent workstream under 'Right Care' and recommended as a high impact change.
- Plymouth Hospitals NHS Trust is aiming to embed the principles of Enhanced Recovery for all planned surgery patients.

Existing Research:

Published research
Evidence of effectiveness: The evidence base for the effectiveness of enhanced recovery comes mainly from experiences with colorectal surgery. Several meta-analyses of enhanced recovery programmes for patients undergoing colorectal surgery have been published.[3-7] The most recent of these were published in 2011.[3 4] The first included six randomized controlled trials (452 patients) and concluded that for patients adhering to enhanced recovery length of stay was decreased by 2.5 days (95% credible interval [CrI] -3.92 to -1.11), whereas 30-day morbidity was halved (relative risk, 0.52; 95% CrI, 0.36-0.73) and readmission was not increased (relative risk, 0.59; 95% CrI, 0.14-1.43) when compared with patients undergoing traditional care.[3] However, a Cochrane review comparing enhanced recovery with traditional surgery in colorectal disease also published in 2011 came to a less positive conclusion. This review included four randomized clinical trials and concluded that there was a lack of good quality evidence on which to implement enhanced recovery as the standard of care. The authors also commented on a perceived lack of compliance with

enhanced recovery protocols that has not been thoroughly investigated in the literature.[4]

A systematic review of the influence of enhanced recovery protocols on health related quality of life and patient satisfaction published in 2010 concluded that there were no adverse effects of enhanced recovery pathways on these outcomes.[8]

Barriers and facilitators to implementation: We were unable to identify any papers in which barriers and facilitators to implementation of enhanced recovery had either been specifically studied or in which the experiences included within trial reports or case studies had been synthesized.

A report on the Enhanced Recovery Pathway Partnership for 2009 to 2011 found consistency in critical success factors for spread, adoption and sustainability across experts, practitioners and stakeholders and recognized that many of the factors are consistent with findings from other health care change programmes. The critical success factors were identified as: 1) leadership and clinical engagement using a five-prong approach of consultant, surgeons, consultant anaesthetist, nursing/AHP, executive/management and primary care/commissioning, 2) engagement and communication with patients and staff, 3) capability and education, 4) information and 5) culture. The methods by which these factors were identified are not completely clear, but the document suggests that national workshops were held with key individuals involved in the implementation of enhanced recovery at several test sites and a consensus reached. The Question Submitter is also involved in a much more detailed Delphi Study on success factors for implementation which is in preparation for submission to a journal.

Ongoing research
We were unable to identify any ongoing research into the barriers and facilitators of the implementation of enhanced recovery pathways.

Feasibility:

There are two National Clinical Advisors to the programme within the region. The reasons for piecemeal uptake are poorly defined. The ability to improve quality of care, with improved patient experience and reduced NHS resource is clearly timely in the current fiscal setting.

References:

1. Enhanced Recovery Partnership Programme. Delivering enhanced recovery – Helping patients to get better sooner after surgery, 2010

2. Enhanced Recovery Partnership Programme. Enhanced Recovery Partnership Programme, Report March 2011, 2011

3. Adamina M, Kehlet H, Tomlinson GA, Senagore AJ, Delaney CP. Enhanced recovery pathways optimize health outcomes and resource utilization: a meta-analysis of randomized controlled trials in colorectal surgery. *Surgery* 2011;149(6):830-40.BACKGROUND: Health care systems provide care to increasingly complex and elderly patients. Colorectal surgery is a prime example, with high volumes of major procedures, significant morbidity, prolonged hospital stays, and unplanned readmissions. This situation is exacerbated by an exponential rise in costs that threatens the stability of health care systems. Enhanced recovery pathways (ERP) have been proposed as a means to reduce morbidity and improve effectiveness of care. We have reviewed the evidence supporting the implementation of ERP in clinical practice. METHODS: Medline, Embase, and the Cochrane library were searched for randomized, controlled trials comparing ERP with traditional care in colorectal surgery. Systematic reviews and papers on ERP based on data published in major surgical and anesthesiology journals were critically reviewed by international contributors, experienced in the development and implementation of ERP. RESULTS: A random-effect Bayesian meta-analysis was performed, including 6 randomized, controlled trials totalizing 452 patients. For patients adhering to ERP, length of stay decreased by 2.5 days (95% credible interval [CrI] -3.92 to -1.11), whereas 30-day morbidity was halved (relative risk, 0.52; 95% CrI, 0.36-0.73) and readmission was not increased (relative risk, 0.59; 95% CrI, 0.14-1.43) when compared with patients undergoing traditional care. CONCLUSION: Adherence to ERP achieves a reproducible improvement in the quality of care by enabling standardization of health care processes. Thus, while accelerating recovery and safely reducing hospital stay, ERPs optimize utilization of health care resources. ERPs can and should be routinely used in care after colorectal and other major gastrointestinal procedures. Copyright Copyright 2011 Mosby, Inc. All rights reserved.

