

Fluid Orders for Neonates

Guideline Responsibilities and Authorisation

| | |
|---|-------------------------|
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Guideline Review History

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|----------------|------------------------------|---------------------|--|
| 6 | David Bouchier | May 2016 | Update |
| 7 | Phil Weston & Arun Nair | Feb 2022 | Update |
| 7.1 | Arun Nair | Apr 2022 | Amendment of Appendix B |
| 7.2 | Arun Nair & Sally Overington | Jul 2022 | Revised and Addition of Appendix C Management of Hypernatraemia |

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1 Overview

1.1 Background

When enteral feeds are not possible, intravenous nutrition is essential for the care of the sick newborn. The goals of intravenous nutrition are several-fold:

- to promote nitrogen retention and protein sparing (preventing use of protein for calories)
- to provide energy for metabolic processes
- to establish growth and maturation during the critical postnatal period.

The preterm newborn has limited energy stores, which become rapidly depleted with starvation. Infants receiving only intravenous glucose may lose protein stores at a rate of up to 1g/kg/day.

On the day of birth, at least 45-55 kcal/kg/day should be provided to meet minimal energy requirements of preterm neonates. Protein requirement on the day of birth is at least 1.5 g/kg/day to achieve an anabolic state and should be between 2.5 g/kg/day and 3.5 g/kg/day from postnatal day 2 onwards.

([Appendix A](#) and [Appendix B](#), as well as [Table A](#) and [Table B](#): The ideal daily values as per ESPGHAN 2018 recommendations for other nutrients).

1.2 Purpose

To provide a guideline for neonatal fluid administration and parenteral nutrition.

1.3 Scope

All Te Whatu Ora Waikato medical and nursing staff.

1.4 Patient / client group

Neonates.

1.5 Definitions and acronyms

| | |
|-------------|------------------------------|
| BW | Birth Weight |
| CVAD | Central Venous Access Device |
| EBM | Expressed Breast Milk |
| GIR | Glucose Infusion Rate |
| HMF | Human Milk Fortifier |
| IVN | Intravenous Nutrition |
| NE | Neonatal Encephalopathy |

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| | |
|------------------|---|
| PIV | |
| REG96 | Standard amino acid plus Glucose solution for use in parenteral nutrition |
| SMOFlipid | Sterile, nonpyogenic, white, homogenous lipid emulsion for intravenous infusion. The lipid content of Smoflipid is 0.20 g/mL and comprises of Soyabean oil, M edium Chain Tryglerides (MCTs), O live oil, and F ish oil. |
| UVC | Umbilical Venous Catheter |

2 Clinical management

2.1 Guideline

2.1.1 Total Fluids

The standard volume of fluid prescribed varies with Birth Weight (BW)*:

For Babies with BW ≤ 1500 g

For Babies with BW > 1500 g

| Postnatal age | Total fluids (ml/kg/day) | Postnatal age | Total fluids (ml/kg/day) |
|---------------|--------------------------|---------------|--------------------------|
| Day 0 / Day 1 | 75 | Day 0 / Day 1 | 60 |
| Day 2 | 90 | Day 2 | 90 |
| Day 3 | 120 | Day 3 | 120 |
| Day 4 | 150 | Day 4 | 150 |
| Day 5 | 180 | Day 5 | 150 |

*Can be adjusted as per the clinical situation at the discretion of the consultant

- a) Infants with early hyponatraemia are maintained on 75 mL/kg/day (or less) for several days, until diuresis has occurred (urine output of > 2 ml/kg/hr), and hyponatraemia resolved.
- b) Post-operative infants (major surgery only) are restricted to maintenance fluids of 90 mL/kg/day (for some babies even less) for 48 hours in the immediate post op period
- c) Infants with NE undergoing therapeutic hypothermia are fluid restricted to 30-40ml/kg/day until rewarmed.

