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*The Standard Operating Procedure from which information in this document has been extracted, is a version controlled document, managed within a Quality Management System. However, extracts that document the technical aspects can be made more widely available. Standard Operating Procedures are more than a set of detailed instructions; they also provide a necessary record of their origination, amendment and usage within the setting in which they are used. They are an important component of any Quality Assurance Framework, but in themselves are insufficient and need to be used and interpreted with care.*

*Alongside the extracts from our Standard Operating Procedures, we have also made available here an example Standard Operating Procedure and a word version of a Standard Operating Procedure template. Using the example and the Standard Operating Procedure template, institutions can generate their own Standard Operating Procedures and customise them, in line with their own institutions.*

*Simply offering a list of instructions to follow does not assure that the user is able to generate a value that is either accurate or precise so here in the BRC we require that Standard Operating Procedures are accompanied by face-to-face training. This is provided by someone with a qualification in the area or by someone with extensive experience in making the measurements. Training is followed by a short competency assessment and performance is monitored and maintained using annual refresher sessions. If you require any extra information, clarification or are interested in attending a training session, please contact Dr Kesta Durkin ([k.l.durkin@soton.ac.uk](mailto:k.l.durkin@soton.ac.uk)).*

*This document has been prepared from Version 1 of the BRC Standard Operating Procedure for growth assessment of preterm infants for RHM CHI0726. The document was written in March 2015, authorised in June 2015 and the next review date is set for June 2017. The version number only changes if any amendments are made when the document is reviewed.*

## NIHR Southampton Biomedical Research Centre

### Procedure for GROWTH ASSESSMENT OF PRETERM INFANTS FOR RHM CHI0726

#### BACKGROUND

The body composition of preterm infants is known to be altered compared with those born at term. The distribution of lean and fat mass seen in preterm infants at term equivalent age suggests relative adiposity due to a failure to accrete lean mass during their stay on the neonatal intensive care unit (NICU). The aetiology for this altered body composition, together with the identification of the best way to nutritionally support these infants is an important area of research.

Measurement of weight (together with head circumference and length) is the most commonly used parameter to assess growth on the NICU but as body weight may be influenced by fluid shifts and excess adiposity, current measurement options on the neonatal unit are unable to truly reflect changes in body composition.

#### PURPOSE

The purpose of this procedure is to ensure the correct and uniform measurement of mid upper arm and mid thigh circumference for study RHM CHI0726.

#### SCOPE

This procedure applies to all individuals measuring mid upper arm and mid thigh circumference on the NICU for study RHM CHI0726.

#### RESPONSIBILITIES

It is the responsibility of the measurer to use this procedure when measuring mid upper arm circumference and mid thigh circumference of preterm infants for study RHM CHI0726. It is the responsibility of the PI to ensure that staff members who are working on this study have been trained and have sufficient experience to make measurements.

## PROCEDURE

Circumferences are to be measured using standard clinical paper 1m tape measures. These should be the type with one blank unmarked side. Measurements must be taken using the blank side of the tape to avoid observer number bias, then the tape measured against a fixed metal standard rule to obtain the measurement result. Take three 1m tape measures per infant and cut each tape into four 25cm long sections using the marked side as a guide, making 12 separate sections.

Using a new section of tape for each measurement made, perform three measurements of mid upper arm circumference on the left arm and three on the right arm. Follow the same procedure for thigh circumference, to make a total of 12 measurements.

Once the measurements have been made and the result recorded by measuring against a fixed metal standard rule, dispose of the used tapes according to Trust local waste policies.

### Mid upper arm circumference:

1. Expose the baby's left shoulder and arm.
2. Judge the mid-point of the left upper arm (between the olecranon at the elbow and the acromion at the shoulder) by eye and take the measurement at this point.
3. Pass a pre-cut length of paper tape around the arm so that the upper border of the tape is at the mid-point of the upper arm. Make sure that the side of the tape with the centimetre and millimetre marks are against the baby's skin and that the blank side is facing up, so that you cannot see the measurement.
4. Measure the circumference of the arm with the arm flexed (bent) at the elbow, being careful not to compress the arm tissue.
5. Mark the blank side of the tape at the point where the end meets the tape as it wraps around the arm.
6. Repeat for 3 measurements and read off the tapes against the fixed metal standard rule.
7. Take the average of the measurements, providing there is no more than 10% difference between the measures. If there is more than a 10% discrepancy between measures, take further measurements until measurements are consistent, discarding the outlying measurements.
8. Repeat this process for the right arm.

Mid thigh circumference:

1. Expose the baby's left leg from the hip down.
2. Judge the mid-point of the left thigh (between the iliac crest at the hip and the middle of the knee joint) by eye and take the measurement at this point.
3. Pass a pre-cut length of paper tape around the thigh so that the upper border of the tape is at the mid-point of the thigh. Make sure that the side of the tape with the centimetre and millimetre marks are against the baby's skin and that the blank side is facing up, so that you cannot see the measurement.
4. Measure the circumference of the thigh with the leg flexed (bent) at the knee, being careful not to compress the thigh tissue.
5. Mark the blank side of the tape at the point where the end meets the tape as it wraps around the leg.
6. Repeat for 3 measurements and read off the tapes against the fixed metal rule.
7. Take the average of the measurements, providing there is no more than 10% difference between the measures. If there is more than a 10% discrepancy between measures, take further measurements until measurements are consistent, discarding the outlying measurements.
8. Repeat this process for the right leg.