4. Spanjersberg WR, Reurings J, Keus F, van Laarhoven CJ. Fast track surgery versus conventional recovery strategies for colorectal surgery. *Cochrane Database of Systematic Reviews* 2011(2):CD007635.BACKGROUND: In recent years the Enhanced Recovery after Surgery (ERAS) postoperative pathway in (ileo-)colorectal surgery, aiming at improving perioperative care and decreasing postoperative complications, has become more common. OBJECTIVES: We investigated the effectiveness and safety of the ERAS multimodal strategy, compared to conventional care after (ileo-)colorectal surgery. The primary research question was whether ERAS protocols lead to less morbidity and

secondary whether length of stay was reduced. SEARCH STRATEGY: To answer the research question we entered search strings containing keywords like "fast track", "colorectal and surgery" and "enhanced recovery" into major databases. We also hand searched references in identified reviews concerning ERAS. SELECTION CRITERIA: We included published randomised clinical trials, in any language, comparing ERAS to conventional treatment in patients with (ileo-) colorectal disease requiring a resection. RCT's including at least 7 ERAS items in the ERAS group and no more than 2 in the conventional arm were included. DATA COLLECTION AND ANALYSIS: Data of included trials were independently extracted by the reviewers. Analyses were performed using "REVMAN 5.0.22". Data were pooled and rate differences as well as weighted mean differences with their 95% confidence intervals were calculated using either fixed or random effects models, depending on heterogeneity (I(2)). MAIN RESULTS: 4 RCTs were included and analysed. Methodological quality of included studies was considered low, when scored according to GRADE methodology. Total numbers of inclusion were limited. The trials included in primary analysis reported 237 patients, (119 ERAS vs 118 conventional). Baseline characteristics were comparable. The primary outcome measure, complications, showed a significant risk reduction for all complications (RR 0.50; 95% CI 0.35 to 0.72). This difference was not due to reduction in major complications. Length of hospital stay was significantly reduced in the ERAS group (MD -2.94 days; 95% CI -3.69 to -2.19), and readmission rates were equal in both groups. Other outcome parameters were unsuitable for meta-analysis, but seemed to favour ERAS. AUTHORS' CONCLUSIONS: The quantity and especially quality of data are low. Analysis shows a reduction in overall complications, but major complications were not reduced. Length of stay was reduced significantly. We state that ERAS seems safe, but the quality of trials and lack of sufficient other outcome parameters do not justify implementation of ERAS as the standard of care. Within ERAS protocols included, no answer regarding the role for minimally invasive surgery (i.e. laparoscopy) was found. Furthermore, protocol compliance within ERAS programs has not been investigated, while this seems a known problem in the field. Therefore, more specific and large RCT's are needed.

5. Walter CJ, Collin J, Dumville JC, Drew PJ, Monson JR. Enhanced recovery in colorectal resections: a systematic review and meta-analysis1. *Colorectal Disease* 2009;11(4):344-53.Objective The study aimed to produce a comprehensive up-to-date meta-analysis exploring the safety and efficacy of enhanced recovery (ER) programmes after colorectal resection. Method Key-word and MESH-heading searches of MEDLINE, EMBASE and the Cochrane Databases from 1966 to February 2007 were used to identify all available

randomized and clinical controlled studies. Two independent reviewers assessed studies for inclusion and exclusion based on methodological quality criteria prior to undertaking data extraction. Summary estimates of treatment effects using a fixed effect model were produced with RevMan 1.0.2, using weighted means for length-of-stay data and relative risks of morbidity, mortality and readmission rates. Results Analysis of four papers including 376 patients demonstrated primary and total length-of-stays (primary + readmission length-of-stay) to be significantly reduced ($P < 0.001$) with ER programmes [weighted mean differences of −3.64 days (95% confidence interval, 95% CI −4.98 to −2.29) and −3.75 days (95% CI−5.11 to −2.40)]. Analysis of controlled clinical trial data showed morbidity rates to be reduced and readmission rates increased. These trends were not seen amongst the randomized controlled trial data. There were no differences in mortality rates. Conclusion Enhanced recovery programmes after colorectal resections reduce length-of-stay and may reduce 30 days morbidity and increase 30 days readmission without increasing mortality.

6. Wind J, Polle SW, Fung Kon Jin PH, Dejong CH, von Meyenfeldt MF, Ubbink DT, et al. Systematic review of enhanced recovery programmes in colonic surgery (Structured abstract). *British Journal of Surgery*, 2006:800-09

7. Varadhan KK, Neal KR, Dejong CH, Fearon KC, Ljungqvist O, Lobo DN. The enhanced recovery after surgery (ERAS) pathway for patients undergoing major elective open colorectal surgery: a meta-analysis of randomized controlled trials (Structured abstract). *Clinical Nutrition*, 2010:434-40

8. Khan S, Wilson T, Ahmed J, Owais A, MacFie J. Quality of life and patient satisfaction with enhanced recovery protocols. *Colorectal Disease* 2010;12(12):1175-82.Aim The aim of this study was to systematically review the literature on the influence of enhanced recovery after surgery (ERAS) protocols and health related quality of life (HQoL) and patient satisfaction. Method A systematic review of the literature from January 1990 to February 2009 was undertaken. Studies were included if they compared HQoL and/or patient satisfaction after ERAS and conventional surgery (CS). Jadad score was used to evaluate the studies. Results were divided into immediate (first week), early (second to third week) and late (more than 30 days after surgery) post-operative phases. A meta-analysis was not possible due to the heterogeneity of the studies. Results Ten publications were included in the final analysis. In the first week after surgery, two non-randomised trials found reduced fatigue and another 2 non-randomised studies found reduced pain with ERAS. One randomised study found increased emotional distress on SF36 in ERAS patients. At two to three weeks after surgery, none of the multidimensional HQoL measures showed

any differences. Increuscd fatigue was reported with CS in 2 studies. Limitations in activities of daily living were more marked after CS in one study. Beyond 30 days after surgery, none of the HQoL measures showed any differences. Only one non-randomised study compared patient satisfaction after ERAS and CS and no difference was found. Conclusion There is no evidence that ERAS adversely affect HQoL or patient satisfaction. Certain aspects of HQoL such as pain and fatigue may improve with ERAS. Further research is required, especially in the early post-operative period.