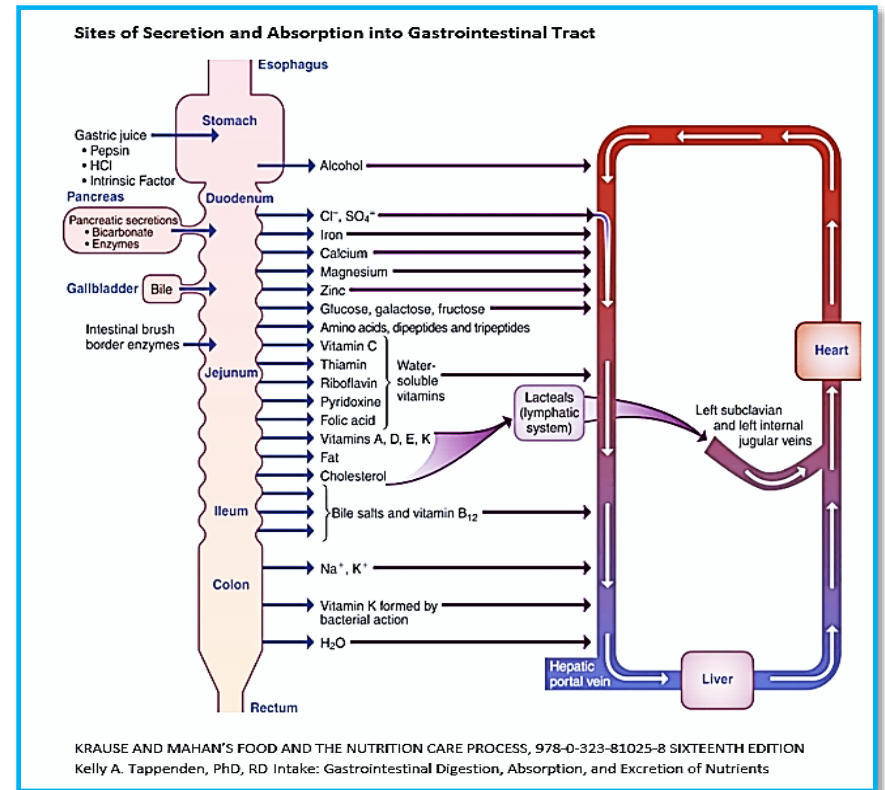


These practice considerations may require individualized infant assessment and modification.

Management goals	
<ol style="list-style-type: none"> 1. Optimized growth and development 2. Prevention of metabolic acidosis and electrolyte imbalance 3. Maintenance of a positive fluid balance of 30% or greater 	
Clinical considerations after bowel resection and/or stoma creation	
<p>Anatomy and intestinal absorption</p>	<ul style="list-style-type: none"> - Knowledge of remaining anatomy after intestinal resection is essential for nutritional management as affects absorption and fluid/electrolyte balance. <ul style="list-style-type: none"> - Ostomy level (i.e., jejunostomy, ileostomy, colostomy). The more distal the stoma, the greater the likelihood of improved intestinal absorption - Remaining bowel length - Remaining bowel condition - Volume and constituents of stoma output are influenced by the level of the stoma (i.e., jejunal, proximal ileum, distal ileum colon) and absorptive capacity of the intestine.
<p>Enteral nutrition and adaptation</p>	<ul style="list-style-type: none"> - Enteral nutrition promotes intestinal growth and adaptation. - The ileum has a greater capacity to adapt and assume the functions of the jejunum.
<p>Intestinal hypersecretion and intestinal adaptation</p>	<ul style="list-style-type: none"> - Ileus post-operatively with minimal stoma output is expected, often followed by a post-intestinal resection hypergastrinemia - hypersecretory period. - With intestinal adaptation over weeks to months, the hypersecretion is anticipated to slow if intestinal injury does not reoccur.
<p>Bowel resection without ostomy creation</p>	<ul style="list-style-type: none"> - Infants with bowel resection and primary anastomosis are still at risk for increased intestinal losses. - Caution: watery stools that soak into the diaper may be erroneously assessed as adequate or increased urine output.
<p>Regular assessments essential</p>	<ul style="list-style-type: none"> - In the absence of an ostomy, critical attention to the quantity and quality of the stool output (although subjective) is essential. - Stools require regular assessment for consistency (i.e., soft/pasty versus liquid mixed with pasty versus liquid stool soaked into diaper). - Regular assessments of the quantity and quality of stool or stoma output is essential to minimize fluid and electrolyte abnormalities and growth failure (minimum 1-2 times daily).



