

## Development of an App For Quality Improvement in Enhanced Recovery

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**Background/Introduction:** There is compelling evidence that Enhanced Recovery Pathways (ERP's) reduce length of hospital stay, complications and mortality. Their economic benefit is similarly impressive, saving hospital bed days and costs. Implementing and maintaining good levels of compliance with the multi-faceted pathway is challenging, and deviation from, and lack of adherence to a pathway translates to a dilution of benefits. Our organisation wanted to develop a tool to improve compliance with ERP's, examine outcomes with greater granularity and place the patient at the very centre of their care.

**Methods:** We worked with a computer scientist to produce a bespoke "app" for our enhanced recovery colorectal patients. Checklists were embedded within the app architecture corresponding to nineteen recognised elements of an enhanced recovery pathway. In addition, the app included "goal-based" targets for patients to aid their recovery, standardised and validated outcome metrics, patient diaries and satisfaction and experience interfaces. The work represented service evaluation and did not require ethics approval. An enhanced recovery specialist nurse collected data for all ER colorectal surgical patients from May - July 2015.

**Results:** Data was collected for 48 patients. All patients used the patient-facing side of the app. Mean length of stay for all enhanced recovery colorectal surgery was 7.4 days (*see figure 1 below*). Analysis of data from the same time period in the previous year for colectomies and excision of rectum procedures demonstrated a reduced mean length of stay of 4.4 days in the intervention period (11.8 days versus 7.4 days). Overall compliance with the enhanced recovery pathway was 93%. 92% drinking, eating and mobilising on day zero, and 98% on day 1 postoperatively.

Mean scores for satisfaction with anaesthesia and surgery were 4.2 and 4.2 respectively, out of a maximum score of 5. 93% of patients would recommend the institution to friends and family, based on the treatment they received.

**Conclusion:** Based on our experience to date with an app that supports compliance with ERP's, engages patients, and tracks and benchmark outcomes, we suggest this technology provides a high-value, low-cost tool to drive quality improvement. Further work is needed to evaluate the role of App's in improving outcomes and patient experience in healthcare.

Figure 1: Bar chart to show distribution of length of stay for all enhanced recovery colorectal surgery patients (May-July 2015)

