Purpose & Scope

- To ensure that nutritional requirements of critically ill patients shall be met with ideal calorie and protein density or modifications necessary in particular nutrient composition.
- Critically ill patients who are not able to take oral feed shall be nutritionally supported by giving enteral feed.
- Only commercially available nutritive formulae are used.
- Once the patient has been fluid resuscitated and stabilized on declining doses of <2 vasopressors, EN may be started cautiously at low rates.
- In persistent shock, early EN should be avoided (A I).
- If patient hemodynamically stable then feed start within 24 hours.
- 80% calorie and other nutrients target should be achieved within 24 – 48
- Tube feeding to be considered if even 50%–60% of nutrition targets are not met adequately within 72 h of oral nutrition support.
- In case the nutrition requirement is not met adequately with EN even after 7 days of ICU admission, then usage of parenteral nutrition may be considered.

Procedure:

- **Enteral Tube nutrition**
- **Authorization: dietician and doctor**
- **New Admission**
    - Treating consultants based on the clinical and patho-physiological parameters of the patient shall assess and give written order to start enteral feed.
    - Instructions (volume and nutritional requirements) in the patient's medical record. The ward secretary/ sister in charge shall inform the dietician through the Special Diet Requisition Slip or through phone.
- **Process of RT feed**
    - Doctor written order
    - Nurses inform to dietician
    - Dietician consult with doctors and calculate calories and decide the method (continuous or bolus) and writes in feed chart and assessment form
    - Nursing staff follow the instruction till further advice
    - Any change in the advice by doctor
    - Nursing inform to dietician/dietician get information through taking rounds
    - Dietician writes in the assessment form about the change
    - Nursing staff follow the instruction till the next advice by doctors

Diet Change:

- The treating consultant shall communicate through written instructions for each patient in the medical record for any enteral feed modification (changes in volume and/or nutritional requirements and method of feed).

Periodicity:

- Based on the clinical condition of the patient the consultant shall give instructions for changes in the enteral feed plan, which may vary from 1-3 modifications in a 24 hour diet cycle. The same information shall be communicated to the Dietician by the nursing in-charge/allocated sister.

Documentation:

- **Progress Note:** The specific enteral feed instructions for each patient shall be prescribed by the treating consultant in the patient's medical record in the progress note.
- **Special Diet Requisition Slip**: Allocated nurse should write the special diet order mention in progress note and sent it canteen and also provide information to dietician.
- **Dietician** will write the instruction about RT feed in nutritional assessment form. And she need to update every time after any changes in RT feed and will document in reassessment form.

Nutritional Assessment:

- **Authorization :**dietician
- **New Admission:** Concerned floor dietician after receiving the enteral feed instructions in the form of Special Diet Requisition Slip shall carry out the nutritional screening and assessment within 24 hrs of admission on a Nutritional Assessment and Planning Format.
- **Diet Change:** The concerned floor dietician in accordance with the enteral feed prescription given by the treating consultant shall formulate the feed.
- **Modification:** The concerned floor dietitian shall do modifications in the current enteral feed formula.
- **Periodicity:** As and when the message is received.

Documentation:

- **New Admission:** Nutritional screening shall be filled in Nursing Assessment on admission Form (done soon after admission by the sister in charge), Nutritional screening and assessment shall be filled in Nutritional Assessment and Planning Form (done within 24hours of admission by the allocated floor dietician).
- **Diet Change:** Initiation of Special Diet Requisition slip/ OR Telephonic
- **Modification:** Putting up and Reviewing of Nutrition Chart.

Translating prescription into Enteral feed formula:

Authorization: Dietician shall be authorized to plan the enteral feed formula in consultation with the treating consultant.

- **Calculation:** The calorie and protein requirements shall be scientifically calculated based on the BMI and physical activity of the patient or RDA (as given by ICMR for under 18) or BEE (as per Harris Benedict's Equation)
- **Formulation for adults:**

1. CALORIES
    - should be in range **of 25-30 Kcal/kg body weight/day** for most **critically ill** patients(A I)
    - A whole-protein formula providing **35–40 kcal/kg body weight/day** energy intake is recommended in **Hepatic Failure** patients(A I)
    - Harris-Benedict prediction equation x injury factor
        - Male : BEE = 66.47 + (13.75 x weight in kg) + (5.0 x height in cm) – (6.76 x age in years)
        - Female : BEE = 655.1 + (9.56 x weight in kg) + (1.85 x height in cm) – (4.68 x age in years)

1. PROTEIN
    - Protein requirement for **most critically ill** patients is in range of **2-2.0 g/kg body weight/day**(A I)
    - In severely hypercatabolic patients such as extensive burns and polytrauma, ratio of **Kcal: nitrogen** should be **120:1** or even **100:1** has been accepted (B V)
    - A whole-protein formula providing **2–1.5 g/kg body weight/day** protein is recommended in **Hepatic Failure** patients(A I)
    - Protein recommendations should be in the range of **5–2.5 g/kg/dayTraumatic Brain Injury** (A I)