Specific additional fluids (such as blood products and insulin) are given in addition to the maintenance requirements

2.1.2 Prevention and Treatment of Hypernatraemia (Serum Sodium >145/mmol/L)

- General measures
 - All ELBW to be managed in 90% humidity in the incubator
 - Urine volumes to be measured every 6h

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- In the case of hypernatraemia (Sodium > 145mmol/L)
 - Change any infusions made with 0.9% saline to 0.45% saline or Glucose.
 - For Mild Hypernatremia (Sodium 145-150 mmol/L), increase in total fluids by 20 – 30ml/kg for the next 6 hours should be sufficient.
- For Moderate to Severe Hypernatremia (Sodium >150 mmol/L) increase in total fluids by 30 – 60mls/kg
- Increasing total fluids
 - This can be achieved by either increasing total fluids, or in case of hyperglycaemia commencing Glucose 5% as side line
 - Increase fluid as needed based on the volume of urine output measured at 6 hour intervals, replace any volume of urine over 4ml/kg/hr obtained in the previous 6 hours over the next 6 hours*)
 - Ideally a side line or a double lumen catheter is preferred, if available
 - * Replacements with water for injection may be appropriate considering that it is diluting the hyperosmolar IVN solution

Note: This is different from the earlier practice

2.1.3 Standard Intravenous Nutrition Solutions

All babies < 32 weeks gestation, or <1500g, should receive IVN (REG96 + SMOF) within 6 hours after birth or as soon as suitable IV access is available.

If ≥1500 g or between 32 - 36 +6 weeks, the decision to start IVN and the volume will be decided/readjusted on the ward round by the service SMO.

Almost all babies can be commenced on a standard solution (REG96). There is a choice of 3 bag sizes of REG96 solutions with the same composition per ml (300 ml, 600 ml & 1000 ml), use smaller bags for smaller babies to avoid wastage. Start with up to 60 ml/kg/ day of REG96 (2.5g protein/kg/day) and make up the rest of the volume with SMOFlipid and Glucose 10% to achieve the recommended volumes/day. Increase to reach the maximum amount as the total volume of fluids (IVN + other fluid) would allow for nutrition.

Additional glucose 10%, glucose 5%, sodium chloride 0.9%, or sodium chloride 0.45% may have to be titrated on top of the IVN to meet fluid intake requirements. Either IVN or glucose are decreased as enteral feeds increase.

REG96 and SMOFLipid are infused over 24 hours. For liver sparing regimes, this is restricted to 20 hours. The subsequent 4 hours should be made up with glucose 10% to achieve a GIR of 5 (4-7) mg/kg/min (adjust accordingly).

Be aware of other infusions impacting, such as antibiotics, on IVN provision, IVN may need to be given over a shorter period of time to ensure the adequacy of nutrients.

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2.1.4 Maximum REG96 infusion volumes

REG96 provides the recommended nutrient intakes in a relatively small volume. This is to ensure that, as infusions are added or the infant is on restricted fluid intakes, their nutritional needs are met.

| Weight | Infusion volume | Protein delivery |
|----------|-----------------|--------------------------|
| < 1000g | 96ml/kg/day | (4.0g/kg/day protein) |
| ≥ 1000 g | 90ml/kg/day | (3.8g/kg/day protein)* |
| > 1500g | 70ml/kg/day | (2.9g/kg/day protein)- . |

*If ≥1500 g or between 32 - 36 +6 weeks, decision to start IVN and the volume to be decided/readjusted on the ward round

Chart parenteral fluids to the nearest 0.01mL/h.

See [Appendix B – Guidance for Fluid Charting](#)

NB: These are standard recommendations. Adjust the fluid requirement based on the clinical, biochemical and Input/output status daily as per instructions at daily rounds.

2.1.5 Route of Administration

REG96 can be administered through a peripheral IV but it **must** run with SMOFlipid solution concurrently in the same line to avoid blockage and extravasation injury.

Peripheral IV for administration should only be used for babies who are likely to remain on IVN for two or three days. If longer need is anticipated a UVC or CVAD line has to be inserted.

2.1.6 Lipid Solution: 20% lipid emulsion (SMOFlipid)

Day 1: 10 mL/kg/day ≈ 2 g/kg/day

Day 2: 20 mL/kg/day ≈ 4 g/kg/day

There are two SMOF lipid preparations, preterm and term. The term solution comes in 2 volumes (150ml and 300ml) -

- For infant with birthweight ≤1500g start with Preterm SMOF lipid

NB: When infants with birthweight ≤1500g reaches 34 weeks CGA change from Preterm Lipids to Term Lipids

- For infant with birthweight of >1500g start with Term SMOF lipid

(See [Table A](#) & [Table B](#) for contents of Reg96 & Lipid Solutions and [Appendix A for Neonatal Intravenous Nutrition Formulations](#))

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2.1.7 Initiation of IVN

The type of fluid and route of administration varies with the clinical situation:

For all babies <32/40 and/or birth weight ≤ 1500g, or for those who cannot be fed enterally, either glucose 10% or intravenous nutrition (REG96 plus SMOFLipids) is required.

