



PROCEDURE

Body Mass Index assessment

Scope (Staff):	Community health staff
Scope (Area):	CACH, WACHS

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [disclaimer](#)

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Aim

To assess Body Mass Index and identify clients with a Body Mass Index (BMI) outside of the recommended cut-off-points.

Risk

Failure to identify clients who are outside of the recommended cut-off-points for BMI for their age and sex increases the risk of unhealthy weight status in future.^{1, 2} Being outside of the recommended BMI cut-off-points can increase the risk of short and long term health consequences, and may increase the burden of disease and associated health care costs.

Background

Universal growth monitoring of children at key milestones facilitates early identification of growth concerns and provides opportunity for early intervention to support families to achieve and maintain healthy lifestyles for their children.³⁻⁸

International guidelines recommend the use of BMI assessment for children two years and older plotted on BMI-for-Age Percentile charts (for boys or girls) as a screening tool to identify children who may be outside the healthy weight range.³⁻⁸ BMI is a score calculated as the ratio of an individual's weight in kilograms to height in metres squared (kg/m²).⁹ The use of BMI as an indirect measurement of excess adiposity has limitations. For example:

- It does not measure the distribution of fat in the body
- It does not discriminate between adiposity and high muscularity or perform well at the extreme measures of height
- It does not account for ethnic and racial differences in adiposity¹⁰

BMI alone is not diagnostic of excess adiposity, however it is convenient and effective in screening for cases where further lifestyle assessment, monitoring and/or additional medical assessments may be required.^{8, 11}

In children, the BMI score is adjusted for age and sex assigned at birth (sex) on BMI percentile charts, in order to account for growth and body fat changes that occur as part of normal development.⁸

Infants and young children have a relatively higher proportion of fat as a normal component of growth.¹² During middle childhood BMI falls as children become relatively leaner, and then increases as puberty and body composition approaches that of adulthood.¹² BMI-for-Age percentile charts reflect these normal, predicted changes of BMI throughout childhood.⁸

The early identification and intervention when there are deviations to BMI in childhood can improve long-term physical and psychosocial health outcomes^{13, 14} The sooner that a growth concern is detected in young children, the more likely a sustainable change can be made to support future healthy growth.^{7, 15, 16}

The role of the Community Health Nurse (nurse) in BMI assessment is not to 'diagnose' weight status but to identify individuals who may require further lifestyle assessment, provide brief healthy lifestyle intervention and to support families of children with a higher risk to seek a more comprehensive health assessment and access more intensive support where available.

For guidance regarding care planning for children with a BMI above recommended cut-points, see [Growth – Accelerated/upward trajectory](#). If there are growth concerns in a child whose weight is below the recommended cut-points, see [Growth – Static or downward trajectory](#).

Growth assessment is most meaningful when serial measurements are collected to enable monitoring over a period of time.⁸ As such, BMI assessments are conducted via Universal and Universal Plus checks as follows:

- Universal contact 2 Years
- Universal contact 4 years (School Entry Health Assessment)

- Universal Plus – This could be in response to a concern raised by a parent or teacher. Follow-ups to the SEHA are considered to be a Universal Plus contact.

Key points

- BMI is a convenient and useful screening tool for growth monitoring which can identify children who may require further assessment or lifestyle intervention/s.
- Community Health Nurses play an essential role in monitoring child growth and identifying deviations outside of recommended BMI trajectories in child and school health settings.
- BMI assessments are to be performed by staff with appropriate training and assessment skills.
- Nurses need to provide a culturally safe service delivery which demonstrates a welcoming environment that recognises the importance of cultural beliefs and practices of all clients.
- Community health nurses must follow the organisation’s overarching Infection Control policies and perform hand hygiene in accordance with WA Health guidelines at all appropriate stages of the procedure.
- All nurses will refer to the [Nursing and Midwifery Board AHPRA Decision-making framework](#) in relation to scope of practice and delegation of care to ensure that decision-making is consistent, safe, person-centred and evidence-based.

Procedure – Assessment & documentation

Steps	Additional Information
<p>1. Consent and parent engagement</p> <p>Universal – 2-year-old check</p> <ul style="list-style-type: none"> • Consent for Universal services is implied unless the parent/guardian is not present <p>School entry health assessment (SEHA)</p> <ul style="list-style-type: none"> • Consent for universal BMI assessment as part of SEHA is provided via the returned and signed <i>SEHA Parent Questionnaire</i> (CHS409-1). • If a parent/caregiver marks the <i>SEHA Parent Questionnaire</i> (CHS409-1) in any way that suggests consent for a BMI is not provided, do not undertake a growth assessment. 	<p>See Consent for services</p>

Steps	Additional Information
<p>Universal Plus growth assessment</p> <p>Consent for Universal Plus contacts is implied if the parent/caregiver is present.</p> <p>If a growth concern is identified by a teacher, the nurse will contact the parent to seek consent to conduct an assessment via the <i>Referral to Community Health Nurse (CHS142)</i> form</p> <ul style="list-style-type: none"> • On contacting the parent, determine the following: <ul style="list-style-type: none"> ○ Parent awareness that a possible growth issue may be present; ○ The beliefs and views on the growth issue, and concerns about the client’s growth; and ○ Parent ‘readiness’ for behavioural change. ○ Invite parent to attend the appointment and discuss the results. • If parent consent/engagement cannot be achieved for Universal Plus growth assessment, offer follow-up within 12 months. Depending on level of concern, discuss with Principal and line manager. 	
<p>3. Preparing for BMI assessment</p> <ul style="list-style-type: none"> • Ensure that the stadiometer is correctly assembled according to manufacturer’s instructions. • Ensure that the weighing scales are placed on a firm level surface with the indicator/switch on ‘weight’. Follow manufacturer’s guidelines if using the scales on carpet. 	<p>For further guidance regarding preparing the stadiometer or scales, refer to:</p> <ul style="list-style-type: none"> • Height assessment 2 years and over and; • Weight assessment 2 years and over <p>When conducting growth assessments staff should ensure privacy and confidentiality is maintained.</p>

Steps	Additional Information										
<p>4. Measure height</p> <p>Refer to Height assessment 2 years and over procedure to measure the client's height.</p>	<p>Accuracy of height measurement is critical given the value is squared in the BMI calculation.</p>										
<p>5. Measure weight</p> <p>Refer to the Weight assessment 2 years and over procedure.</p>	<p>If the client declines to remove items of clothing, the weight is still measured but the refusal and items worn noted on the results.</p>										
<p>6. Determine BMI for age percentile</p> <ul style="list-style-type: none"> • Calculate BMI score. • Where available, electronic record keeping systems will generate a BMI score and percentile automatically when the client's weight and height are entered. <p>Manual BMI calculation can be made on a standard calculator:</p> $BMI = Weight (kg) \div [Height (m)]^2$ <p>Example follows:</p> <p>Weight 18.2 kg Height 1.1 m</p> $BMI = 18.2 \div [1.1]^2$ $BMI = 18.2 \div (1.1 \times 1.1)$ $BMI = 18.2 \div 1.21$ $BMI = 15.04 \text{ kg/m}^2$	<p>When an electronic patient record system is not available, the online CDC BMI and percentile calculator may be used to generate a client's BMI value and BMI percentile.</p> <p>Measurements of the growth assessment and/or BMI percentile should not be shared with the client.</p>										
<p>7. Interpret results</p> <ul style="list-style-type: none"> • Use CDC BMI cut-off-points.³⁻⁸ <table border="1" data-bbox="165 1599 761 2056"> <thead> <tr> <th>BMI Indicator</th> <th>Percentile range</th> </tr> </thead> <tbody> <tr> <td>Underweight</td> <td><5th percentile</td> </tr> <tr> <td>Healthy weight</td> <td>5th to < 85th percentile</td> </tr> <tr> <td>Overweight</td> <td>85th to < 95th percentile</td> </tr> <tr> <td>Obese</td> <td>≥ 95th percentile</td> </tr> </tbody> </table>	BMI Indicator	Percentile range	Underweight	<5 th percentile	Healthy weight	5 th to < 85 th percentile	Overweight	85 th to < 95 th percentile	Obese	≥ 95 th percentile	<p>BMI is a screening tool and is not diagnostic, however it contributes to the overall clinical impression.</p>
BMI Indicator	Percentile range										
Underweight	<5 th percentile										
Healthy weight	5 th to < 85 th percentile										
Overweight	85 th to < 95 th percentile										
Obese	≥ 95 th percentile										

Steps	Additional Information
<p>If BMI Indicator is outside of recommended cut-off-points, review any previous growth measurements available to identify any deviations or to confirm appropriate growth tracking.</p>	
<p>8. Care planning</p> <p>For care planning with a BMI below the 5th percentile, and there are concerns, see Growth – downward trajectory</p> <p>For care planning with a BMI above the 85th centile, see Growth – Accelerated/upward trajectory</p>	
<p>7. Documentation</p> <p>Community health nurses will document relevant findings according to CACH and WACHS processes</p> <p>Universal contact – 2 years</p> <ul style="list-style-type: none"> • Document growth measurements and interpret growth trajectories using: <ul style="list-style-type: none"> ○ Electronic records. Use hard copy growth charts where electronic systems are unavailable. <p>Universal (SEHA) documentation:</p> <ul style="list-style-type: none"> • Indicate whether there are growth concerns on the SEHA results for parents (CHS409-6A) • Record the height, weight, BMI, BMI Percentile and BMI category on SEHA results for Staff (CHS409-2) <p>Universal Plus assessment documentation:</p> <ul style="list-style-type: none"> • Note assessment and height and weight in electronic record and/or progress notes. • In the school setting, use <i>Body Mass Index Girls/Boys</i> (CHS430 A/B) to plot initial and subsequent BMI measures. Attach to <i>Referral</i> 	<p>Document physical features, heavy clothing or cultural dress that may have interfered with the accuracy of the measurement.</p> <p><i>Body Mass Index (CHS430 A/B)</i> is completed in the following circumstances:</p> <ul style="list-style-type: none"> • Following a Universal Plus BMI assessment • When a referral is initiated. Attach <i>Body Mass Index Girls/Boys (CHS430A/B)</i> to <i>Clinical Handover/Referral (CHS663)</i> • At any time during parent communication where the nurse believes the plotted chart will assist the parents understanding of the BMI result and facilitate parent engagement.

Steps	Additional Information
to Community Health Nurse (CHS142) if appropriate.	

Documentation

- Nurses maintain accurate, comprehensive and contemporaneous documentation of assessments, planning, decision making and evaluations according to CAHS-CH and WACHS processes.

References
<ol style="list-style-type: none"> 1. Simmonds M, Llewellyn A, Owen C, Woolacott N. Predicting adult obesity from childhood obesity: a systematic review and meta-analysis. <i>Obesity reviews</i>. 2016;17. 2. World Health Organization. Guideline: Assessing and managing children at primary health care facilities to prevent overweight and obesity in the context of the double burden of malnutrition. 2017. Available from: https://www.ncbi.nlm.nih.gov/books/NBK487902/pdf/Bookshelf_NBK487902.pdf. 3. National Institute for Health and Care Excellence (NICE). Obesity: identification, assessment and management. 2014. 4. U.S Preventative Services Task Force. Screening for obesity in children and adolescents: Recommendation statement. <i>American Family Physician</i>. 2017;96. 5. O'Connor EA, Evans CV, Burda BU, Walsh ES, Eder M, Lazano P. Screening for obesity and interventions for weight management in children and adolescents: A systematic evidence review for the U.S. preventive services task force. Rockville, MD: Agency for health research and quality, 2017. 6. Tully L, Arthurs N, Wyse C, Browne S, Case L, McCrea L, et al. Guidelines for treating child and adolescent obesity: A systematic review. <i>Frontiers in Nutrition</i>. 2022. 7. Styne DM, Arslanian SA, Connor EL, Farooqi IS, Murad MH, Silverstein JH, Yanovski JA. Pediatric Obesity—Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline. <i>The Journal of Clinical Endocrinology & Metabolism</i>. 2017;102(3):709-57. 8. American Academy of Pediatrics. Clinical practice guideline for the evaluation and treatment of children and adolescents with obesity. <i>American Academy of Pediatrics</i>. 2023. 9. Llewellyn A, Simmonds M, Owen C, Woolacott N. Childhood obesity as a predictor of morbidity in adulthood: a systematic review and meta-analysis. <i>Obesity reviews</i>. 2015;17:56-67. 10. Javed A, Jumean M, Murad MH, Okorodudu D, Kumar S, Somers VK, et al. Diagnostic performance of body mass index to identify obesity as defined by body adiposity in children and adolescents: a systematic review and meta-analysis. <i>Paediatric obesity</i>. 2014. 11. Simmonds M, Llewellyn A, Owen CG, Woolacott N. Simple tests for the diagnosis of childhood obesity: a systematic review and meta-analysis. <i>Obesity reviews</i>. 2016;17:1301-15. 12. Zhou J, Zhang F, Qin X, Li P, Teng Y, Zhang S, et al. Age at adiposity rebound and the relevance for obesity: a systematic review and meta-analysis. <i>International Journal of Obesity</i>. 2022;46:1413-24. 13. Sim LA, Lebow J, Wang Z, Koball A, Murad HM. Brief primary care obesity interventions: A meta-analysis. <i>Pediatrics</i>. 2016;138(4). 14. U.S Preventive Services Taskforce. Screening for obesity in children and adolescents: Recommendation statement. 2017. 15. Brown V, Moodie M, Baur L, Wen LM, Hayes A. The high cost of obesity in Australian pre-schoolers. <i>Aust N Z J Public Health</i>. 2017.

16. Davidson K, Vidgen H, Denney-Wilson E, Daniels L. How is children's weight status assessed for early identification of overweight and obesity?—Narrative review of programs for weight status assessment. Journal of Child Health Care. 2018:1-5.

Related internal policies, procedures and guidelines

The following documents can be accessed in the CH Clinical Nursing Manual: [HealthPoint link](#) or [Internet link](#) or for WACHS staff in the [WACHS Policy link](#)

Growth birth - 18 years

Growth – static or downward trajectory

Height assessment 2 years and over

Nutrition for children – Birth to 18 years

Growth – Accelerated upward trajectory

Universal contact 4 years (School Entry Health Assessment)

Weight assessment 2 years and over

Related internal resources (including related forms)

Body Mass Index Boys (CHS430B)

Body Mass Index Girls (CHS430A)

Clinical handover/referral from Community Health Services (CHS663)

BMI Infographic handout for parents (CAH-001239)


SEHA Results for parents (CHS409-6A)

SEHA Results for staff (CHS409-2)

Related external resources (including related forms)

[CDC BMI and Percentile calculator](#) for Children and Adolescents (ensure 'metric' selected)

[Centers for Disease Control and Prevention - About BMI for Children and Teens](#)

Document Owner:	Nurse Director, Community Health		
Reviewer / Team:	Clinical Nursing Policy Team		
Date First Issued:	9 October 2023	Last Reviewed:	03 October 2023
Amendment Dates:	07 May 2024	Next Review:	03 October 2027
Approved by:	Community Health Clinical Nursing Policy Governance Group	Date:	02 May 2024
Endorsed by:	Executive Director Community Health	Date:	07 May 2024
Aboriginal Impact Statement and Declaration (ISD)		Date ISD approved:	23 April 2024
Standards Applicable:	NSQHS Standards:  Child Safe Standards: 1, 2, 3, 4, 5, 6, 7, 8, 9,10		

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