



# How to design a Critical Care Nutrition Protocol for the ICU?

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# Relevant elements to design a Critical Care Nutrition Protocol?







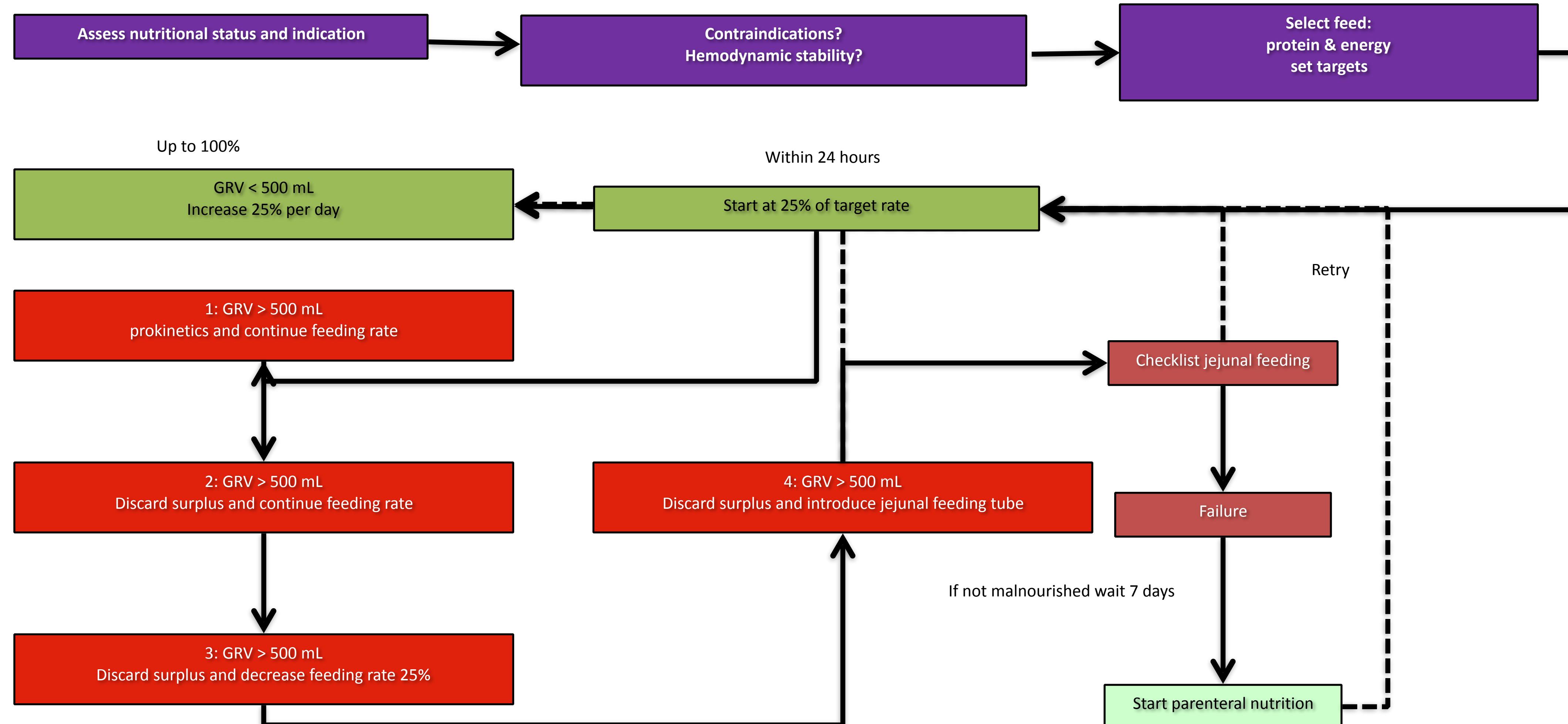
# Conclusions

- **ICU admission nutritional status and risk**
  - Indication Nutritional Support
  - Nutritional assessment
  - Contraindications EN
- **EEN and (S)PN indications**
- **Nutritional Intervention**
  - Vitamins and Trace elements
  - Energy and proteins calculations to set targets
  - Selection of feeds
  - Pharmaconutrition or immunonutrition
- **Monitoring & Optimizing Nutritional Support**
  - GRV and enteral tolerance
  - Prokinetics
  - Postpyloric feeding tubes
- **Monitoring of individual patients**
  - REE & protein intake
  - Monitor ICU level