If between 32 - 36 +6 weeks and ≥ 1500g, consultant decision to start IVN and the volume to be decided/readjusted on the ward round.

Babies with BW >1500g or well term infants - begin on enteral feeds immediately (breast milk is preferred but formula is also permissible with parental consent).

As oral feeds increase, IVN will be titrated down, Glucose solution first, then Reg96, continue SMOFLipid until IVN ceases. In preterm infants, combined IVN and oral protein intakes should be limited to 4.5 g/kg/day, in term infants, combined IVN and oral protein intakes should be limited to 4.0 g/kg/day.

Increase the daily requirements of total fluids as per [Appendix B](#).

2.1.8 Criteria for consideration of electrolyte supplementation:

- Serum sodium <135 mmol/L
- Serum phosphate <1.4 mmol/L
- Serum total calcium <1.5 mmol/L (albumin adjusted)
- Serum potassium <3.0 mmol/L
- Serum magnesium <0.7 mmol/L

See:

- [Phosphate IV for neonates](#) drug guideline
- [Calcium Chloride for neonates](#) drug guideline
- [Potassium Chloride for neonates](#) drug guideline
- Magnesium guideline (link)

2.1.9 For Monitoring Schedule while on IVN

See [Appendix C- Recommendation for Monitoring while on IVN](#)

2.1.10 Refeeding syndrome

This biochemical disorder arises when protein is taken up for anabolic purposes without appropriate supportive administration of phosphate, potassium and magnesium. It is associated with adverse outcomes, and all babies under 1500g are to be screened for it by measuring phosphate, calcium and magnesium on days 3, 5, 7, and 14.

Refeeding syndrome is present when phosphate < 1.2mmol/L, and total calcium >2.8mmol/L.

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2.1.11 Enteral Feeding

a) Type

- **Breast milk** is the feed of preference in all infants initially, consider donor EBM for infants less < 30/40.
- **HMF (with parental consent)**
 - Following attainment of 8 mL volumes of feeds (or equivalent of 25 ml in 4h), breast milk may be fortified with Human Milk Fortifier (FM85) (1 stick/25mL) in infants of birthweight <1800g or <32/40. HMF should be continued until near to hospital discharge. Do not mix fortified EBM with infant formula.
- **Infant formula:** preterm formula (PTF) for infants <2000g or Term Formula is to be used in place of or in combination with breast milk when adequate amounts of breast milk is unavailable in consultation with the mother. Consider changing to term formula closer to discharge, eg when >36/40

b) Method:

≤1500g - 2 hourly Bolus

> 1500g - 3 hourly Bolus

For feed escalations refer to [Enteral Feeding: Standardisation of Feeding in Newborn Intensive Care Unit \(NICU\)](#) guideline and [Necrotising Enterocolitis Care Bundle in Newborn Intensive Care](#) protocol.

- c) Do not aspirate to check for feed tolerance routinely and if aspirated as part of air evacuation of the stomach, it should be returned to the stomach immediately, unless the aspirate has a strong blood component, or there is suspicion of a bowel obstruction. However, placement of gastric tube must be checked regularly, and pH of aspirate documented.

Feed intolerance (excessive vomiting) in otherwise well babies can be managed by continuous gastric feeding of expressed breast milk (EBM) / infant formula OR “compressed” gastric feeds over 30 or 60 minutes OR continuous transpyloric feeds.

(Note: Only feeds with osmolality < 450 mosm/ L should be given transpyloric, do not use fortified EBM, also check/calculate osmolality if supplements, such as sodium, are being added to the transpyloric fed milk).

- d) Chart feeds to nearest 0.5mL if < 10 ml volume/feed, nearest 1mL if > /= to 10 ml/feed.

2.1.12 Nil By Mouth (NBM) for theatre

Babies who are going for surgical operations are advised to be on NBM for a period of time by the Anaesthetists prior to surgery, generally 6 hours if on formula feeds or 4 hours if on breast milk.

It is important then for these babies to be started on glucose 10% solutions with additional electrolytes if need be, at the rate of 120ml/kg/day if they were already on significant amount of oral feeds.

