



## PROCEDURE

### Height assessment 2 years and over

<b>Scope (Staff):</b>	Community Health
<b>Scope (Area):</b>	Child and Adolescent Community Health (CACH), WA Country Health Service (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](#)

### Aim

To correctly measure, record and interpret the standing height of children aged two years and over.

### Risk

Failure to conduct a height assessment or obtain an accurate height measurement may delay the identification of significant growth deviations for a child.

### Background

Measuring height is a non-invasive procedure that can assist in assessing the overall health and wellbeing of a child.<sup>1,2</sup> When conducted as part of a holistic growth assessment, obtaining height measurements can help to determine whether:

- the child has age-appropriate growth
- a growth deviation is apparent that may indicate an underlying health, developmental or social issue which warrants further assessment, early intervention and monitoring.<sup>3</sup>

For the assessment of growth to be meaningful, serial measurements must be taken and plotted onto a growth chart over a period of time<sup>4</sup>. However, decisions about growth deviations should never be determined solely by these charts.<sup>5</sup> Reviewing growth measurements from previous child health contacts will assist in interpreting overall growth status. Unexpected stasis, or downward or upward movement on the growth chart, indicates the need for further assessment and/or referral.<sup>4</sup>

## Key points

- Community Health Nurses (nurses) are to conduct a height assessment:
  - at the Universal contact 2 years
  - when concerns regarding growth or any other identified risk are raised by a parent/caregiver or Community Health Nurse at a Universal Plus contact (over two years of age) or through the School Entry Health Assessment (SEHA).
- For children over two years of age who can stand unassisted, standing height is to be measured.<sup>6</sup> If the child is unable to stand without support, recumbent length must be used instead.

**Note:** A height measurement is required to calculate Body Mass Index (BMI) during SEHA assessments or any Universal Plus growth assessment conducted in the school health setting. The child must be at least two years old, and standing height must be measured. Routine plotting of height on height-specific growth charts is not necessary in the school setting. For more details, refer to [Body Mass Index assessment](#).

- For children nearing two years of age who are able to stand unassisted, standing height may be measured instead of recumbent length.
- Height assessments are to be performed by nurses with appropriate training and assessment skills. For more information, refer to the CACH [Practice Framework for Community Health Nurses](#) or WACHS [Community Health Nurses Learning Plan](#).
- Suitable [equipment](#) and the correct measuring technique must be used. Inaccurately taking, recording or plotting a height measurement can lead to a misleading growth assessment, clinical misinterpretation and unnecessary concern for parents/caregivers.
- Nurses need to provide a culturally safe service delivery, which demonstrates a welcoming environment that recognises the importance of the cultural beliefs and practices of all clients.
- 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.

## Equipment

- Height must be measured using a non-digital stadiometer, electric height rod (digital stadiometer) **or** a 'pull down' measuring device.
  - Non-digital stadiometers consist of a vertical board with an attached metric ruler (with a range of 220cm) and a moveable horizontal headboard (ideally spring

loaded) that can be brought into contact with the most superior part of the child's head. They must:

- be accurately and firmly mounted on a wall
  - have a wide, stable platform or a firm, uncarpeted floor as the base
  - have an easy-to-read, stable tape or digital readout in 0.1cm increments.
- Electric height rods are designed for free-standing use. The [height rod](#) used in CACH:
    - must be fully unfolded and upright before use
    - provides an automatic height measurement in increments of 1cm.
  - Pull-down height measuring devices must be securely mounted to a wall.
- Refer to the manufacturer's instructions for detailed guidance on the correct setup, installation and use of all equipment.
  - All equipment must be checked to ensure correct installation whenever relocated.
  - All equipment must be cleaned before and after each use (refer to [Medical Devices: Single Use, Single Patient Use and Reusable](#)).

