Clinical and organizational content of clinical pathways for digestive surgery: a systematic review

CRD summary
This review analysed the clinical pathways for digestive surgery and their effects on postoperative outcome measures. Most of the pathways followed evidence-based criteria and, compared with standard treatment, they reduced hospital stay without compromising other postoperative outcomes. The review was limited because the quality of the included studies was not assessed, but the conclusions follow from the data presented.

Authors' objectives
To analyse the content or interventions in clinical pathways for digestive surgery and their effects on postoperative outcome measures.

Searching
MEDLINE, EMBASE, and CINAHL were searched for relevant studies published between January 2000 and November 2006. Search terms were listed. The search was restricted to articles published in English, German, or Dutch.

Study selection
Studies were eligible if they included adults undergoing elective surgery of the stomach, oesophagus, pancreas, liver, colon, or rectum and were concerned with clinical pathways in hospital care. The studies described clinical pathways implemented by the author or in the hospital of the author and had to provide sufficient detail on the content of the clinical pathway. The interventions were compared with conventional care and included studies reported at least two of the following outcomes: length of hospital stay, complication rates, re-admission rates, or mortality.

The included studies were conducted in the USA, Germany, Japan, Denmark, and Singapore. Over half of the studies concerned colonic resections, about a third concerned pancreatic resections, and the remainder were on gastric resections, all for malignant or inflammatory diseases. Most of the studies were on interventions in the preoperative phase, about half were in the intra-operative phase, all were in the postoperative phase, and none were in the follow-up phase.

Titles and abstracts were independently screened by two reviewers and studies to be retrieved in full were selected. Selections were compared and a consensus on the retrieval of studies was reached. Full text articles were read by one reviewer and a second was consulted if there was doubt on inclusion.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Data extraction was done by one reviewer and discussed with a second reviewer. The content of the clinical pathway was divided into the preoperative, intra-operative, postoperative, and follow-up phases. The medical and organisational interventions of the clinical pathway were distinguished (by discussion with a clinician) and the professionals involved in the clinical pathway were noted. Data on study design, length of stay, complication rates, re-admission, and mortality were extracted for the intervention and control groups. Outcomes were recorded in terms of means and standard deviations in most studies.

Methods of synthesis
Frequencies and proportions of the interventions extracted and of the health care professionals involved in the pathway were calculated. Interventions had to be mentioned in at least 10% of the pathways to be included in the counts. Meta-analysis was not considered to be appropriate.
Results of the review
Thirteen studies with a total of 2,285 patients were included. Study designs included a randomised controlled trial, controlled clinical trials, case control studies, a case series, and before-and-after studies, with prospective or retrospective control groups.

Content of the clinical pathways: In 92% of studies there was defined nutritional management, 69% included pain management, 69% mobilisation, and 54% education of patients and relatives. For the preoperative phase, education of patients and relatives, bowel preparation, and premedication were most frequently reported. Pain management was most prominent for the intra-operative phase and nutritional management, pain management, and mobilisation were dominant for the postoperative phase. Most of the studies defined some organisational content, which included discharge planning (mostly postoperatively), admission a set number of days before surgery, avoidance of intensive care admission, and the use of pre-written orders. The health care professionals involved in the clinical pathways included surgeons, anaesthetists, doctors, nurses, stoma therapists, physical therapists, nurse specialists, dieticians, gastrointestinal pathologists, pharmacists and operating room technicians.

Clinical outcomes: In 11 of 13 studies patients treated according to the clinical pathway had a significantly shorter stay in hospital than patients in the control group (stay reduced by between one and six days). Three studies found significantly lower complication rates in the clinical pathway groups (by between 13 and 20%), but there was no significant difference in the remainder of the studies. One study reported a significant decrease in the readmission rate (from 13% to 6%), but no significant difference was seen in ten studies. The nine studies reporting on mortality found no significant difference between groups. No negative outcomes for care according to the clinical pathway were found. With respect to specific interventions, positive effects were seen for early enteral feeding (in seven out of 10 studies) and discharge planning (in five out of eight studies).

Authors’ conclusions
Clinical pathways for digestive surgery mostly contained interventions in the pre- and postoperative phases and define nutritional management, pain management, mobilisation, education, and discharge planning. Most of the interventions were in accordance with the evidence-based Enhanced Recovery After Surgery protocol and resulted in reduced length of hospital stay, without compromising other postoperative outcome measures.

CRD commentary
This systematic review addressed a clear research question and was supported by appropriate inclusion criteria. The literature search included relevant databases, three languages were included (English, German, and Dutch), but no additional searches were carried out. Measures were taken to reduce reviewer bias and error, but no assessment of study quality was reported. The results were not discussed with respect to any measure of quality and so they and any synthesis based on them may not have been reliable. The data were summarised narratively and in tables. A second reviewer was consulted in the final selection process and for data extraction, but it is unclear to what extent there was duplicate checking of all data. The data were classified according to a range of categories and the presentation was detailed and clear, but no details of the patients participating in the studies were reported.

Despite the limitations in the review methodology, the authors’ conclusions follow from the data presented and are likely to be reliable.

Implications of the review for practice and research
Practice: The authors made no specific recommendations for practice.

Research: The authors stated that more rigorous study designs are required to assess the effects of clinical pathways in digestive surgery. Surgeons and anaesthetists should be involved in the development and implementation of clinical pathways.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.