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Details of the nutrient contents and values on REG96 administration

Table A Protein, Glucose & Mineral contents

| Reg96 | <u>Preterm Babies</u> | | | <u>Term Babies</u> | |
|------------------|--|------------------------------------|---------|------------------------|---------|
| | For Bwt =< 1000g (300 ml bag) @96ml/kg | For Bwt> 1000g(600ml bag) @90ml/Kg | Ideal* | (1000ml bag) @ 70ml/Kg | Ideal* |
| Protein g | 4 | 3.8 | 2.5-3.5 | 2.9 | 1.5-3 |
| Glucose g | 9.6 | 9 | 12-14 | 7 | 7-14 |
| Sodium mmol | 5.3 | 5 | 2-5 | 4 | 2-5 |
| Potassium mmol | 2.7 | 2.5 | 2-3 | 2 | 2-3 |
| Chloride mmol | 1.9 | 2.25 | 2-5 | 1.3 | 2-5 |
| Gluconate mmol | 0 | 0 | . | 0 | . |
| Acetate mmol | 3.65 | 2.97 | . | 2.9 | |
| Calcium mmol | 1.6 | 1.5 | 1.6-3.5 | 1.2 | 0.8-1.5 |
| Phosphate mmol | 1.8 | 1.7 | 1.6-3.5 | 1.3 | 0.7-1.3 |
| Magnesium mmol | 0.3 | 0.25 | 0.2-0.3 | 0.2 | 0.1-0.2 |
| Zinc mg | 0.4 | 0.4 | 0.4-0.5 | 0.3 | 0.25 |
| Heparin units | 48 | 45 | . | 35 | . |
| Manganese microg | 1.06 | 1 | 0-1 | 0.8 | 0-1 |
| Copper microg | 21 | 20 | 40 | 15 | 20 |
| Chromium microg | 0.21 | 0.2 | 0 | 0.15 | 0 |
| Iodine microg | 1.1 | 1 | 1-10 | 0.8 | 1-5 |
| Selenium microg | 7.4 | 6.9 | 6-7 | 5.4 | 2-3 |

Note: "ideal" is as given by ESPGHAN recommendations 2018: Green font means within the acceptable ideal target range. Red font means below the ideal target range and to be aware of/monitored. Blue means over target range but not for monitoring.

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2.1.13 Calories

At 96mL/kg made up to 180ml/kg with additional glucose 10%: (Ideal for Preterm Babies 90-120 Cal/Kg/D)

Total Cals 124/kg/D (16 Cal/Kg from Protein (12.9%), 72 Cal/Kg from Glucose (58.1%) and 36 Cal/Kg from Fat (29%))

At 90mL/kg made up to 180ml/kg with additional glucose 10%: (Ideal for Preterm Babies 90- 120 Cal/Kg/D)

Total Cals 123.2/kg/D (15.2 Cal/Kg from Protein (12.3%), 72 Cal/Kg from Glucose (58.4%) and 36 Cal/Kg from Fat (29.3%))

At 70mL/Kg made up to 150ml/kg with additional glucose 10%: (Ideal for Term Babies 75-120 Cal/Kg/D)

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Total Cals 111.4/kg/D (15.4 Cal/Kg from Protein (13.8%), 60Cal /Kg from Glucose (53.9%) and 36 Cal/Kg from Fat (32.3%))

**The ideal distribution of calories should be 10%-15% from protein, 60% from carbohydrate and 30% from fat.*

2.1.14 Details of the nutrient contents and values on lipid administration

Preterm lipid syringe 55 mL has Infuvite 5mL (4mL vial 1 + 1mL vial 2) + 50mL SMOF and 0.8 mmol of Phosphate

Term lipid bag 150 mL has Infuvite 10mL (8mL Vial 1 + 2ml vial 2) + 140mL SMOF and 2.1 mmol of phosphate

Term lipid bag 300 mL has Infuvite 20mL (16mL vial 1 and 4mL vial 2) + 280mL SMOF and 4.2 mmol of Phosphate

