PROCEDURE	
Body Mass Index assessment - Primary School	
Scope (Staff):	School health staff
Scope (Area):	CACH, WACHS

This document should be read in conjunction with this DISCLAIMER

Contents

Aim

To identify children with a Body Mass Index (BMI) outside of the healthy range for age and gender, and to support nurses to provide family support for making positive lifestyle changes and/or referral when required.

Risk

Failure to identify children who are outside of a healthy body mass index (BMI) range for their age increases the risk of unhealthy weight status intensifying with age. Being overweight or obese increases the risk for short and long term health consequences, and increases the burden of disease and associated health care costs.[1 2, 3]

Background

The prevalence of obesity in early childhood is high, with 23% of Australian children aged 2-4 years overweight, including 5% who are obese. Research indicates that rates increase with age[4]. The likelihood of childhood overweight and obesity persisting into adulthood is correlated to the degree of adiposity, age of child and parental obesity[5]. A systematic review in 2008 revealed that 85% of overweight children aged 2-5 years would become obese adults[6].

Universal growth monitoring of children at key milestones facilitates early identification of weight concerns and provides opportunity for early interventions to support families to achieve and maintain healthy lifestyles for their children[3].

The National Health and Medical Research Council (NHMRC)[7], along with other leading international affiliates[3, 8] recommend the use of BMI assessment for children two years and older plotted on BMI-for-Age Percentile charts (for boys or girls) as an initial (first level) assessment to identify children who may be outside the healthy weight range. BMI should be used to identify cases where lifestyle assessment, monitoring and/or additional medical assessments may be required.

Growth assessment is most meaningful when serial measurements are collected to enable monitoring over a period of time[9]. At the Universal Contact 2 Years, BMI is introduced as an important component of the holistic growth assessment. BMI is next offered universally at the Universal contact 4 years (School Entry Health Assessment) and may be repeated at targeted (or follow-up) appointments when a concern is identified.

The early identification of overweight and obesity in childhood can improve long-term physical and psychosocial health outcomes.[1, 3] The sooner that overweight is detected in young children, the easier it is to address and correct.[2, 3, 10, 11]

BMI is a score calculated as the ratio of an individual's weight in kilograms to height in metres squared (kg/m²). While BMI does not distinguish between fat, muscle or fluid it can be used as a measure in adults to measure excess body weight for height.[7] In children, the BMI score is adjusted for age and gender (on BMI-for-Age and gender percentile growth charts), in order to account for growth and body fat changes that occur as part of normal development. Infants and young children have a relatively higher proportion of fat as a normal component of growth. During middle childhood BMI falls as children become relatively leaner, and then increases as puberty approaches and body composition approaches that of adulthood. BMI for Age percentile charts reflect these normal, predicted changes of BMI throughout childhood.[7]

The community health nurse's role in BMI assessment is not to 'diagnose' weight status

but to identify individuals who may require further lifestyle assessment, provide brief healthy lifestyle intervention where indicated, and to support families of children with a higher risk (obese range) to seek a more comprehensive health assessment and access more intensive support where locally available.

The following documents within the CAHS Community Health Policy Manual provide important additional background information to this BMI assessment in primary school procedure:

