Experiences at Royal Alexandra Hospital, Edmonton, Alberta

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Introduction to my ICU...

- Royal Alexandra Hospital, Edmonton, Alberta
- 678 bed teaching hospital
- Closed 24 bed general systems ICU
- 50% surgery/ 50% medicine mix
Experiences thru this observational study

- Increased awareness of daily energy/protein provisions
- Formalizes your own nutrition practice, and clearly highlights your own deficiencies
- Provides a comparison of your ICU with other sites
Figure 2: Type of Nutrition Support

- EN Only
- PN Only
- EN+PN
- None

% ICU days on nutrition support:

- Your Site
- Sister Sites
- All Sites
Figure 1.1 Adequacy of Calories from Nutrition Support

Graph showing the adequacy of calories received/prescribed over ICU days for different sites.
Figure 1.5 Overall Performance at Your Site

- Calories from NS: 63/160
- Protein from NS: 75/159
- Calories from EN: 120/161
- Protein from EN: 130/160

% received/prescribed

- Your Site
- Sister Sites
- All Sites
Figure 3.1. Timing of Initiation of EN

Recommended Time: within 48 hours following ICU admission
Figure 4. Strategies to optimize delivery and minimize risks of EN
### Table 4. Contraindication to EN in those receiving PN

<table>
<thead>
<tr>
<th>Contraindication</th>
<th>Your Site n=60</th>
<th>Sister Sites n=1138</th>
<th>All Sites n=4821</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>6 (10.0%)</td>
<td>199 (17.5%)</td>
<td>1722 (35.7%)</td>
</tr>
<tr>
<td>Mechanical bowel obstruction</td>
<td>14 (23.3%)</td>
<td>57 (5.0%)</td>
<td>164 (3.4%)</td>
</tr>
<tr>
<td>Bowel ischemia</td>
<td>7 (11.7%)</td>
<td>105 (9.2%)</td>
<td>290 (6.0%)</td>
</tr>
<tr>
<td>Hemodynamic instability</td>
<td>1 (1.7%)</td>
<td>50 (4.4%)</td>
<td>347 (7.2%)</td>
</tr>
<tr>
<td>Small bowel ileus</td>
<td>4 (6.7%)</td>
<td>243 (21.4%)</td>
<td>760 (15.8%)</td>
</tr>
<tr>
<td>Small bowel fistulae</td>
<td>1 (1.7%)</td>
<td>50 (4.4%)</td>
<td>250 (5.2%)</td>
</tr>
<tr>
<td>Bowel anastomosis</td>
<td>13 (21.7%)</td>
<td>245 (21.5%)</td>
<td>556 (11.5%)</td>
</tr>
<tr>
<td>Other</td>
<td>14 (23.3%)</td>
<td>189 (16.6%)</td>
<td>732 (15.2%)</td>
</tr>
</tbody>
</table>
Percentage of Patient-days With Blood Glucose > 10 mmol/l

Figure 6.2. \( \approx \) Patient-days with blood glucose > 10 mmol/l

- Your Site
- Sister Sites
- All Sites
Quality Improvement

- Daily documentation reinforces what we do
- Provides a formal analysis of nutrition care in your ICU to share with ICU physicians, nursing care managers or educators
- APACHE II scores included
- Outcomes oriented
  - Length of stay (ICU and hospital)
  - Mortality
Strategies to change practitioner behavior

- Addressed to your local setting and multifaceted
  - Informal discussions by local opinion leaders
  - Reminders and prompts (i.e. preprinted orders)
  - Periodic “reminders”
  - Tie into other initiatives i.e. VAP protocol and HOB elevation or bedside computerization
- Recognize there will be barriers to change (people or structure)
How has practice evolved...

- Increased use of small bowel feeding tubes, now placed at the bedside
- Increased use of motility agents, increased tolerance to higher gastric residual volumes
- Earlier enteral nutrition, decreased reliance on TPN
- Use of specialty products for immune fn...it’s not just about protein and calories
  - Glutamine
  - Omega-3 fatty acids
  - Prebiotics
  - Probiotics
Evolution of ICU Nutrition Practice

- Standardized protocols
  - Enteral feeding
  - Glycemic control
- Education: Medical/Nursing/Nutrition
- Research: direct link between practice and outcomes
- Quality Improvement initiatives
- Interdisciplinary co-operation