Table B : Vitamin Content

| | Preterm Lipid | | | | Term Lipids | | | |
|---------------------|---------------|--------|----------------|--------------|--------------------|--------|----------------|--------------|
| | Syringe 55mL | Per mL | @ 20ml/kg /day | Ideal/kg/day | Bag 150ml / 300 mL | Per mL | @ 20ml/kg/ day | Ideal/kg/day |
| A (IU) | 2300 | 41.82 | 836 | 700-1500 | 9200 | 30.67 | 613 | 495-990 |
| D (IU) | 400 | 7.27 | 145 | 80 - 400 | 1600 | 5.33 | 107 | 40 -150 |
| E (IU) | 7 | 0.13 | 2.5 | 2.8 -3.5 | 28 | 0.09 | 1.9 | 2.8 – 3.5 |
| K (mcg) | 200 | 3.64 | 72.7 | 10 | 800 | 2.67 | 53.3 | 10 |
| Thiamine B1 (mcg) | 1200 | 21.82 | 436 | 350 -500 | 4800 | 16.00 | 320 | 350 – 500 |
| Riboflavin B2 (mcg) | 1400 | 25.45 | 509 | 150-200 | 5600 | 18.67 | 373 | 150 – 200 |
| Niacin B3 (mg) | 17 | 0.31 | 6.2 | 4 – 6.8 | 68 | 0.23 | 4.5 | 4 – 6.8 |
| Pantothenic B5 (mg) | 5 | 0.09 | 1.8 | 2.5 | 20 | 0.07 | 1.3 | 2.5 |
| Pyridoxine B6 (mcg) | 1000 | 18.18 | 364 | 150 -200 | 4000 | 13.33 | 267 | 150 – 200 |
| Cobalamin B12 (mcg) | 1 | 0.02 | 0.36 | 0.3 | 4 | 0.01 | 0.27 | 0.3 |
| C (mg) | 80 | 1.45 | 29.1 | 15 – 25 | 320 | 1.07 | 21.3 | 15 – 25 |
| Biotin (mcg) | 20 | 0.36 | 7.3 | 5 - 8 | 80 | 0.27 | 5.3 | 5 – 8 |
| Folic Acid (mcg) | 140 | 2.55 | 50.9 | 56 | 560 | 1.87 | 37.3 | 56 |

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2.2 Conversions Used

| | |
|--|----------------------|
| Vitamin A: Retinol palmitate | 1 microgram = 3.3 IU |
| Vitamin D: Cholecalciferol or Ergocalciferol | 1 microgram = 40 IU |
| Vitamin E: Tocopherol | 1 mg = 1.1 IU |

Nutrient composition of human milk fortifier (HMF, “Pre-NAN FM85” by Nestle) according to box info (note each sachet has 1 g which is added to 25 ml milk):

| | |
|---------------------|--------|
| Amount of fortifier | 1 gram |
| Energy (kcal) | 18 |
| Protein (g) | 0.36 |
| Carbohydrate (g) | 0.32 |
| Fat (g) | 0.18 |
| Calcium (mg) | 18.9 |
| Phosphorus (mg) | 11 |
| Sodium (mg) | 9.18 |
| Chloride (mg) | 8.03 |
| Potassium (mg) | 12.1 |
| Magnesium (mg) | 1.52 |
| Iron (mg) | 0.45 |

2.3 Potential complications

- Standard complications related to Central & Peripheral lines viz infiltration, extravasation & infection
- Over/Undernutrition, fluid overload, dehydration etc. & its related complications

2.4 After care

Depending on the complications, specific measures may have to be instituted.

3 Audit

3.1 Indicators

- Growth monitoring
- Nutritional assessments

3.2 Tools

- Discharge details and database

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4 Evidence base

4.1 Summary of Evidence, Review and Recommendations

As below in bibliography.

4.2 Bibliography

- Adjustable fortification of human milk fed to preterm infants does it make a difference? – J. Perinatol. 2006 Oct; 26(10):614-21. Epub 2006 Aug 3.
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4.3 Associated Te Whatu Ora Waikato Documents

- [Calcium Chloride for neonates](#) drug guideline (Ref. 0594)
- [Enteral Feeding: Standardisation of Feeding in Newborn Intensive Care Unit \(NICU\)](#) guideline (Ref. 6172)
- [Necrotising Enterocolitis Care Bundle in Newborn Intensive Care](#) protocol (Ref. 6171)
- [Phosphate IV for neonates](#) drug guideline (Ref. 6370)
- [Potassium Chloride for neonates](#) drug guideline (Ref. 2955)

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Appendix A – Neonatal Intravenous Nutrition Formulations