- Daily protein intake should be in the range of 1.2–1.7 g/kg actual body weight in AKI patients (C)
- **Standard enteral formula** is recommended for ICU patients with **AKI** (A I)In case of **significant electrolyte imbalance**, a **specialty formulation** designed for renal failure should be considered (A I)
- As percent of total kcal: 15 – 25%

2. LIQUID
   - By weight: 25 – 35 ml/kg depending on age, sex, activity
   - By calorie intake: 1 ml/kcal
   - Limit in CHF, edema, oliguria, hyponatremia, SIADH
   - Increase if abnormal gastrointestinal, skin or renal fluid losses
   - Consider all sources, intravenous, enteral and oral
3. TIMINGS:
   - 2nd / 3rd hourly
4. SUPPLEMENTS:
   - Only formula feed
   - Enteral nutrition should not be interrupted in the event of diarrhea (A I) Feeds can be continued while evaluating the etiology of diarrhea (A I)

- **Formulation for Pediatrics :**

1. CALORIES

- Pre operative or post shunt
  - 90-100kcal /kg(ventilated)
  - 120-150kcal/kg(non ventilated)
- Post operative or post shunt
  - 90-100kcal /kg(ventilated)
  - Actual body weight + activity 1.2+ stress1.5-1.6 (non ventilated)

1. PROTEIN

- Follow RDA.

1. LIQUID
   - 150ml/kg (Premature < 2kgs)
   - Neonates and infants 2-10kgs(0-6months) is 150ml/kg and for 6-12 month is 120ml/kg
   - Infant and children 10-20kg is 1000ml +50ml over 10kgs
   - Children >20kg is 1500ml +20ml over 20kgs

    - Consider all sources, intravenous, enteral and oral
2. TIMINGS:
    - 2^{nd}/ 3^{rd} hourly/ Continuous 75ml /hourly
3. SUPPLEMENTS:
    - only formula feed
    - Enteral nutrition should not be interrupted in the event of diarrhea (A I) Feeds can be continued while evaluating the etiology of diarrhea (A I)

- **Documentation:** Enteral feed formula shall be planned on Nutrition Chart Formulation form and it shall be documented in Nutrition Chart. Subsequent planning for next day shall be done on Nutritional Re-assessment & Planning form and if completely the feeds / nutritive values are to be altered a new Nutrition Chart will be put up by the concerned floor dietician.

Therapy Plan

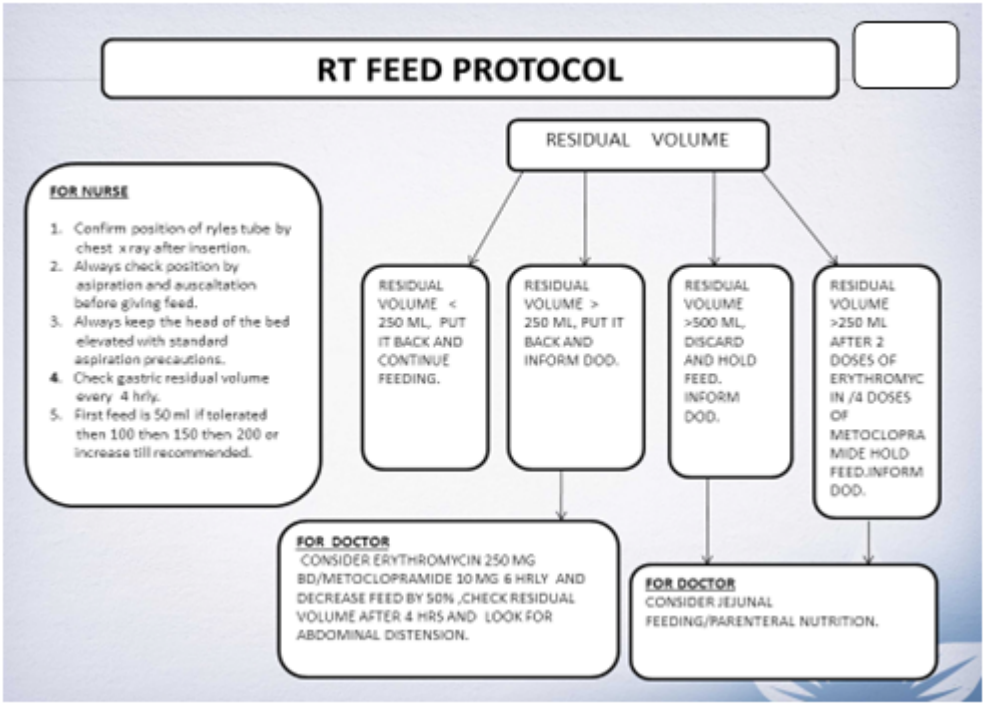
- **Authorization:** Only dietician is authorized to fill the therapy plan and response to nutrition is recorded.
- **Periodicity:** Frequency of updating shall be every day or as per nutritional requirement.
- **Documentation:** All the updations or modifications are recorded in Nutritional Re-assessment & Planning form by the Dietician.
- **Parenteral nutrition:** Treating consultant shall prescribe parenteral nutrition formulae and the volume of administration in consultation with the dietician..
- Preparation, storage handling and distribution of parenteral feeds shall be the responsibility of the pharmacy. Administration of Parenteral nutrition shall be done by nursing staff. Dietician shall record the calorie and protein intake for 24 hours on Nutritional Re-assessment & Planning form.

