

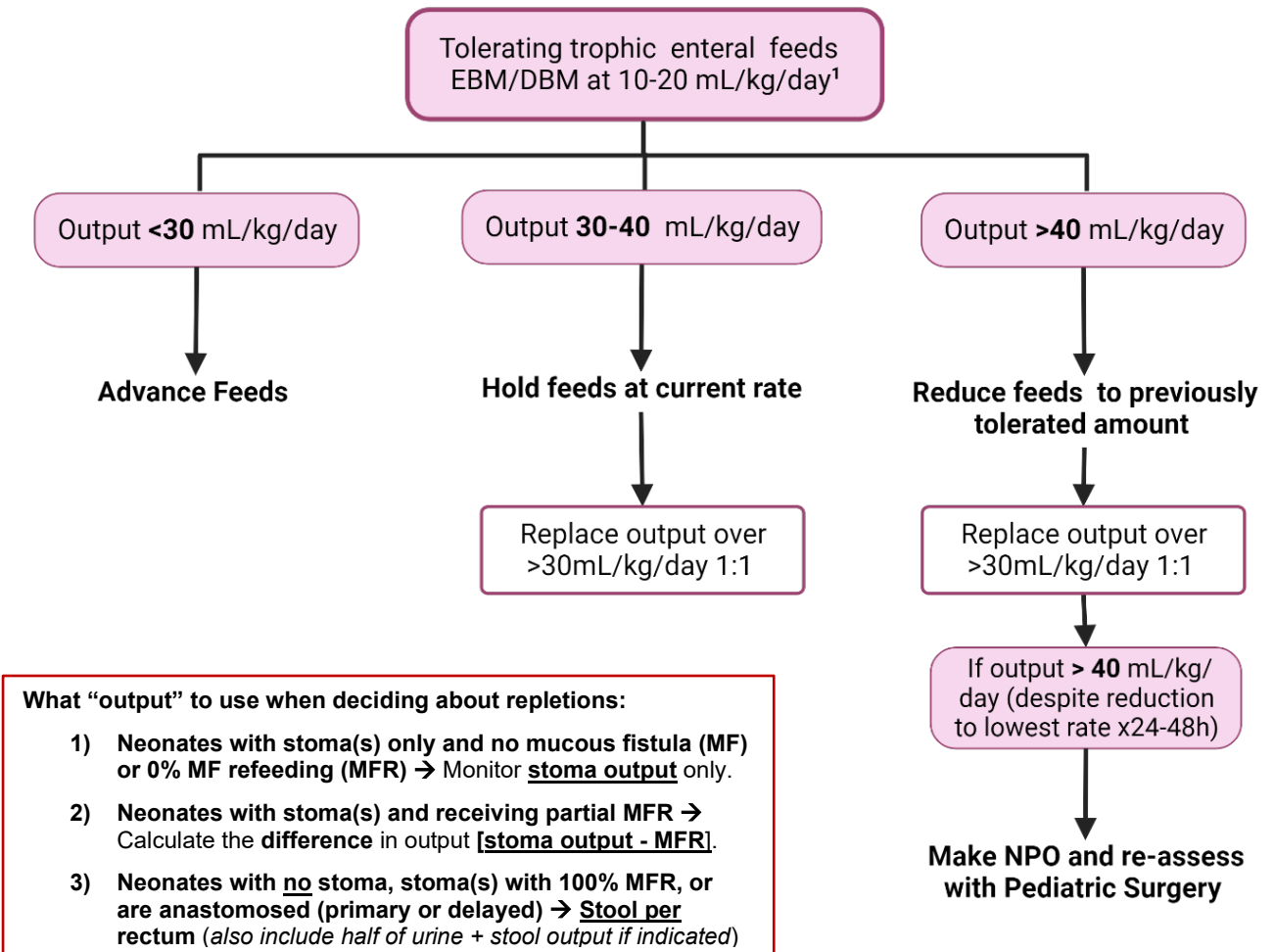
Neonatal Enterostomy Management Guidelines

Several neonatal pathologies can lead to emergent surgical resection of the intestine that can result in the creation of a stoma, with or without a mucous fistula (or more distal stoma). The most common conditions include necrotizing enterocolitis (NEC), spontaneous intestinal perforation (SIP), meconium ileus, volvulus, intestinal atresias, and Hirschsprung's disease ¹. Depending on the causative injury, definitive treatment may not require stoma creation if the injury can be treated with immediate closure or intestinal resection followed by immediate anastomosis ²⁻⁶. Stomas are typically created to relieve obstruction or to allow adequate healing and stabilization prior to restoration of intestinal continuity, particularly if the intestine is inflamed or friable as often occurs in NEC and septic shock. Typically, surgeons wait for a minimum of 4-6 weeks prior to attempting re-anastomosis, with several factors, such as weight and clinical stability of the infant, potentially delaying the timing of stoma reversal ^{2,4,7}. Neonates are at risk for enterostomy-related complications such as high stoma output leading to dehydration and electrolyte abnormalities, hyperbilirubinemia, impaired wound healing, as well as growth failure ⁸. Thus, close management of fluid status and significant output, the definition of which varies depending on the neonate's anatomy, is necessary to ensure optimal growth and minimization of potential complications.