## Procedure

Steps	Additional Information
<b>1. Explanation</b> <ul style="list-style-type: none"> <li>● Explain the height measuring equipment to the child and the parent/caregiver (if present) and how you are going to use it to see how tall the child is. Describe the procedure to them.</li> <li>● Allow sufficient time for the discussion of any concerns.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Child health setting:</b> Encourage parent/caregiver support and involvement with the procedure.</li> </ul>
<b>2. Preparation</b> <ul style="list-style-type: none"> <li>● Ask the child (and assist them if required) to remove their shoes, and any items or hair accessories worn on the head that may interfere with the measurement.</li> </ul>	<ul style="list-style-type: none"> <li>● Cultural beliefs and practices must be considered prior to removing any items worn by the infant/young child. Cultural dress must be noted if it impacts the measurement.</li> <li>● <b>Child health setting:</b> If the child is hesitant, ask the parent/caregiver if you can take their height measurement first.</li> </ul>

Steps	Additional Information
<p><b>3. Preparation and measurement</b></p> <p><b>Prepare the equipment</b></p> <ul style="list-style-type: none"> <li>• <b>Non-digital stadiometer:</b> Ensure the stadiometer is accurately and firmly mounted on a flat, stable wall.</li> <li>• <b>Electric height rod:</b> Unfold the device, <a href="#">install the batteries</a> and switch it on. Confirm it is level using the built-in tilt sensor.</li> <li>• <b>Pull-down device:</b> Ensure the device is securely mounted to a flat, stable wall. Confirm the headpiece is in the lowest resting position before beginning.</li> </ul> <p><b>Position the child</b></p> <ul style="list-style-type: none"> <li>• Position the child under the stadiometer, electric height rod or pull-down device, facing away from the equipment or wall.  <b>Note:</b> Ensure the child stands on a hard, flat and level surface. Avoid using carpeted areas, which can affect the accuracy of the measurement.</li> <li>• Ask the child (and assist if needed) to stand up straight with their: <ul style="list-style-type: none"> <li>○ bare feet close together</li> <li>○ feet flat</li> <li>○ head positioned in the Frankfort Plane (see <a href="#">Additional Information</a>)</li> <li>○ legs straight</li> <li>○ arms at their sides</li> <li>○ shoulders relaxed.</li> </ul> </li> <li>• Ask the child to look straight ahead and take a big breath in and out to relax.</li> <li>• If using a non-digital stadiometer or pull-down device, check the child is standing in the correct position with their head,</li> </ul>	<ul style="list-style-type: none"> <li>• The electric height rod is designed for free-standing use and is equipped with an electronic spirit level and tilt sensor to ensure accurate positioning of the child. <ul style="list-style-type: none"> <li>○ To help preserve battery life, it is recommended to remove the batteries between uses and during transport. Reinstall them before the next use.</li> </ul> </li> <li>• Using a laminated template showing an outline of two feet may help the child to stand in the correct place.</li> <li>• The child's head must be positioned in the Frankfort Plane. As shown in the image below, this 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).<sup>7</sup></li> </ul> <div data-bbox="938 1216 1361 1503"> </div> <p>(Image source: Centres for Disease Control and Prevention, 2017)</p>

Steps	Additional Information
<p>shoulder blades, bottom and heels in contact with the stadiometer or wall.</p> <ul style="list-style-type: none"> <li>If using an electric height rod, the child does not need to stand against a wall. Ensure they are not positioned near furniture or other objects that could interfere with the accuracy of the measurement.</li> </ul> <p><b>Take the measurement</b></p> <ul style="list-style-type: none"> <li><b>Non-digital stadiometer:</b> Bring the measuring device down to rest on the most superior part of the child's head, compressing their hair. Note the height measurement to the nearest 0.1cm.</li> <li><b>Electric height rod:</b> The device will automatically measure using ultrasound technology. Wait for the acoustic signal (beep) confirming the measurement. Read the height on the display (increments of 1cm).</li> <li><b>Pull-down device:</b> Gently lower the headpiece until it rests on the top of the child's head, compressing their hair. Read the height from the indicator line on the rod. Note the height measurement to the nearest 0.1cm.</li> </ul> <p><b>Repeat and confirm the measurement</b></p> <ul style="list-style-type: none"> <li>Ask the child to step away from the equipment and then return to the correct standing position for a repeat measurement.</li> </ul> <p>Take the height measurement a second time. If the two measurements differ by 0.5cm or more, take a third height measurement.</p>	

