GASTROINTESTINAL ASPIRATE REPLACEMENT

This Local Operating Procedure is developed to guide safe clinical practice in Newborn Care Centre (NCC) at The Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this Local Operating Procedure.

INTRODUCTION

Gastrointestinal aspirates can be significant in some high risk infants, especially post-op surgical infants or infants with intestinal obstruction. Inadequate replacement can lead to electrolyte and nutrient deficiencies. Some aspirates are expected and the aim of replacement is to decide on when and what volume needs replacement. The aim is not only to replace the losses but to avoid fluid overload as the vast majority of these newborn infants will be on full maintenance fluids.

1. AIM

- To replace fluids, electrolytes and other nutrients resulting from gastrointestinal aspirates

2. PATIENT

- Newborns

3. STAFF

- Medical and nursing staff

4. CLINICAL PRACTICE

- Identify at-risk newborn infants for increased gastrointestinal aspirates.

NOTE:
At-risk infants include:

- **Newborn infants requiring abdominal surgery**
- **Newborn infants with primary gastrointestinal disorders**
- **Newborn infants with secondary gastrointestinal illnesses (e.g. ileus from sepsis)**

- Measure the volumes every 4 hours or at an interval prescribed by the neonatal or surgical team.
- Document the amount/type of aspirates (non-bile stained/light bile stained/heavy bile stained/blood stained).
- Maintain a strict Input/Output balance and document every 12 to 24 hours (or more often if losses are significant).
- Initiate intravenous replacement after observing the total volume of aspirates for 12 hours. Replace losses if the volume equates to ≥10 mL/kg/day.

NOTE:
It is not necessary to commence replacement for a single large aspirate.

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- Replacement:
  - Calculate the volume of aspirates in the previous 4 hours
  - Replace the **entire** losses mL for mL over the next 4 hours

NOTE:
The type of replacement fluid depends on:
- **The nature of gastrointestinal losses**
- **The type of standard intravenous infusions available in NCC**
  - **0.45% sodium chloride + 5% dextrose + potassium chloride (20 mmol/L)**
  - **0.9% sodium chloride + potassium chloride (20 mmol/L)**
- **The type of maintenance fluids the infant is receiving**
- **The infant's electrolyte status**

  - Aspirates are discarded while on replacement unless advised otherwise

5. DOCUMENTATION
- eMR
- Neonatal Observation Chart
- NICUS database

6. EDUCATIONAL NOTES
- Gastrointestinal losses are of common occurrence in newborn infants requiring abdominal surgeries.
- Gastrointestinal secretions contain water, electrolytes, protein and other nutrients. Replacement of water and electrolytes is important to maintain fluid homeostasis. Inadequate replacement therapy can lead to electrolyte imbalance, poor weight gain and susceptibility to infections.
- Fluid replacement in these cases needs to be balanced against fluid overload as these infants are often already on maintenance intravenous therapy. Fluid restriction may be important for some neonatal conditions (e.g. chronic lung disease).
- Bile stained aspirates also contains gastric and other intestinal secretions.
- Ringer Lactate solution is an appropriate fluid replacement in some cases. However, it is not compatible with TPN solutions and it is not available in NCC.

Table. Electrolyte composition (mmol/L) of gastrointestinal fluids and intravenous fluids used for replacement

Gastrointestinal fluid	Na	K	Cl	HCO3
Gastric	70	5-15	120	0
Pancreas	140	5	50-100	100
Bile	130	5	100	40
Ileostomy	130	15-20	120	25-30
Intravenous fluid	Na	K	Cl	HCO3
0.45% sodium chloride + 5% dextrose + potassium chloride	77	20	77	0
0.9% sodium chloride + potassium chloride	154	20	154	0

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7. RISK RATING

- Low

8. NATIONAL STANDARD

- Standard 1 Clinical Governance
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care

9. ABBREVIATIONS AND DEFINITIONS OF TERMS

NCC	Newborn Care Centre	TPN	Total Parenteral Nutrition

10. REFERENCES

- Puri P. Newborn Surgery. 4th Ed. Boca Raton: CRC Press; 2017.

11. AUTHOR

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