Mucous fistula refeeding (MFR) consists of introducing the output from the proximal ostomy into the distal mucous fistula to maintain and optimize bowel function. MFR is a time and labor-intensive process but has significant benefits for the neonate, regardless of the initial diagnosis that necessitated surgery⁹. Benefits include but are not limited to improved growth, decreased duration of parenteral nutrition (PN) and PN-related complications, and improved post-anastomosis outcomes (e.g., rate of return to full enteral feeds)¹⁰⁻¹³. Few major complications of mucous fistula refeeding specifically have been reported. Minor complications include mucous fistula stricture, prolapse, retraction, bleeding, and infection. Notably, these complications can occur even without refeeding of the mucous fistula ^{10,12,14}.

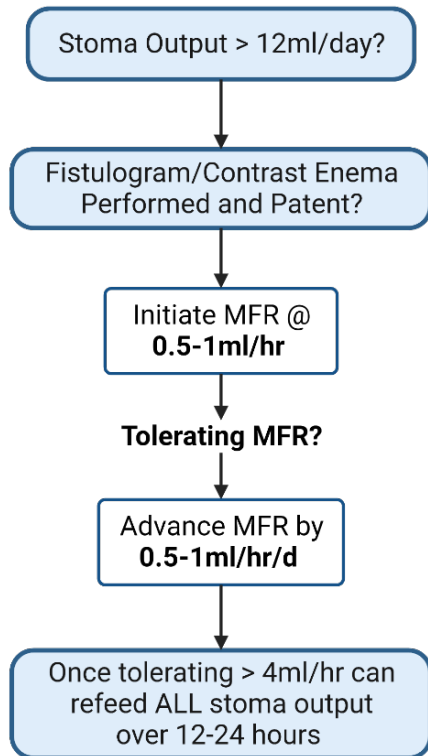
Management of neonatal enterostomies with or without MFR varies greatly across various institutions. Thus, the following guidelines have been developed based on the most recently available evidence and other institutional guidelines in collaboration between Neonatology, Pediatric Gastroenterology, and Pediatric Surgery at UC Davis as part of the Baby Intestines Group (B.I.G.) initiative.

Ostomy/GI Loss Repletion Guideline



1. Tolerance of feeds as determined by no excessive output, clinically significant abdominal distension, and emesis.
2. Replete output losses **greater** than 15ml/kg per 12hr-shift, over the subsequent 12-hours with NaCl/NaAc +/- KCl (depending on electrolyte status of baby).
3. Infants with ostomy output >20 mL/kg/day should have **daily electrolytes** and **weekly urine sodium** monitored.
4. If at any point neonate presents with signs of dehydration or decreased urine output, administer NS bolus on top of repletion.
5. *For babies awaiting return to bowel function (e.g., gastroschisis, post-surgery, etc.), can use the same goals above to monitor hydration status.*

Mucus Fistula Refeeds (MFR): Initiation and Advancement



**Default to initiate MFR at 1ml/hr unless there is concern expressed by Ped Surgery. Advance daily by 1ml/hr and monitor for signs of intolerance (reflux, dumping)

When to start:

- **Patency of distal intestine** confirmed (via fistulogram or contrast enema or during surgery)
- **Stoma making enough** to refeed (at least 12 ml/day for min refeeds at 0.5ml/hr)

Catheter Insertion:

- Default: **6 Fr Foley with 0.5-1mL of water** in balloon (smaller babies may need smaller tubes)
- First insertion: Pediatric surgery team to assess depth and patency; subsequent insertions by bedside RN

How fast to advance:

- Default advance by **1ml/hr** (can be lower at 0.5ml/hr if there is concern or baby smaller) to 4ml/hr (then can give 100% of stoma output via MF)

Signs of Intolerance:

- Significant **reflux of feeds** from MF
- **Dumping per rectum** (assess both quality and quantity of stool – please take pictures of any stool only diapers, also assess electrolytes and weight loss)

Stoma Considerations:

Output Type Based on Location of Stoma:

- Small Intestine: Very **caustic** on skin
- Duodenostomy: High output, resembles milk
- Jejunostomy: High output, very liquid
- Ileostomy: Less relative output expected; less liquid if lower on limb
- Colostomy: Closer to stool
- Mucous Fistula: Mucous output

Characteristics of a Normal Stoma

- Red or pink
- Moist
- Budded above skin level
- Not painful
- Has no sphincter
- May bleed easily when touched
- May be prolapsed or retracted/recessed



Post-op- will be dark, 'scabbed' from incision, should be covered with Vaseline gauze to prevent drying out, should have pink undertones, **follow post-op protocol.**



Dusky- **notify Peds Surgery**



Standard- beefy-red, moist, rose-bud appearance above skin level.



Prolapsed- not emergent, may be reducible; Protect all exposed bowel, **notify Peds Surgery and Christa Mu** for bagging options



Pale- Possible perfusion issue, **notify Peds Surgery**



Mechanical injury- wafer too small, **notify Peds Surgery and Christa Mu**



Stoma Wound Care for Bedside Care



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