Neonatal REG96 Solution

| Volume: Composition: | 300 mL | 600 mL | 1000 mL |
|---------------------------------|---------------|---------------|----------------|
| Protein g | 12.6 | 25.2 | 42 |
| Glucose g | 30 | 60 | 100 |
| Sodium mmol | 16.5 | 33 | 55 |
| Potassium mmol | 8.4 | 16.8 | 28 |
| Chloride mmol | 6 | 15 | ? |
| Acetate mmol | 11.4 | 19.8 | 41 |
| Calcium mmol | 5.1 | 10.2 | 17.02 |
| Phosphate mmol | 5.7 | 11.4 | 19 |
| Magnesium mmol | 0.9 | 1.8 | 2.8 |
| Zinc mg | 1.32 | 2.64 | 4.4 |
| Heparin units | 150 | 300 | 500 |
| Manganese mcg | 3.51 | 6.48 | 11 |
| Copper mcg | 66 | 132 | 220 |
| Chromium mcg | 0.64 | 1.31 | 2.21 |
| Iodine mcg | 3 | 6.6 | 11 |
| Selenium mcg | 9.3 | 18.6 | 30.9 |

Neonatal Lipid Formulations

| Volume: Composition: | Pre-Term Neonatal Lipid emulsion 55 mL syringe | Term Neonatal Lipid emulsion 150 mL bag | Term Neonatal Lipid emulsion 300 mL bag |
|---------------------------------|---|---|--|
| Lipid (SMOF) g | 10 | 28 | 56 |
| Multivit. (Infuvite) mL | 5 | 10 | 20 |
| Phosphate mmol | 0.8 | 2.1 | 4.2 |

Fluid Orders for Neonates

Appendix B – Guidance for IVN Charting

≤ 1500g *

> 1500g

| | Total Fluids ml/kg/day | Reg 96 | | Preterm SMOF | Total Fluids ml/kg/day | Reg 96 | Term SMOF |
|---------|------------------------|---------------|---------------|--------------|------------------------|---------------|-----------|
| | | <1000g | ≥1000g | | | | |
| Day 0/1 | 75 | 60 (up to) | 60 (up to) | 10 | 60 | 50 (up to) | 10 |
| Day 2 | 90 | 70 (up to) | 70 (up to) | 20 | 90 | 70 (up to) | 20 |
| Day 3 | 120 | 96 (up to) | 90 (up to) | 20 | 120 | 70 | 20 |
| Day 4 | 150 | 96 | 90 | 20 | 150 | 70 | 20 |
| Day 5 | 180 | 96 | 90 | 20 | 150 | 70 | 20 |

Note: These are standard recommendations. Modify it as per situation mentioned below

- *For all babies <32/40 and/or birth weight ≤ 1500g, or (for those who cannot be fed enterally, either glucose 10% or intravenous nutrition (REG96 plus SMOFLipids) is required).
- **If between 32 - 36 +6 weeks and ≥ 1500g, consultant decision to start IVN and the volume to be decided/readjusted on the ward round.**
- **Babies with BW >1500g or well term infants - begin on enteral feeds immediately (breast milk is preferred but formula is also permissible with parental consent).**
- Post op – maintain at 90 ml/kg/day for 48 hours, or less to ensure fluid restriction
- Infants with early hyponatraemia are maintained on 75 mL/kg/day (or less) for several days, until diuresis has occurred (urine output of > 2 ml/kg/hr), and hyponatraemia resolved.
- Reduce glucose 10%, then REG96 infusion volume if needed to accommodate for additional fluids
- For management of hypernatraemia, refer to the guideline section 2.1.1

Note: This is different from the earlier practice.

- Once > 1500g change from preterm SMOF to Term SMOF

Fluid Orders for Neonates

Appendix C – Recommendation for Monitoring while on IVN

| <u>Monitoring Parameter</u> | <u>Initial frequency (first 7days)</u> | <u>Frequency when established</u> |
|-----------------------------|---|-----------------------------------|
| Body weight | Hyperlink to growth guideline | |
| Fluid balance | 4- 6 hourly | Once Daily |
| Serum Electrolyte | At least once daily | 2-3 times/week |
| Refeeding bloods | Day 3/5/7/14 | |
| Serum Creatinine | Once Daily | 2-3 times/week |
| Blood Glucose | 1-4 times/day | Once Daily |
| LFT | Twice Weekly | Once Weekly |
| | | |