Steps	Additional Information
<ul style="list-style-type: none"> <li>Using the two closest measurements, calculate the child's average height measurement.</li> </ul>	
<p><b>4. Recording</b></p> <ul style="list-style-type: none"> <li><b>Child health setting</b> <ul style="list-style-type: none"> <li>CACH nurses must use a CDIS assessment screen to record the standing height measurement. The measurement will be automatically plotted on the relevant growth chart.</li> <li>WACHS nurses must enter the standing height measurement in relevant CHIS qualifiers and review it on the appropriate centile chart.</li> <li>CACH and WACHS nurses must note in CDIS/CHIS: <ul style="list-style-type: none"> <li>Whether recumbent length or standing height has been measured.</li> <li>Any factors that may have interfered with the accuracy of the measurement (e.g. if the child is in plaster, a harness or any item that is unable to be removed).</li> </ul> </li> <li>If CDIS/CHIS are temporarily unavailable, the relevant paper-based growth chart must be used to precisely plot the height measurement (see <i>Additional Information</i>). The measurement must be entered into CDIS/CHIS, when available.</li> </ul> </li> <li><b>Primary school setting (SEHA):</b> <ul style="list-style-type: none"> <li>Refer to the <a href="#">Universal contact School Entry Health Assessment</a> for instructions on how to record the measurement, and retain and dispose of SEHA forms.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Age is plotted in completed weeks/months/years, as appropriate.</li> <li>If an unexpected growth trajectory is evident when the measurement is plotted on the relevant growth chart, re-take the measurement to check for accuracy.</li> <li><b>Paper-based recording in the child health setting:</b> <ul style="list-style-type: none"> <li>Plot the measurement on the relevant growth chart: <ul style="list-style-type: none"> <li>World Health Organization (WHO) <a href="#">Height-for-age: 2 to 5 years</a></li> <li>Centres for Disease Control and Prevention (CDC) <a href="#">Stature-for age Percentiles</a>, 2 to 20 years</li> </ul> </li> <li>Where a child is aged two years or over and standing height cannot be measured, measure recumbent length and plot on the relevant growth chart: <ul style="list-style-type: none"> <li>WHO <a href="#">Height-for-age: 2 to 5 years</a></li> <li>CDC <a href="#">Stature-for age Percentiles</a>, 2 to 20 years</li> <li>See <a href="#">Length Assessment 0-2 years</a></li> </ul> </li> </ul> </li> </ul>
<p><b>5. Interpretation</b></p> <ul style="list-style-type: none"> <li><b>Child health setting:</b> <ul style="list-style-type: none"> <li>Interpret the height measurement on the growth chart as part of a holistic growth assessment. Serial</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>For more information about assessing and interpreting growth, refer to: <ul style="list-style-type: none"> <li><a href="#">Body Mass Index assessment</a></li> <li><a href="#">Growth - birth to 18 years</a></li> <li><a href="#">Growth - downward trajectory</a></li> </ul> </li> </ul>

Steps	Additional Information
<p>measurements of height, weight and head circumference must be considered.</p> <ul style="list-style-type: none"> <li>Discuss the findings and growth pattern with the parent/caregiver.</li> </ul> <ul style="list-style-type: none"> <li><b>Primary school setting (SEHA):</b> <ul style="list-style-type: none"> <li>Rather than being a stand alone assessment, height is measured as a component of the BMI calculation. See <a href="#">Body Mass Index assessment</a> for more information.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Length assessment 0 - 2 years</a></li> <li><a href="#">Weight assessment 2 years and over</a></li> </ul> <ul style="list-style-type: none"> <li>Serial measurements showing unexpected changes in the growth trajectories require additional assessment and/or referral.</li> </ul>
<p><b>6. Referral</b></p> <ul style="list-style-type: none"> <li>If concerned about growth, refer the infant/young child to a medical practitioner for further assessment.</li> </ul>	<ul style="list-style-type: none"> <li>For further information about the referral process for static or downward growth, refer to <a href="#">Growth – downward trajectory</a>.</li> </ul>