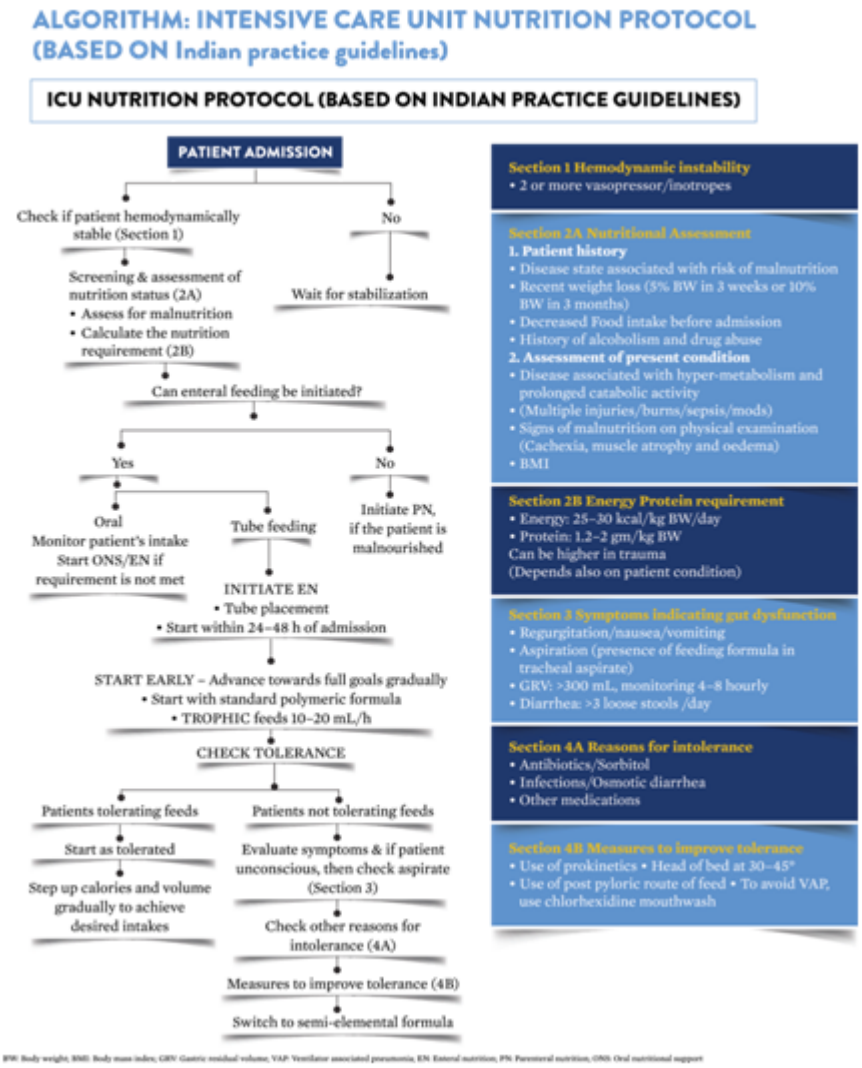
RT feed protocol:

- Start feed for patient with contentious feeding by giving plain polymeric formula with RTH. Target 1000 Kcal in first 24 hours. Try to archive required nutrients target with in 72 hours for patients by bolus or contentions or both type of feeding.
- Combination of intermittent continuous and bolus feed is best way to provide required nutrition with less nursing timing. So RTH can be given in day time when nursing work load is very high mainly 11am to 4 pm in combination 4 to 5 bolus feedings.
- In case of bolus feeding initiation RT feed should be start with 50ml and followed by 100ml then 150ml and finally 200ml 2nd hourly which is a full strength of a feed

according to the patient condition and tolerance.

- If patient is not tolerating more than 100ml then only 100ml feed will be continued as per doctor advice.
- Each time feed is given, tube should be flushed with 30ml of clear water.
- Residual volume should be checked four hourly and if it is above 300ml then it should be informed to doctors.
- In case patient is missing feed due to some test and other reason RTH should be given in night time as continuous feed.
- In case of loose stool, diarrhoea and uncontrolled sugar continuous feed should be given.
- Try to start feed within first 12 hours if there is no contra indication.
- Prefer continuous feeding.
- Start feed with the rate on 10- 20 ml hourly and slowly increase to 60 to 75ml hourly.
- Try to achieve 80% of required nutrition.
- If kept NPO for any procedure/test cover the feeding gap by giving continuous feed in night time too.
- Prepare feed only for 4 to 5 hours.





Author:

Ms. Shabista Nasreen
Chief Dietician, Narayana Superspeciality Hospital, Amingaon, Assam