6.1.3 Growth monitoring

6.1.3.5 Conducting head circumference assessment in infants and children

Aim
To correctly measure, interpret and monitor the head circumference of infants and young children.

Background
Monitoring of growth is an important means to identify whether a child is growing normally or deviating from normal parameters. Growth monitoring is especially important during infancy to detect and monitor slow or excessive growth, check the impact of illness and treatment, and to identify or monitor those at higher risk.¹

For monitoring of growth to be meaningful, serial measurements should be taken and plotted onto a growth chart over a period of time.² Along with growth measurements, the child should be assessed according to their overall health, wellbeing, and developmental progress. Consideration of the combined factors of overall rate of growth, or growth trajectory, the actual position on the growth chart, and clinical judgement, including a knowledge of the child’s history, are required to determine whether further investigation is required.³

Additional monitoring should be conducted and referral should be considered when the direction of growth falls downwards or tracks upwards within or across a percentile.⁴

Head circumference assessment is important for the detection of abnormalities in head growth and brain development. Serial measuring is particularly important in the first 2 years of life.⁵ A child’s head circumference increases rapidly prior to age 36 months after which the growth slows.⁶ Growth deviations in head circumference are not usually related to nutritional intake, except in extreme cases, but more likely due to non-nutritional factors.⁷, ⁸ Environmental influences may impact on brain growth.⁹ Conditions which may be detected or monitored using head circumference measurement include intracranial expansion conditions and some disorders within the foetal alcohol spectrum.¹⁰ ¹¹

For further information on growth monitoring refer to the Community health policy procedures and guidelines manual:

- 3.4.1 Growth in childhood
- 3.4.2 Growth faltering
- 3.4.3 Overweight and obesity
- 6.1.3 Growth monitoring
Policy

Head circumference assessment is not routinely offered as a component of the Universal child health scheduled contacts.

Targeted assessment of head circumference should be offered and conducted with parent/carer consent at any scheduled or unscheduled child health contact where there is parent/carer and/or professional concern regarding growth, or any identified risk.

For children receiving the Enhanced Aboriginal child health schedule, head circumference assessment is offered and conducted with parent/carer consent at each scheduled contact up to 12 months of age.

Key points

- To be performed by staff with appropriate training and assessment skills.
- Head circumference in infants and children should be assessed using age and sex specific reference values.\(^1\)
- The measurement of head circumference is intended to aid the detection of two groups of disorders: those characterised by a large or small head.
- Accelerations or decelerations in head circumference growth are both indications for further monitoring and/or referral.
- Head circumference alone is not a diagnostic tool for disorders.
- To ensure measurement accuracy, reliable equipment should be used, along with good technique. Small errors during the measuring, recording or plotting can have a large impact on the infant and or child’s growth assessment.
- Community health staff should follow the organisation’s overarching infection prevention and management policies and perform hand hygiene in accordance with WA Health guidelines at all appropriate stages of the procedure.

Equipment

- Clean flexible, non stretchable measuring tape or disposable paper tape.
- The tape should have increments of 0.1 cm and a width of 0.5 – 1.0 cm.
- Check tape against a static measure for accuracy, and replace regularly as required.

Procedure

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<td>1. Explain the procedure to the parent/carer, and the child where appropriate. Allow sufficient time for discussion of parent concerns.</td>
<td>Encourage parent/carer support and involvement with the procedure where possible.</td>
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Date Reviewed: Next Review: 2017
NSQHS Standards: 1.7, 1.8
Obtain verbal consent to proceed.

2. Preparation:
   - Remove any accessories from the hair/head.
   - Sit the infant/child on the parent/carer lap facing the health professional.

| Babies and toddlers may need to be held firmly to prevent unexpected movement. |
| Older children may prefer to stand or be seated. |

3. Measuring:
   - Place the tape above the eyebrows, above the supraorbital ridge and around the occipital prominence at the back of the head.
   - Pull the tape gently to compress the hair to yield a measure that ‘approximates’ cranial circumference.

| Some staff may wish to repeat measurement a number of times, where the child is comfortable with the process, to enable consistency in technique and accuracy with results. |

4. Recording:
   - The measurement should be recorded to the nearest 0.1 cm.
   - Plot the head circumference on the appropriate head circumference and gender chart.
   - For premature children born before 37 weeks gestation, corrected age should be used on standard growth charts until 2 years of age (or until the child 'catches' up, whichever is sooner).
   - For very premature infants, growth should be plotted on prematurity charts until the infant reaches their expected due date.

| There will be a staggered uptake of WHO growth charts over the course of 5 years. |
| Newborns from 2014 will be plotted onto the WHO charts located within the PHR and the Child health record. |
| Children new to the service in 2014, where a new Child health record is established, should be plotted onto the WHO growth charts within that record. |
| Children’s growth should only be plotted onto ONE type of growth chart. |
| If they begin on CDC they stay on CDC. |
| If they begin on WHO they stay on WHO. |

Where head circumference monitoring is required beyond 2yrs of age, 0-5 WHO head circumference gender appropriate charts are available for download.
5. Explain growth trend to parent/carer:
   - Interpret the growth chart with regard to the pattern of growth trajectory.
   - Identify if there are any tracking changes across percentiles.
   - Explain the pattern of growth to the parent/carer.

| Staff should refer to 3.4.1 Growth in Childhood located within the Community health policy, procedures and guidelines manual and the CACH Growth monitoring eLearning package for guiding information on interpretation of growth charts. |

Outcome
Assessment of head circumference assists in identifying that a child is following normal growth parameters. It also assists in early detection of abnormalities.

In some cases, a single measurement is sufficient to confirm a size increase that requires further assessment. However, more often, repeated measurements of the head circumference over a period of time are required to confirm that a deviation from the normal pattern of growth has occurred.\(^{13}\)

Close monitoring should be in place for children where head circumference is less than 3\(^{rd}\) centile or greater than 97\(^{th}\) centile, although this does not necessarily indicate a problem.

Referral pathway
Discuss any abnormal findings with the parent / carer and seek verbal consent for referral to a medical practitioner using the CHS 663- Referral from Community Health form.

Additional monitoring and referral should occur when the direction of head circumference trajectory tracks downwards or upwards or across a percentile, or if head circumference is disproportionate to parental head circumference.\(^{4,14}\)

Related policies, procedures and guidelines

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Useful resources

Using WHO growth charts eLearning package
Royal Children’s Hospital Melbourne Child Growth learning resource

Policy Owner | Portfolio
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Growth Monitoring

1. Conducting head circumference assessment in infants and children

NSQHS Standards: 1.7, 1.8

References


