VBF establishes a 24-hour enteral feeding volume, administered daily to utilize "catch up" phases to account for interruptions in feeding to reach goal calorie and protein needs. An appropriate approach for patients determined to be at high nutritional risk.1

RBF utilizes slow titration and fixed hourly goal rate, regardless of interruptions in feeding.2

The Benefits of Volume-Based Feeding (VBF) vs. Traditional Rate-Based Feeding (RBF)

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Facts about NUTRITIONAL INADEQUACY in the ICU:

1. Up to 69% of patients experience a decline in their nutrition status during hospitalization, likely due to inability of Rate-Based Feeding (RBF) protocols to meet calorie and protein needs.

2. Critically ill patients receive, on average, 40-50% of prescribed nutritional requirements, leading to increased complications, prolonged ICU length of stay and increased mortality.

3. A delay in initiation of EN is also common, and when started, surgical and trauma ICU patients are likely to get fewer goal calories delivered (45.8% vs. 56.1%, P=0.05) vs. medical ICU patients, due to holding of feeds for diagnostic testing and multiple operative procedures.

4. Feeding delays and inadequacies of EN delivery have been shown to increase complications and mortality.

Benefits of VBF vs. RBF

1. In 2010, the introduction of VBF, a component of the PepUP protocol, changed the focus of EN delivery from the "traditional" RBF (EN prescribed in mL/h) to a "system-changing" VBF (EN prescribed in mL/d).

2. Instead of a prescribed rate per hour (60 mL/h), patient would have a prescribed volume per day (1440 mL/24 hours). This provides nurses freedom to adjust the hourly rate as needed to reach the prescribed daily volume "catch-up" for hours when the EN was held for procedures or diagnostic testing.

A sample schedule from CriticalCareNutrition.com is found below:

Volume-Based Feeding Schedule

<table>
<thead>
<tr>
<th>Goal total mL formula per 24 hours</th>
<th>Hours remaining in the day to feed 24 hour volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</td>
</tr>
<tr>
<td>2350</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</td>
</tr>
<tr>
<td>2300</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</td>
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</tr>
<tr>
<td>1800</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22</td>
</tr>
</tbody>
</table>

3. When VBF was initiated, patients who receive VBF protocols saw a 38.2% relative improvement in protein provision vs. the RBF control group.

4. Additionally, patients were started on peptide-based formulas, as a “safe-start” strategy, designed to promote tolerance in this patient population.

5. With an improvement in protein provision, VBF patients are more likely to reach protein goals.

Protein achievement is tied to length of stay, as patients who achieve 80% or more of their protein target have a 33% reduction in LOS.
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RBF utilizes slow titration and fixed hourly goal rate, regardless of interruptions in feeding.

Clinical Evidence for Enteral Nutrition Feeding Protocols

References:

Tools and resources for initiating a VOLUME-BASED FEEDING (VBF) Protocol in your ICU

www.CriticalCareNutrition.com
- VBF Schedule
- VBF Calculation Examples
- Sample Paper Order Sets
- Videos

www.ENactNutrition.com
- Quality Improvement Protocols to help track protein delivery
- Click “Act” and download the “Optimizing Protein Delivery in the ICU” toolkit
- Quality Improvement Training Course for Dietitians

www.MyCEeducation.com
- Continuing Education Programs to raise awareness of evidence supporting VBF protocols
- Select “View Catalog” on landing page to review list of available courses

For more information about VBF protocols or to inquire about education programs, contact your Nestlé Health Science sales representative.

Recommended Protocol

Peptide-based diets, including PEPTAMEN® and IMPACT® Peptide 1.5 formulas, can be used as a “safe-start strategy” for feeding initiation at 25cc/hr for the first ICU day, advancing to VBF on day two, as tolerated.