References
<ol style="list-style-type: none"> <li>Casadei K and Kiel J. Anthropometric Measurement. 2022. Available from: <a href="http://www.ncbi.nlm.nih.gov/books/NBK537315/">www.ncbi.nlm.nih.gov/books/NBK537315/</a></li> <li>Wake SK, Zewotir T and Muluneh EK. Latent growth analysis of children's height growth trajectories. J Dev Orig Health Dis. 2023;14(2):294-301.</li> <li>The Royal Children's Hospital Melbourne. About child growth (E-learning module). No year. Available from: <a href="http://www.rch.org.au/childgrowth">www.rch.org.au/childgrowth</a>.</li> <li>Secker D. Promoting optimal monitoring of child growth in Canada: using the new WHO growth charts. Can J Diet Pract Res. 2010;71(1):e1-3.</li> <li>The Royal Children's Hospital Melbourne. The 10 top things about growth charts. Victoria: The Royal Children's Hospital Melbourne; 2013. Available from: <a href="http://www.rch.org.au/uploadedFiles/Main/Content/childgrowth/10%20top%20things%20about%20growth%20charts_Nov2013.pdf">www.rch.org.au/uploadedFiles/Main/Content/childgrowth/10%20top%20things%20about%20growth%20charts_Nov2013.pdf</a>.</li> <li>World Health Organization. Job-aid - Weighing and measuring a child. Training Course on Child Growth Assessment - WHO Child Growth Standards. 2008.</li> <li>Centres for Disease Control and Prevention. National Health and Nutrition Examination Survey (NHANES) - Anthropometry Procedures Manual. 2017. Available from: <a href="http://wwwn.cdc.gov/nchs/data/nhanes/2017-2018/manuals/2017_Anthropometry_Procedures_Manual.pdf">wwwn.cdc.gov/nchs/data/nhanes/2017-2018/manuals/2017_Anthropometry_Procedures_Manual.pdf</a>.</li> </ol>




Related internal policies, procedures and guidelines
<p>The following documents can be accessed in the CACH Clinical Nursing Manual: <a href="#">HealthPoint link</a> or <a href="#">Internet link</a> or for WACHS staff in the <a href="#">WACHS Policy link</a></p>
<p><a href="#">Body Mass Index assessment</a></p>
<p><a href="#">Growth - birth – 18 years</a></p>



<a href="#">Growth – downward trajectory</a>
<a href="#">Length assessment 0 – 2 years</a>
<a href="#">Physical Assessment 0 – 4 years</a>
<a href="#">Universal contact 2 years</a>
<a href="#">Universal contact School Entry Health Assessment</a>
<a href="#">Universal Plus – Child Health</a>
<a href="#">Universal Plus – School Health</a>
<a href="#">Weight assessment 2 years and over</a>
<b>The following documents can be accessed in the <a href="#">CAHS Infection Control Policies manual</a> on HealthPoint.</b>
<a href="#">Infection Control Policies</a>
<b>The following forms can be accessed from the <a href="#">CACH-Community Health Forms</a> page on HealthPoint.</b>
<a href="#">Body Mass Index – Boys (CHS430B)</a>
<a href="#">Body Mass Index – Girls (CHS430A)</a>
<b>Related external policies and guidelines</b>
<a href="#">Community Health Nurses Learning Plan</a> (WACHS)
<a href="#">Nursing and Midwifery Board AHPRA Decision-making framework</a>
<b>Related internal resources (including related forms)</b>
<a href="#">How Children Develop – 0 -12 years Resource</a>
<a href="#">Practice Framework for Community Health Nurses</a> (CACH)
<b>Related external resources (including related forms)</b>
<a href="#">CDC Stature-for-age percentiles, 2 to 20 years</a>
<a href="#">WHO Height-for-age (Girls) 2 to 5 Years</a>
<a href="#">WHO Height-for-age (Boys) 2 to 5 Years</a>
<a href="#">WHO Length-for-age (Girls) Birth to 2 years</a>
<a href="#">WHO Length-for-age (Boys) Birth to 2 years</a>



This document can be made available in alternative formats on request.

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## Healthy kids, healthy communities

Compassion

Excellence

Collaboration

Accountability

Equity

Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital