

# GROWTH MONITORING • 1/2

## DEFINITION

- Routine accurate measurement and documentation of weight, length and occipitofrontal circumference (OFC)

## AIM

- To detect any abnormal growth patterns, including faltering growth

## INTRODUCTION

- Neonatal nutrition and resulting postnatal growth are major determinants in the short and long-term outcomes of preterm neonates
- Optimal postnatal nutrition and growth associated with more positive later health and developmental outcomes
- Preterm infants who demonstrate low weight gain in the early years have a higher probability of poorer cognitive developmental outcomes, while those with excessive weight gain have an increased risk of childhood and adult obesity, cardiovascular disease and diabetes
- Consider both quantity and quality of growth
- Plot measurements of weight, length and OFC on appropriate and gender specific growth chart to allow assessment of adequate and proportionate growth
  - measurements to be undertaken by qualified member of staff trained in the use of the equipment
- Involve parents/carers with all growth monitoring procedures

## WEIGHT

### Frequency

- Weigh all infants on admission to NNU
- Weigh  $\geq 3$  times/week while an inpatient
- Plan weighing schedules taking into account developmental care needs
- If baby too unstable to be weighed for  $>5$  consecutive days, and incubator does not have in line scales:
  - calculate weight-for-age from appropriate growth chart
  - use as working weight (assuming baby is following their previous centile line) to ensure adequate fluids, enteral and parenteral nutrition, and drugs administered
  - reinstate routine weighing once baby stable
- If baby unstable, assess for fluid overload – impacts on accuracy of weighing for growth monitoring

### Equipment

- Class III electronic baby scales or incubator with inbuilt scales (if available) – accurate to 5 g
- All scales to be:
  - tested and recalibrated annually
  - cleaned between patients in accordance with local infection prevention policy

### Method

- Wash and sanitise hands and equipment as **per local infection prevention policy**
- Use swaddled weighing for optimal developmental care
- Weigh baby naked (no nappy/clothing)
- Swaddle weighing
  - wrap baby in a warm, pre-weighed blanket, or use a thick, soft, warm pre-weighed blanket/sheet to line scales
  - deduct weight of swaddle blanket
- Record actual calculated weight on unit documentation/**BadgerNet**
  - $\leq 999$  g: to nearest 5 g
  - $\geq 1$  kg: to nearest 10 g
- Plot weight at least weekly on **BadgerNet** or gender appropriate WHO **Neonatal and infant close monitoring growth chart** [see chart or refer to RCPCH website ([www.growthcharts.rcpch.ac.uk](http://www.growthcharts.rcpch.ac.uk)) for instructions on use]
- In infants  $< 2$  kg: calculate velocity of weight gain in g/kg/day at least weekly
  - aim 16 g/kg/day as steady weight gain
- If parent is present baby will benefit from skin-to-skin contact before returning to incubator/cot

## LENGTH

### Frequency

- Measure all infants on admission to NNU and weekly thereafter coinciding with a weigh day whilst inpatient

# GROWTH MONITORING • 2/2

## Equipment

- ≤33 weeks or <45 cm: use Leicester Incubator Measure
- ≥33<sup>+1</sup> weeks: use length mat
- Requires 2 people to obtain an accurate measurement (1 may be parent/carer alongside trained member of staff)

*Never use a tape measure to measure length*

## Method

- Wash and sanitise hands and equipment as per [local infection prevention policy](#)
- Measure baby supine, lying flat, ensuring no clothing or nests restrict extension
- Remove hat or ventilation/non-invasive ventilation hat ties
- Preterm babies do not need to be naked
- Term infants to be measured naked, no nappy
- **Operator 1:** place fixed headpiece against crown of baby's head, stabilising head by gently cupping palms of hands over baby's ears
- **Operator 2:** gently place palm of hand over baby's knee encouraging extension, sliding base plate up to meet the soles of the feet
- If baby settled and relaxed, take 3 measurements to ensure consistency
- Record length in cm to nearest 0.1 cm
- Plot length weekly on **BadgerNet** or gender appropriate WHO **Neonatal and infant close monitoring growth chart** [see chart or refer to RCPCH website ([www.growthcharts.rcpch.ac.uk](http://www.growthcharts.rcpch.ac.uk)) for instructions on use]
- Calculate velocity of linear growth in cm/week monthly
- aim 1.4 cm/week as steady linear growth in preterm baby

## OFC

### Frequency

- Measure on admission to NNU and weekly thereafter coinciding with a weigh day while inpatient

### Equipment

- Disposable paper tape measure

### Method

- Wash and sanitise hands as per [local infection prevention policy](#)
- Remove or fold down hat or head gear that may obstruct measurement
- Using disposable paper tape measure, take measurement at the widest part of baby's head – above ears, midway between eyebrows and hairline at the front, and to occipital prominence at back of head
- Record in cm to nearest 0.1 cm on NNU documentation
- Plot OFC weekly on **BadgerNet** or gender appropriate WHO **Neonatal and infant close monitoring growth chart** [see chart or refer to RCPCH website ([www.growthcharts.rcpch.ac.uk](http://www.growthcharts.rcpch.ac.uk)) for instructions on use]
- Calculate velocity of OFC growth in cm/week monthly
- aim 0.9 cm/week as steady OFC growth in preterm baby

## INTERPRETATION

- Growth charts are a tool to monitor growth and growth velocity
- All babies lose weight after birth and may cross down 2–3 marked centiles with an expectation they will return to their birth centile
- Stable preterm babies with adequate nutritional intake are expected to grow along/parallel to centiles from aged 2–3 weeks
- Babies with slow growth velocity (less than expected over 1 week period), growth failure or whose growth parameters continue to fall across centiles into week 3 of life, to have a full nutritional review
- include calculation of any parenteral nutrition received (not only prescribed), and enteral nutrition intake
- If combined nutritional intake falls short of recommended requirements: optimise nutritional intake (see **Nutrition and enteral feeding guideline**)
- if growth remains suboptimal, see **Nutrition and enteral feeding guideline – Inadequate growth**
- If baby exhibiting suboptimal growth, refer to NNU nutrition team or neonatal/paediatric dietitian

## DISCHARGE

- Transfer key information regarding growth to personal child health record (PCHR) or Red Book
- Must include birth and discharge weight, length and OFC