Fluid, Electrolyte and Nutrition Management for Infants with an Ostomy or Significant Bowel Resection with Primary Anastomosis

These practice considerations may require individualized infant assessment and modification.

Post operative

Provide ostomy creation postoperative care (i.e., jejunostomy, ileostomy, colostomy)

Fluid management

- Avoid fluid overload post-operatively to facilitate wound healing and electrolyte imbalance. This may require continuing with a reduced TFI until fluid balance and recovery post-operatively is achieved.
- Refer to [NICU Pre and Post-Operative Fluid Management Guideline](#) for management recommendations.
- Gastric tube (NG/OG) to low intermittent suction.
- Replace gastric losses (NG/OG) 1:1 with 0.9% NaCl and KCL 20 mmol/L (K* if adequate urine output).

Initiate parenteral nutrition (PN)

- PN need and timing of initiation is determined by the post-op course and ostomy level.
- **Jejunostomy and ileostomy:** PN required to support growth. Commence PN once stabilized (usually 1 – 2 days post-op).
- **Colostomy:** PN need determined by anatomy, gestational age and anticipation of feed tolerance. Consider level of colostomy and remaining bowel length.

Anti-secretory agent use

Jejunostomy +/- ileostomy: Consider commencing a proton pump inhibitor (initially IV pantoprazole then enteral omeprazole once adequate feed volumes achieved) to reduce post small bowel resection gastric acid hypersecretion and intragastric volumes (to balance risks of acid suppression in preterm infants). Timing of discontinuation to be individualized based on achievement of optimized intestinal absorption.

Establish the following routine assessments

Ongoing assessments

Daily urine and stoma output

Assess stoma output

(use intake/output columns in Epic for totals)

1. Measure stoma output **mL/kg/day**

$$\frac{\text{Stoma output in mL in 24 hours}}{\text{Weight (kg)}} \times 100$$

2. Measure **percentage** of daily stoma output of enteral intake:

$$\frac{\text{Stoma output (mL) in 24 hours}}{\text{Enteral feed volume (mL) in 24 hours}} \times 100$$

Assesses urine output

- Urine output mL/kg/hour.
- Trend urine output as an indicator of adequate fluid intake.

Laboratory measurements

- Routine PN monitoring including twice weekly (Mon/Thurs) serum electrolytes, glucose, blood gas. Urea and urine electrolytes at least weekly.
- Consider more frequent measurements if stoma output elevated and/or electrolyte imbalances.
- If > 4 weeks of PN, complete surveillance as per [Nutritional monitoring for inpatients on long-term parenteral nutrition](#).
- As PN weans, enteral sodium supplementation is often required to maintain adequate sodium intake to support growth. Low urine sodium suggests sodium depletion. Refer to [Urine electrolyte monitoring for NICU infants guideline](#).

Monitor growth

Weight gain

- Preterm infants: 17 – 21 g/kg/day
- Term infants: 25 – 42 g/day

Head circumference

- 24 – 32 weeks GA: 1 cm/week
- ≥ 34 weeks GA: 0.4 cm/week
- Term – 3 months: 0.4 – 0.7 cm/week

Length

- 24 – 32 weeks GA: 1.4 cm/week
- ≥ 34 weeks GA: 0.7 cm/week
- Term – 3 months: 0.4 – 0.7 cm/week

Sodium ostomy losses (mmol/kg/day)

- Aim: sodium intake > ostomy sodium losses + sodium maintenance.
- Sodium ostomy losses are greater the more proximal the stoma. Sodium jejunostomy losses are ~ 100 mmol/L (range - 80-140 mmol/L).