- Growth birth – 18 years
- Growth faltering
- Overweight and obesity

Key Points

- Training on BMI assessment, chart plotting, sensitive communication with parents and lifestyle counselling is essential. Refer to the online training package *Talking with parents about children's weight*. **Staff are required to complete this training prior to undertaking BMI assessments.**
- Do not share height, weight or BMI results with the child.
- Targeted BMI assessments for older primary school aged children are to be conducted in a manner that maintains privacy and confidentiality. Parents should be invited to attend a *targeted* assessment.
- Reviewing serial growth measurements from previous community health contacts will assist in interpreting overall growth status.
- The support and cooperation of parents/caregivers are essential when addressing underweight, overweight or obesity in children. Although parents may be unwilling to address a weight problem initially, raising the issue may lead to further discussion in the future.
- Ideally, 3 monthly follow-ups are recommended for obese children and follow-up *within* 12 months for overweight children.
    - Community Health Nurse follow-up should primarily focus on tailoring lifestyle brief interventions to respond to the family's evolving needs and providing encouragement and support for the family as required.
        - Repeated BMI assessments are not required by the Community Health Nurse unless the obesity is severe and the family has not engaged with an alternative health service provider. This should be discussed with your line manager and/or specialist staff within the PCH Healthy Weight Service.
        - Regular BMI plotting as part of weight management progress tracking should be undertaken under the care of a medical practitioner and/or dietitian[7] and is not the ongoing role of the community health nurse. Refer to *Supplementary Support Options* on page 13. Nurses should use their clinical judgement and consultation with families to determine the level of support required in individual cases.

- The frequency of contacts needs to be balanced against the severity of concern, individual's needs, parent engagement, staff capacity for weight management support and the family's engagement with other health service providers and/or intervention programs.
- Follow-up should continue to occur as required, using locally agreed reminder processes.

- Community health professionals should practice infection prevention and management. Hand hygiene is to be performed at all appropriate stages of the procedure.

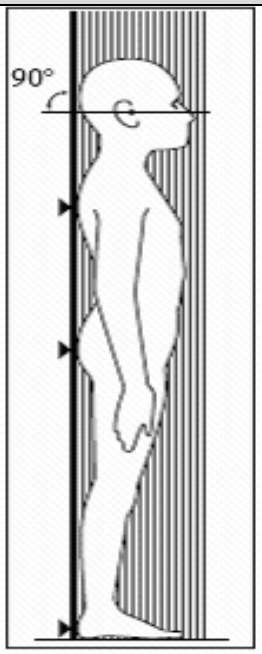
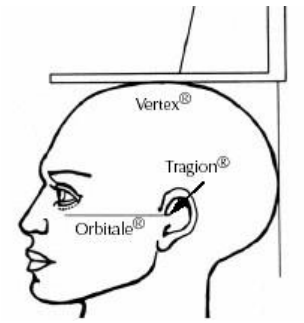
Equipment

- Stadiometer
- Digital weight scale
- Calculator (or automated calculation offered on electronic health record keeping system)
- See Appendix A for further information on equipment specifications.

Procedure

Steps	Additional Information
1. **Growth assessment conducted from either of the following pathways**: • Universal: as a component of School Entry Health Assessment (SEHA) program. • Targeted: in response to a concern raised by the parent/carer, teacher, student or community health professional at any other time.	
2. Consent and parent/caregiver engagement *a) Universal (SEHA)* Consent for universal BMI assessment as part of SEHA is provided via the returned and signed CHS409. • If a parent/carer marks the CHS409 in any way that suggests consent for a BMI is not provided – do not undertake a growth assessment. *b) Targeted* growth assessment • If a growth concern is identified by a teacher or school health staff, it is essential that the parent/caregiver be	Review question on CHS409 to determine parental perception of child's weight. Re-contact parent/carer before conducting any follow-up assessments. Consent for targeted assessments can be obtained on the *CHS 142: Referral to Community Health Nurse form*

Steps	Additional Information
contacted before an assessment is conducted. • On contacting the parent/carer, determine the following: ○ Parent/carer awareness that a possible weight issue may be present; ○ The beliefs and views on the weight issue, and concerns about the weight status of the child; and ○ Parent/carer 'readiness' for behavioural change. ○ Availability to meet face-to-face to discuss results once assessment has been conducted.	(which also makes provision for verbal consent). The nurse should make contact with the parent/carer prior to assessment, even if consent was obtained via teacher involvement. If parent/carer consent/engagement cannot be achieved for targeted weight assessment, offer follow-up in 12 months. Depending on level of concern, discuss with Principal and line manager.
3. Preparing for BMI assessment • 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. • Targeted growth assessments must be done in an area which ensures privacy.	When conducting growth assessments staff should ensure privacy and confidentiality is maintained. Use of a laminated template showing an outline of two feet may help orient the child to where to stand for the weight and height. Take care when disassembling the stadiometer to prevent strain on the wrists.
4. Measure height • Hair/head accessories may need to be repositioned so that positioning of the body can be seen on the stadiometer. • The child must stand with bare feet, weight distributed evenly on both feet, heels together, arms hanging freely by the sides and the head positioned so that the line of vision is at right angles to the body. • There are usually three contact points between the body and the scale: upper back, buttocks and heels. See Figure 1. Note: in a few individuals only two points of contact may occur (buttocks and heels). • The head must be positioned in the	Cultural dress should not be removed but must be noted if it impacts on results.

Steps	Additional Information
Frankfort horizontal plane (refer to Figure 2). The Frankfort plane is achieved when the lower edge of the eye socket (Orbitale) is in the same horizontal plane as the notch above the flap of the ear (Tragion)[12]. • This technique obtains the maximum distance from the base of the stadiometer to the skull (Vertex). This is best aligned by viewing the child from the side. • To obtain consistent measure, the child is asked to inhale deeply and stretch to their fullest height (while keeping heels on the ground) while the moveable head piece is brought onto the top of the head with sufficient pressure to compress the hair. • Ask the child to step away from the stadiometer and then stand back against it and take a second measurement. • If the two measurements differ by more than 0.5cm then take a third measurement. Height is the average of the two closest measurements. • Measure in centimetres and record to the nearest 0.1 cm. Convert to metres for BMI calculation, e.g. 108.3 cm is equal to 1.083m.	 Figure 1: The three contact points between the body and the stadiometer.  Figure 2: The head in the Frankfort plane[12].
5. Measure weight • Request the child to remove his/her jumper, jacket, coat, shoes and empty pockets. • Check the scale is reading zero. • Request the child to step onto the centre of the platform, with the body weight evenly distributed between both feet. • Request the child to look straight ahead. • Record the measurement to the nearest 0.1	If the child refuses to remove items of clothing, the weight is still measured but the refusal and items worn noted on the results.

<table>
<tr><th>Steps</th><th>Additional Information</th></tr>
<tr><td>kg. For example, 18.3 kg.
• Document unusual features, e.g. amputation, artificial limb, congenital disorder impacting weight.</td><td></td></tr>
<tr><td>6. Determine BMI for age percentile
• Calculate BMI score.
• Electronic record keeping systems will generate a BMI score and percentile automatically when the client's weight and height are entered.
• Manual BMI calculation can be made on a standard calculator:
BMI = Weight (kg) ÷ [Height (m)]2
Example follows:
Weight 18.2 kg Height 1.083 m
BMI= 18.2 ÷ [1.083]^2
BMI= 18.2 ÷ (1.083 x 1.083)
BMI= 18.2 ÷ 1.172
BMI= 15.52 kg/m^2
• In the absence of automatic electronic BMI percentile calculation, plot BMI according to gender and age on 'BMI-for-Age Percentile Chart' (CHS 430 A or B) to obtain BMI-for-Age percentile</td><td>The online CDC BMI and percentile calculator for children and adolescents is a useful tool to generate raw BMI value, BMI percentile and corresponding weight classification. It also automatically provides commentary on the individual's weight classification and brief guidance on what action may be recommended.
Ensure metric version is selected.
Measurements of the growth assessment and/or BMI percentile should not be shared with the child.</td></tr>
<tr><td>7. Interpret results
• Use CDC BMI cut-points.
<table><tr><th>BMI Indicator</th><th>Percentile range [7]</th></tr><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 < 95th percentile</td></tr><tr><td>Obese</td><td>≥ 95th percentile</td></tr></table>If BMI Indicator is outside the healthy weight range, review any previous growth measurements available to identify any</td><td>BMI is a screening tool and is <u>not diagnostic</u> of weight status, however it contributes to an overall clinical impression.
Lifestyle and family history are other important components to interpreting the BMI result. See Required Actions for completing the assessment.</td></tr>
</table>

Steps	Additional Information
deviations or to confirm appropriate growth tracking.	
8. Recording results Community health staff will document relevant findings according to local processes. **Universal (SEHA) documentation:** • Record height, weight, BMI, BMI percentile and weight category on *CHS 409-6 Parent results* and on *CHS 409-2 Staff results* **Targeted or follow-up assessment documentation:** • Note assessment in progress notes • *Use CHS430 A or B Body Mass Index* (boys and girls) to plot initial and subsequent BMI measures when providing follow-up or targeted assessments in the school setting. *CHS 430 A&B Body Mass Index* (boys and girls) are produced in triplicate pads ▪ Top copy (white) to be provided to the parent for inserting into the child's PHR ▪ 2nd copy to be retained by the Health Service ▪ 3rd copy to be sent with referral (if required).	Document physical features or heavy clothing that may have interfered with the accuracy of the measurement. CHS430 A/B (BMI percentile chart) is usually only completed following a targeted BMI assessment or at a follow-up BMI assessment (where the initial and follow-up BMI result can be plotted on the one chart). However, after initial parent contact has been made following a SEHA assessment, the CHS 430 may be completed if the nurse believes further explanation of the BMI percentile chart and the child's current plotted position will aide parents understanding of the BMI result and facilitate parent engagement.

Required Actions

BMI as part of SEHA

Following a SEHA the *CHS409-6 Parent Results* (a simplified summary of the results) is sent to the parent/carer.

Where BMI results are outside the healthy weight range the CAH-000994 *Tips to support healthy choices (2-5 years)* parent handout should accompany the *CHS 409-6 Parent Results* letter and the appropriate clinical pathway below should be followed.

BMI as a targeted assessment

At the time when consent for a *targeted* assessment is sought, the nurse should discuss with the parent how the assessment results will be communicated to them. Depending on the age of the child, the CAH-000994 *Tips to support healthy choices (2-5 years) or* CAH-001025 *Keeping children healthy (5-12 years)* parent information brochure should accompany results.

Clinical pathways for BMI categories are indicated as follows:

***BMI suggests Underweight*: (Less than 5th percentile)**

- Review previous growth assessment measurements if available.
- Make contact with parent asking if they received the results letter and parent information brochure and if this is a suitable time to talk.
- Explore parent's perception of their child's weight status. (If part of SEHA, review parent's response to related CHS409 question prior to making contact).
- Engage in conversation with parent to review any concerns for their child they may have and all factors influencing growth. This will include reviewing eating patterns, food and drink selection, sleep and physical and sedentary activity patterns (lifestyle review).
- Following the lifestyle review (and using clinical judgement if BMI is on the cusp of two weight categories), inform the parent that the growth assessment suggests their child may be below their healthy weight range.
- Reinforce healthy nutrition, physical activity, screen time and sleep practices by discussing the content of CAH-000994 *Tips to support healthy choices (2-5 years) or* CAH-001025 *Keeping children healthy (5-12 years)* parent handout and other appropriate print or electronic resources.
- Support the parent to plan healthy changes for their child if indicated.
- If indicated, refer the child to GP and/or dietitian for further assessment and/or intervention.
- If nurse concern is raised, refer to neglect protocol.
- Ensure parent knows how to contact you if they want to seek support in the future.

BMI suggests Healthy Weight: (5th percentile to less than the 85th percentile)

- Reinforce positive lifestyle behaviours if contact with parent is required for any other SEHA concerns.
- No further action required.

BMI suggests Overweight: 85th to less than 95th percentile

- Review previous growth assessment measurements if available.
- Make contact with parent asking if they received the results letter and parent information brochure and if this is a suitable time to talk.
- Explore parent's perception of their child's weight status. (If part of SEHA, review parent's response to related CHS409 question prior to making contact).
- Engage in conversation with parent to review any concerns for their child they may have and all factors influencing growth. This will include reviewing eating patterns, food and drink selection, sleep and physical and sedentary activity patterns (lifestyle review).
- Following the lifestyle review (and using clinical judgement if BMI is on the cusp of two weight categories), inform the parent that the growth assessment suggests their child may be above their healthy weight range.
    - Inform the parent that the BMI is not *diagnostic* but based on their child's results, their child's weight may be above the healthy weight range. This feedback should be given with sensitivity; it may be the first time that a potential concern has been raised.
    - Reinforce healthy nutrition, physical activity, screen time and sleep practices by discussing the content of CAH-000994 *Tips to support healthy choices (2-5 years) or* CAH-001025 *Keeping children healthy (5-12 years)* and other appropriate print or electronic resources.
    - Identify and agree on small achievable goals or family lifestyle changes that will have a positive impact to the child's future health and wellbeing. ***Reinforce that the aim is for the child to grow into their weight (as they grow taller) and not for weight loss.***
- **Using clinical judgement combined with BMI assessment results and lifestyle assessment, decide if referral to GP is indicated and/or other referral options that may be locally available.**
- Ensure parent knows how to contact you if they want to seek support in the future, even if they have not engaged with you in this initial consultation.
- Schedule follow-up phone call to discuss progress *within* 12 months, according to parent engagement and nurse capacity. In this follow-up conversation, explore progress towards agreed goals or family lifestyle changes and offer further advice, support and referral if required. A repeat BMI assessment can be offered in 12 months if tracking has not been undertaken by an alternative health professional.

BMI suggests Obese: (Equal to or greater than the 95th percentile)

- Review previous growth assessment measurements if available.
- Make contact with parent asking if they received the results letter and parent information brochure and attempt to arrange a face-to-face meeting with them to discuss the results further. If this is not possible, then check it is a suitable time to discuss over the phone.
- Explore parent's perception of their child's weight. (If part of SEHA, review parent's response to related CHS409 question prior to making contact).
- Engage in conversation with parent to review any concerns they may have for their child and all factors influencing growth. This will include reviewing eating patterns, food and drink selection, sleep and physical and sedentary activity patterns (lifestyle review).
- Following the lifestyle review (and using clinical judgement if BMI is on the cusp of two weight categories), inform the parent that the growth assessment suggests their child's weight is above the healthy weight range and may have associated health risks.
    - Discuss causes and short and long term consequences of overweight. This conversation requires sensitivity; it may be the first time that a potential concern has been raised.
    - Reinforce healthy nutrition, physical activity, screen time and sleep practices by discussing the content of CAH-000994 *Tips to support healthy choices (2-5 years) or* CAH-001025 *Keeping children healthy (5-12 years)* and other appropriate print or electronic resources.
    - Identify and agree on small achievable goals or family lifestyle changes that will have a positive impact to the child's future health and wellbeing.
- **Children who have a BMI in the obese range (equal or >95th percentile) should be referred to medical practitioner and/or dietitian** for further assessment and treatment as a priority. Consider other suitable referral options (see *Supplementary support Options* further below).
    - If obesity is severe, consider referral to the PCH Healthy Weight Program (formerly known as CLASP) via medical practitioner.
    - If the child is not under medical care (due to access to services or no parent engagement), nurse follow-up is required. Nurses should use their clinical judgement, consult with their manager and/or other experienced clinician, and consult with families to determine the level of support required in individual cases.
- Where possible, refer to locally available healthy lifestyle programs or activities.
- At 3 months, make phone contact with parent to enquire on progress of referral and family lifestyle changes implemented. If initial referral has not been acted upon, offer to re-send referral.
    - If parent continues to decline the referral, nurse follow-up rigour should consider obesity severity and level of parent engagement in family lifestyle

modification. Document clearly the follow-up outcomes and if/when any further follow- up is planned to occur.

- For concerns regarding family engagement or neglect, consider making a report to Department for Child Protection and Family Support. Refer to Department of Health WA - Information Sheet 8 Child obesity and Child Protection for guidance. Advice should also be sought from the PCH Child Protection Unit.
- Consult with PCH Healthy Weight Program for advice and guidance if required (see *Supplementary support Options* below).
- A repeat BMI assessment can be offered in 12 months if monitoring has not been undertaken by an alternative health professional.

Documentation

School health staff will document relevant findings according to local Health Service provider processes.

Responding according to parent engagement

Parent/carer receives advice and (where appropriate) offer of referral **positively**	• Let the family know what the next steps are • Reassure the family that you are there to help them. Suggest a follow up appointment to monitor the family's progress in reaching identified lifestyle goals and provide help and encouragement
Parent/carer does **not perceive** that their child has excess weight	• Acknowledge the difficulties in recognising excess weight • Reassure the family that support is available; acknowledge that this is a difficult decision. Explain what the family could expect from you and/or the referral service (where indicated) and re-offer support and referral
Parent/carer is visibly upset or angry and **does not want to engage** in conversation about their child's weight	• Show acceptance of the parent or carer's wishes, reassure them that you are there to help and re-offer your support should they change their mind • Don't force the issue (but 'leave the door open'). Be reassured that your conversation may have planted a seed that facilitates the family to accept or seek help for the issue in the future.

Supplementary support options

In addition to the GP, support from other supplementary services may be considered.

Suitability of supplementary support services will depend on the growth status of the child and the capacity and preferences of the family. Availability of support services will be varied across the State.

Recommendations for supplementary support and actions taken should be clearly documented in progress notes.

- **Dietitian**
    - Public services - Some local health services (hospitals or community health centres) provide dietetic services for children. WACHS staff to refer to *WACHS Clinical Pathway for BMI assessments in 2-5yo and dietetic services.*
    - Private services - see the Dietitians Association of Australia website to locate private dietetic services.
- **PCH Healthy Weight Program** (formerly known as CLASP). For children and adolescents with complicated and/or significant obesity and their families. Note: Medical practitioner referral to the Healthy Weight Program is usually required. Consider mentioning PCH Healthy Weight Program on CHS663 when referring a child to a medical practitioner.
    - **Clinical advice for community health nurses:** PCH Healthy Weight Program can provide over the phone clinical advice and guidance to support community health nurses working with individual cases of concern where no suitable alternative referral options are available.

      Contact the intake coordinator nurse on (08) 6456 1111 and follow the prompts for the Healthy Weight Service (option 4) or email PCHHealthyWeightService@health.wa.gov.au .
- **Better Health Program** - a multi-component healthy lifestyle program for overweight and obese children aged 7-13 years and their families. Available free of charge to families in various locations in WA. Programs for other age groups may be available in some locations within WACHS. Phone 1300 822 953 or email info@betterhealthcompany.org or visit http://www.betterhealthprogram.org/
- **Triple P** (Group or Seminar Series) or other locally available quality parenting programs.
- Healthy lifestyle programs or activities according to local availability.
- Community leisure and recreation services.
- Adult weight management programs (helpful if the parent is concerned about their own weight).
- Parents can be referred to some of the online resources listed further below for additional information and support.

Related internal policies, procedures and guidelines
The following documents can be accessed in the Community Health Manual: Internet link or HealthPoint link
Bullying
Growth birth - 18 years
Growth faltering
Overweight and obesity
Universal contact 4 years (School Entry Health Assessment)

Related internal forms
The following forms can be accessed from the HealthPoint CACH Intranet link
Body Mass Index Boys (CHS430B)
Body Mass Index Girls (CHS430A)
SEHA Results for parents (CHS-409-6A)
SEHA Health Assessment Results (health professional) (CHS – 409-2)

Related internal resources
The following resources can be accessed from the HealthPoint CACH Intranet link
CAH-000994 Tips to support healthy choices (2 - 5 years)
CAH-001025 Keeping children healthy (5-12 years)
Child and Antenatal Nutrition (CAN) Manual - chapter on nutrition for school-aged children
Food For Kids
Health promotion in schools: Healthy eating
Health promotion in schools: Physical activity
How children develop
Newsletter items

Staff development
Royal Children 's Hospital - Growth Charts e-learning package
Talking with parents about children's weight. On-line professional development resource. Better Health Company

Useful external resources
BMI resources
CDC BMI and Percentile calculator for Children and Adolescents (ensure 'metric' selected)
Centers for Disease Control and Prevention. About BMI for Children and Teens
PCH Healthy Weight Service – See *Supplementary support options* for details.
Parenting
Ngala
Positive parenting programs - Triple P
Raising Children Network Navigate for obesity, healthy eating, sleep, physical activity and screen-time related articles
Food and nutrition
Australian Dietary Guidelines
Eat for Health Australian Dietary Guidelines
Go for 2&5 Fruit and veg recipes
Healthy Food For All - Food Sensations program practical nutrition education for schools, adults (families) and communities
Healthy food and drink - Department of Education
Refresh.ED Food & Nutrition Teaching Resources
WA School Canteen Association Healthy lunch box ideas
Why no sweet drinks for children - resource for parents produced by Royal Children's Hospital Melbourne
Physical activity
Department of Health- Nutrition and Physical Activity and Sedentary Behaviour Guidelines. Pamphlets available- 0-5years; 5-12 years; and Families. To order phone 1800 020 103
Nature Play WA Resources for parents and families to encourage kids to get active

outdoors.
Healthy Weight
Live Lighter - Western Australian developed program promoting healthy lifestyles. Whilst the program targets adults, many of the tips, tools, resources and recipes can be used for families with children.
NHMRC Clinical Practice Guidelines for the management of overweight and obesity in adults, adolescents and children in Australia.
Other
Guidelines for Protecting Children 2015 (Revised 2017)

Appendix A: Equipment

Stadiometer/height measurer

- Stadiometer/height measurer to consist of a vertical metric rule, horizontal head piece and a non-compressible flat even surface on which the child stands.
    - Where ever possible, use a pull down headboard that is spring loaded to apply sufficient pressure to compress hair.
- The graduations on the stadiometer/height measurer should be at 0.1 cm intervals and the metric rule should be at least 220 cm
- The head board and surface on which the child stands must be at 90 degrees to the vertical rule. If local service areas select permanent wall mount height measurer, then care needs to be taken to ensure they are mounted accurately and calibrated carefully.

Weight scales

- Digital weighing scales that weigh in increments of 0.1 kilogram (kg) or 100 grams (g) and with the capacity to weigh up to at least 150 kg.
- The weighing scales should be placed on solid level ground such as concrete or wooden floor. Some models have adjustable 'feet' underneath to raise the scales above carpet flooring (follow manufacturer's instructions is using on carpet).
- Scales should be easily zero-balanced and done so before each individual assessment.
- The measurement must be clearly readable under all conditions of use.
- The stable weighing platform must be large enough to support the child. No height devices should be attached because they do not have a stable platform.
- Scales must be calibrated annually (see below procedure)
- Refer to Manufacturer's recommendations with regard to calibration, servicing and transportation of scales

Annual calibration testing of stand-on weight scales

Key points

- Calibration of scales must be conducted annually.
- Manufacturer's recommendations should be followed with regard to transportation, servicing and calibration of scales.
- Scales should be handled with care to ensure accuracy is maintained.
- Scales must be calibrated each time the battery is replaced, and wherever there is professional concern.
- Staff must comply with Area Health Service Occupational Safety and Health guidelines for all manual handling aspects of the scales checking process and adhere to manutention principles to minimise risk of injury.

Equipment

- Standard weights: 2 x 10 kg weights. Additional 10 kg weights as required.

Procedure for annual calibration testing of weight accuracy

Steps	Additional information
1. Test the zero set according to manufacturer's instructions.	This should read zero +/- 1 unit If the scales lowest measure is to 0.01 of a kilogram (10 grams), the zero set should be 0.0 +/- 10 grams
2. Check the accuracy of the 10 kg weight: • Place one 10 kg weight on the scales.	This should read 10.00 kg +/- 50 grams.
3. Check tare function: • With the 10 kg weight still on the scales, press 'tare' operation or 'on/off' button to zero the scales.	This should now read 00.00 kg +/- 10 grams.
4. Check accuracy of 20 kg: • Remove the 10 kg weight and press 'tare' or 'on/off' to reset. • Place two 10 kg weights on the scales.	This should now read 00.00 kg +/- 10 grams. This should now read 20 kg +/- 100 grams.
5. Check accuracy of 30 kg: • With the two 10 kg weights still on the scales, place a third 10 kg weight on the scales.	This should read 30 kg +/- 150 grams.
6. Check accuracy of 40 kg: • With the three 10 kg weights still on the scales, place a fourth 10 kg weight on the scales.	This should read 40 kg +/- 200 grams.
7. Where there is any discrepancy in readings, repeat the test. • If discrepancy persists on retest, the equipment may require replacement. Liaise with line manager.	Record date of check and attach to the back of the scales. Remove batteries during periods of inactivity for periods of 2 weeks or more. Replace batteries (as required) and attach details to back of the scales regarding replacement date.

Appendix B: Risk and protective factors for the development and maintenance of childhood obesity

<table>
<tr><th>GENETIC MAKEUP</th><th>CHILD DIETARY INTAKE</th><th>FAMILY ENVIRONMENT</th><th>PARENTING</th></tr>
<tr>
<td>Risk Factors
Parental Obesity
Ethnicity
Conservative metabolism (tendency to store energy)
Certain rare endocrine disorders (eg. Prader-Willi Syndrome).
Protective Factors
‘Active’ metabolism (tendency to expend energy)</td>
<td>Risk Factors
High intake of energy dense, nutrient poor foods and fluids (e.g. fast foods, soft drinks)
Protective Factors
High intake of low GI foods (e.g. whole grains, legumes)
High intake of dairy foods (e.g. low fat milk, yoghurt)
Eating a healthy breakfast</td>
<td rowspan="2">Risk Factors
Family has few economic resources
Parent lacks nutritional knowledge
Parent does not recognise childhood obesity or is not concerned about it
Parent has unhealthy eating habits (e.g. regular dieting)
Parent has a sedentary lifestyle (e.g. relies on TV for recreation)
Parent works long hours
Energy dense foods are available and easily accessible in the home.

Protective Factors
Parent has an active lifestyle
Meals are eaten as a family
Fruit and vegetables are available and easily accessible in the home
Child has access to safe outdoor playing areas
Parent and child engage joint physical activities
Parent supports access to activity based sessions for child</td>
<td rowspan="2">Risk Factors
Restrictive child-feeding practices (i.e. parent rarely gives child choices about what to eat and how much)
Permissive child-feeding practices (e.g. parent accommodates child’s neophobic responses)
Coercive parenting style (e.g. parent shows anger when child misbehaves)
Inconsistent parenting style (e.g. parents fails to follow through with discipline)
Low self-efficacy (i.e. parent lacks confidence in managing child’s weight related behaviour)
Protective Factors
Parent monitors child food intake and activity patterns
Parent reinforces healthy behaviours (e.g. through praise and modelling)
Parent sets firm limits about food and activity</td>
</tr>
<tr><th>EARLY GROWTH & DEVELOPMENT</th><th>CHILD ACTIVITY PATTERNS</th></tr>
<tr>
<td>Risk Factors
High birth weight
Early adiposity rebound
Formula feeding
Protective Factors
Breastfeeding</td>
<td>Risk Factors
High levels of sedentary activity (e.g. >1hr screen time per day)
Poor sleep patterns (e.g. poor routines or sleep apnoea)
Protective Factors
Physically active for at least 3 hours throughout each day</td>
</tr>
</table>

Adapted from Lifestyle Triple P Facilitator Training Participant Notes. 2009. The University of QLD and Triple P International.

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