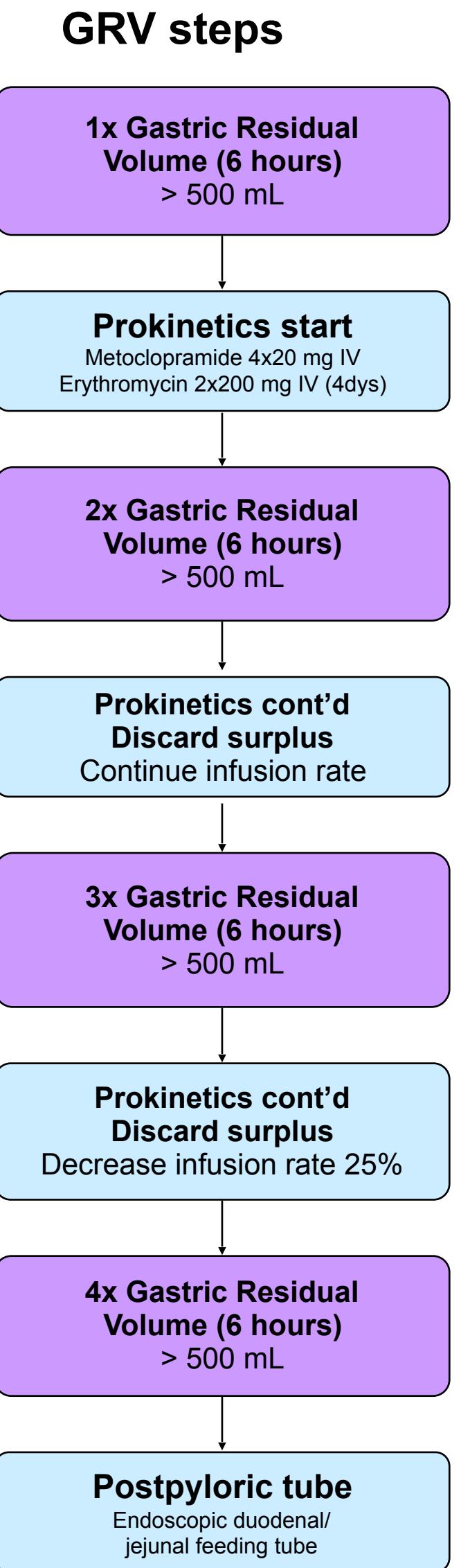
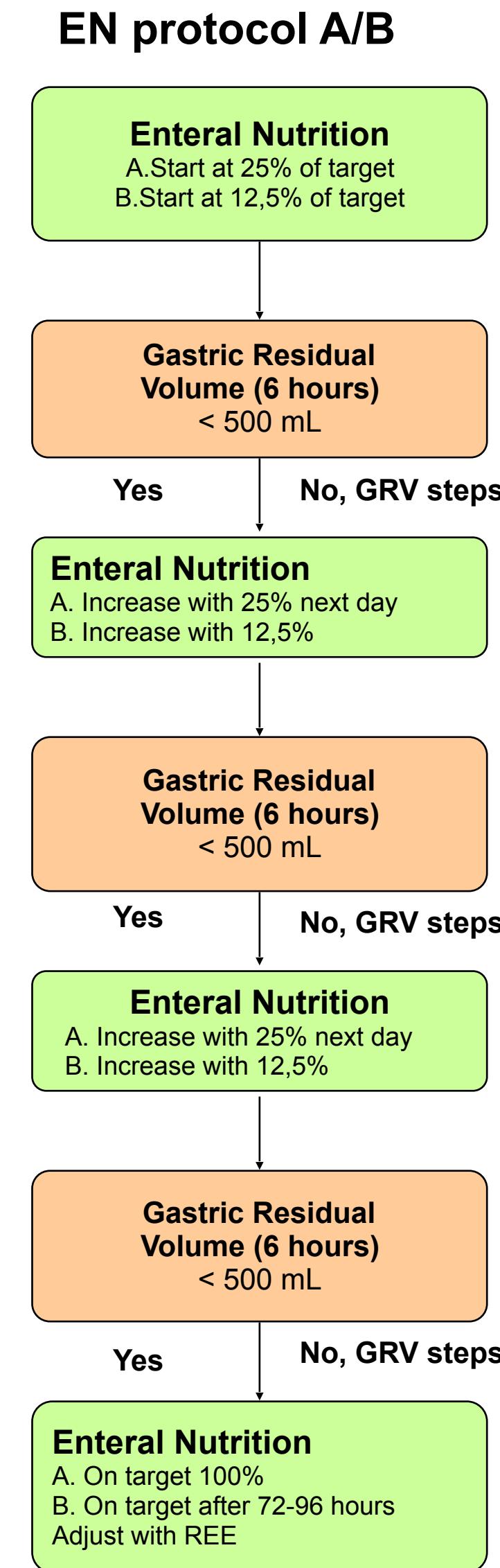
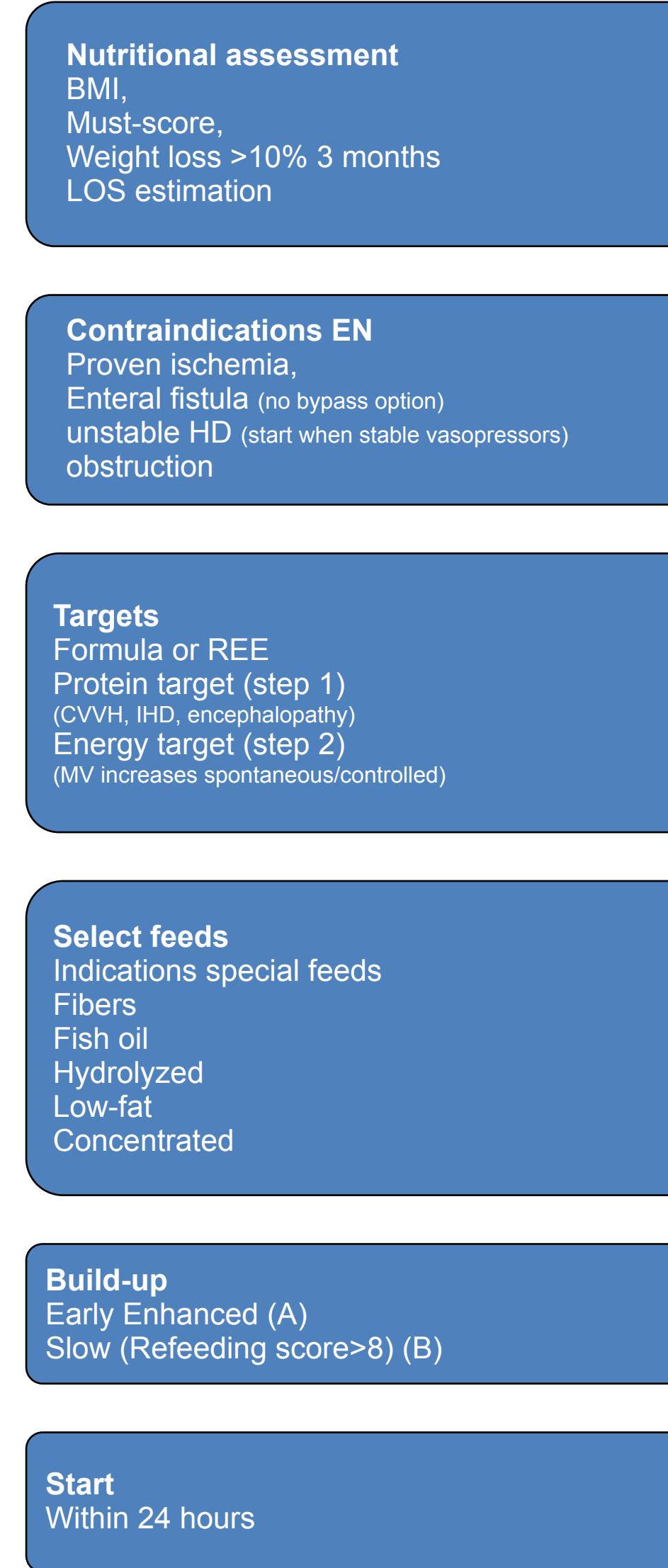
Examples

# Example Protocol Flow Chart

Example of ICU Nutrition Protocol Flow Chart Gelderse Vallei Hospital, Ede, The Netherlands



# Example Protocol Flow Chart



- Postpyloric EN protocol**  
1. Per day increase with 20 ml/hr or 25% of target until 100% independent of GRV (2<sup>nd</sup> tube); no bolus feeding
- Monitoring post-pyloric-EN intolerance**  
1. Major gastric enteral feed admixture  
2. Important abdominal distention  
3. Intra-abdominal pressure > 20 cm H<sub>2</sub>O  
4. Severe diarrhea
- Parenteral nutrition (TPN+SPN)**  
1. Patients contraindicated for oral or EN intake, >7 days no intake after ICU admission (TPN).  
2. Patients on oral/EN intake >7 days after ICU admission with enteral intake <60% (SPN)  
3. Patients with BMI<18.5: start TPN on day 1; start EN; stop PN at EN-intake of 80% of target.  
4. Patients with >10% weight loss in 3-6 months before ICU admission: start TPN on day 1; start EN; stop PN at EN-intake of 80% of target.
- Monitoring (TPN+SPN)**  
1. Total bilirubine (>20 µmol/l) and/or doubling of bilirubine level or TG-level (> 3,0 mmol/l): stop fat emulsion completely in PN.  
2. NB: 2x per week (Monday / Thursday) total bilirubine&TG testing.  
3. In contrast to lab instructions do not interrupt nutritional interventions.
- Cernevit (multivitamin) & Nutritrace (trace elements) supplementation**  
1. No Nutrition: 1 ampoule daily of both.  
2. Full TPN: 1 ampoule daily of both.  
3. EN < 750 ml per 24 hours: 1 ampoule daily of both.  
4. EN 750-1500 ml per 24 hours =/- SPN: every other day 1 ampoule of both  
5. Full TPN only: 10 mg Konakion per week. NB: not necessary incase of EN.  
6. In case of CVVH double dosages