Early oral feeding after colorectal surgery: a mixed methods study of knowledge translation

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What is the clinical problem?

- Evidence-based guidelines recommend early oral feeding (EOF) as prescription of an unrestricted diet within 24 hours after colorectal surgery.

- This study aimed to understand local postoperative feeding practices after colorectal surgery; identify barriers and enablers to implementation of EOF; and implement and evaluate data-driven strategies to facilitate EOF.
What is the Evidence?

- There is well established evidenced to suggest that EOF within 24 hours of surgery is safe, well tolerated, and improves patient outcomes.
  - A meta-analysis of 15 RCTs by Osland et al. (2011) reported early postoperative nutrition in patients undergoing gastrointestinal resections is associated with a significant reduction in total complications compared with traditional postoperative feeding practices.
  - A meta-analysis of 7 RCTs by Zhuang et al. (2013) reported early oral feeding in elective colorectal surgical patients significantly reduced postoperative complications and hospital length of stay.
What is the Evidence?

- **ESPEN Guidelines for Clinical Nutrition in Surgery** (Weimann et al., 2017)
  - Oral nutritional intake should be continued after surgery without interruption (Grade A recommendation – strong consensus, 90% agreement).

- **American Society of Colon and Rectal Surgeons clinical practice guidelines for enhanced recovery after surgery** (Carmichael et al., 2017)
  - Patients should be offered a regular diet immediately after elective colorectal surgery (strong recommendation based on moderate quality evidence, 1B).

- **Enhanced Recovery After Surgery Society guidelines for perioperative care in elective colonic surgery** (Gustafsson et al., 2013)
  - Patients are encouraged to take normal food as soon as possible after surgery (strong recommendation, high level evidence).
Implementation Phase

- A longitudinal, mixed methods study was undertaken by an EOF champion (ward dietitian).

- The action cycle of the Knowledge to Action framework was used to provide a structured approach to design, deliver, and evaluate EOF practices.

Figure 1: Knowledge to Action Implementation Framework

Implementation Phase

- **Phase 1**: identified the nature of the problem using postoperative diet information in audits 1 & 2.

- **Phase 2**: assessed barriers and enablers to the implementation of EOF from staff interviews.

- **Phase 3**: data driven stakeholder engagement strategies were carried out through a process of consultation and tailored education. Audits 3 & 4 were completed to monitor knowledge uptake and practice change.

- **Phase 4**: evaluated outcomes with a final audit of postoperative diet information.
Outcomes

Phase 1 – Identifying the Nature of the Problem

- Median time to commencement of full diet was postoperative day 4 & 3 in audits 1 & 2 respectively.
- No patients were prescribed a full diet on operation notes during phase 1 audits.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Audit 1</th>
<th>Audit 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jun-Jul 2016 (n=23)</td>
<td>Feb-Mar 2017 (n=20)</td>
</tr>
<tr>
<td>Postoperative day commenced on a full diet – median (range)</td>
<td>4 (2-7)</td>
<td>3 (1-7)</td>
</tr>
<tr>
<td>Number of patients prescribed a free fluid or clear fluid diet on the operation note – n (%)</td>
<td>23 (100%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>Number of patients prescribed a full diet on the operation note – n (%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Number of patients who received a full diet on postoperative day 0 – n (%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
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</table>
Outcomes

Phase 2 – Assessing Barriers & Enablers to EOF Implementation

• Staff interviews (n=16) identified four EOF barriers:
  I. Decision makers used a pragmatic approach to diet upgrades
  II. Disparities existed in diet upgrade practices
  III. Understanding of hospital diets varied

  “I don’t know whether there’s just a bit of hocus pocus... or whether there’s really any difference with giving someone clear fluids or free fluids.” (Registrar)

  IV. Diet upgrades were not systematically tracked.
Outcomes

Phase 3 – Stakeholder Engagement Strategies

• The EOF champion began attending colorectal ward rounds and weekly multi-disciplinary team meetings.

• Three planned education and implementation strategies:

  1. Educational session about the nature and availability of hospital diet codes
  2. Change the wording of surgical operation notes to prescribe a full diet for all uncomplicated elective colorectal patients
  3. Educational sessions with ward nursing staff about the rationale and processes surrounding changes to early feeding prescription
# Phase 4 – Evaluating Outcomes

<table>
<thead>
<tr>
<th>Phase</th>
<th>Phase 1</th>
<th>Phase 3</th>
<th>Phase 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative day commenced on a full diet – median (range)</td>
<td>4 (2-7)</td>
<td>3 (1-7)</td>
<td>2 (0-5)</td>
</tr>
<tr>
<td>Number of patients prescribed a free fluid or clear fluid diet on the operation note – n (%)</td>
<td>23 (100%)</td>
<td>20 (100%)</td>
<td>27 (87%)</td>
</tr>
<tr>
<td>Number of patients prescribed a full diet on the operation note – n (%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>4 (12%)</td>
</tr>
<tr>
<td>Number of patients who received a full diet on postoperative day 0 – n (%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>3 (10%)</td>
</tr>
</tbody>
</table>
Conclusions

• This study successfully identified and overcome local barriers to improve EOF practices to align with guideline recommendations.

• Median time to commencement of full diet improved from postoperative day 4 to postoperative day 0.

• Patients prescribed a full diet on operation notes increased from 0% to 82%.
Conclusions

• Consistent with the KTA framework, long-term audit and feedback strategies are recommended to sustain knowledge use.

• A future direction of this study is to develop a plan for annual audit and feedback, including multidisciplinary accountability for outcome measures and audit dissemination.