Formula: calculating ostomy Na losses

$$\frac{\text{Ostomy output mL/d} \times 100 \text{ mmol/L}^*}{1000} \div \text{wt (kg)}$$

Example: 80 mL via ostomy in 24 hrs ÷ 2kg

$$\text{Ostomy Na losses} = \frac{80 \text{ mL} \times 100 \text{ mmol/L}}{1000} \div 2 \text{ kg} = 4 \text{ mmol/kg/day}$$

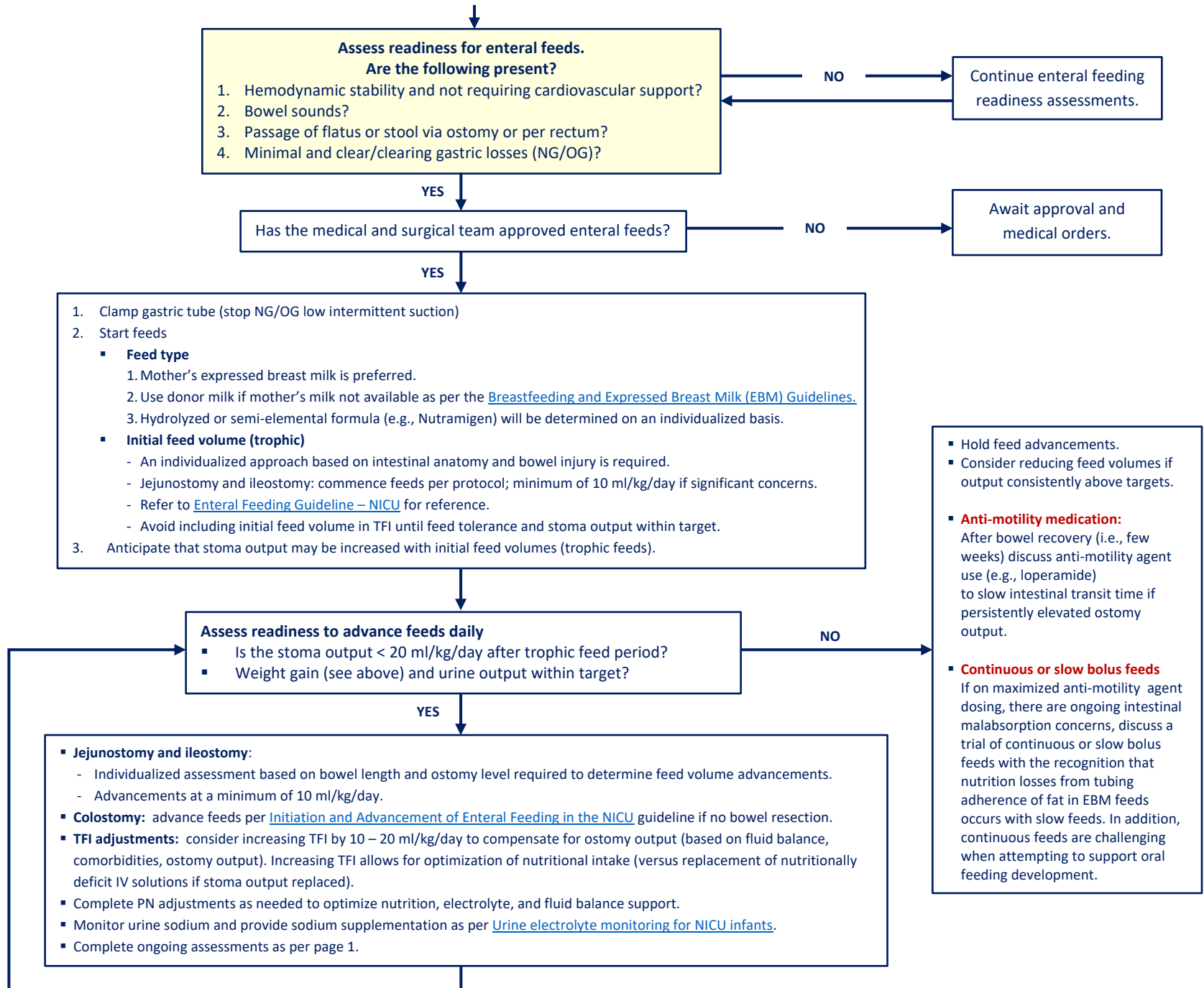
*100 mmol/L = estimate of Na ostomy losses

Fluid, Electrolyte and Nutrition Management for Infants with an Ostomy or Significant Bowel Resection with Primary Anastomosis

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Enteral feeding readiness

Enteral feeding and output monitoring



Fluid, Electrolyte and Nutrition Management for Infants with an Ostomy or Significant Bowel Resection with Primary Anastomosis

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