

Implementing Routine Growth Assessment of Children

A Toolkit for Local Health Districts

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Disclaimer: This document is not intended for public use or publication. As local facilities may vary, this toolkit should only be used as a guide to assist Local Health Districts implementing routine growth assessments in children. No comments on specific products or the omission of others represent the views of either the Sydney Children’s Hospital Network nor the NSW Ministry of Health.

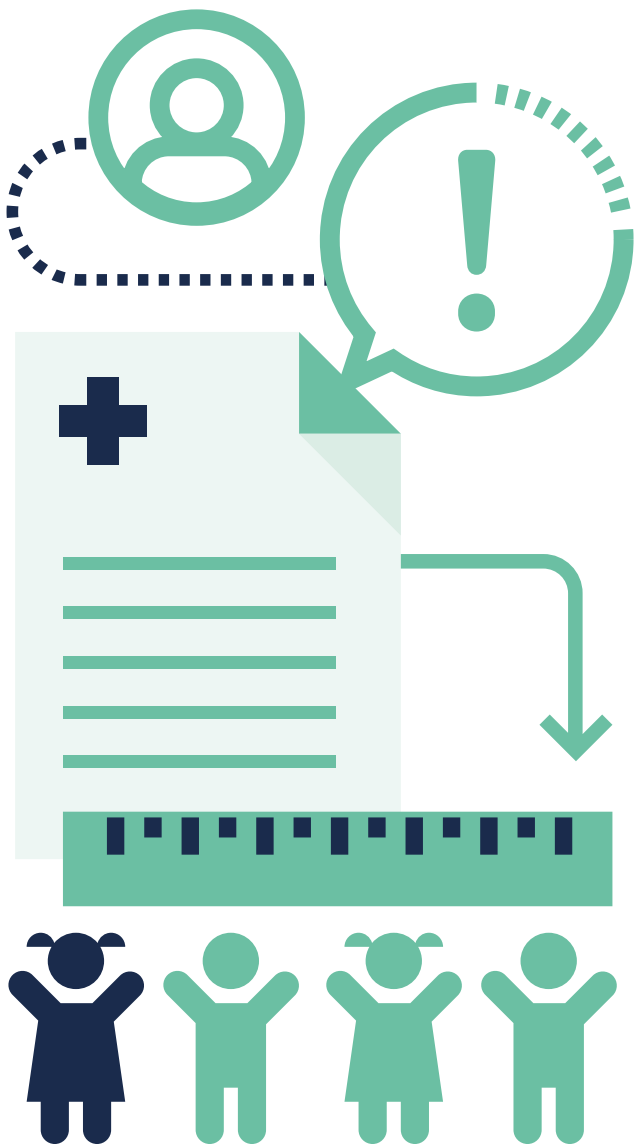
NSW Ministry of Health 2018

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Background

Childhood overweight and obesity is a major public health issue, with **more than one in four Australian children above a healthy weight**. Without intervention, over 80 per cent of these children go on to become adults who are above a healthy weight.



More than one in four
Australian children is
above a healthy weight

To address this, **all children who come into contact with NSW Health facilities are now required to have their growth assessed** on a routine basis. This applies to children attending inpatient, outpatient and community settings. To perform a growth assessment, clinicians need to measure a child's height/length and weight, and enter these measurements into the electronic medical records (eMR) at least once every three months (every 90 days).

Routinely measuring a child's height/length and weight allows staff to **identify when a child is above (or below) a healthy weight, offer parents/carers brief advice, and if appropriate, refer the family to a secondary or tertiary weight management service**. This practice represents good clinical care. It also allows intervention to occur early if the child's growth trajectory is deviating away from a healthy weight.

The *Nutrition Care Policy* has been updated to support routine growth assessments of children in NSW Health settings. As part of a new **Service Measure**, the proportion of children with a service encounter who have their growth assessed and recorded in the eMR will be monitored and reported each quarter.

Purpose of this toolkit

This toolkit is designed to give local health district (LHD) staff practical information and resources to help embed children's growth assessment as part of routine clinical practice.

There are five key steps



Step 1

Engaging stakeholders



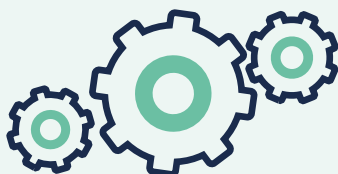
Step 2

Reviewing equipment and setting up measurement stations



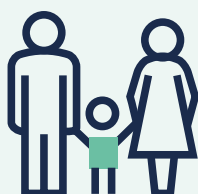
Step 3

Educating and training staff



Step 4

Piloting and rolling-out routine growth assessment



Step 5

Understanding and improving options for children who need referral

A checklist summarising the steps to implement growth assessment of children in LHDs can be found in Appendix A.



NOTE:


Before starting out, consider appointing a **dedicated project officer or project coordinator**, even in a part-time capacity. This person would have a key role in developing, implementing and evaluating related activities, with the support of clinical champions and managers.

Step 1: Engage stakeholders



To begin routinely assessing and recording children's growth in your LHD, consider which stakeholders can help support and embed this practice. You may be able to identify staff with an interest in childhood overweight and obesity who can serve as **'clinical champions'** of this practice.

Consider seeking clinical champions from the following areas:

	Medical
	Nursing
	Allied health
	General practice, if you have general practitioners employed in your LHD.

It can be useful to set up a **local steering committee** to direct and support this work in your LHD, including clinical champions. The steering committee can:

- provide expert clinical, strategic and risk management guidance
- promote routine growth assessment to staff
- help identify barriers to routine growth assessment in the LHD, such as issues with equipment or resources
- promote relevant training to staff
- monitor implementation of routine growth assessment
- give feedback to managers about progress
- seek advice and support from other stakeholders, such as the Ministry of Health and other LHDs as required.

Appendix B provides a Terms of Reference example for a local steering committee.



NOTE:

It is important to harness the support of your **local senior clinicians and managers** at commencement, and for the duration of the project. All LHD chief executives are aware of the need to perform routine growth assessment of children and the associated service agreement improvement measure. Use the senior executive who has been nominated by your chief executive to take carriage of this project to harness local support. If needed, the Ministry of Health (the Ministry) can also support you to engage clinicians and managers in this work.

Step 2:

Assess your equipment needs and set up measurement stations



Review equipment

To accurately assess a child's growth you will need to have appropriate measurement equipment, so it is important to **review all existing equipment in the LHD**. This review will allow you to establish if any equipment needs servicing or replacement, and if you need to purchase any additional equipment. The review should involve:

- all scales and stadiometers
- equipment asset logs and recent calibration history
- the accuracy and calibration of height/length and weight equipment with fixed measures
- the condition and location of equipment

Appendix C provides an example equipment review document for an inpatient setting.

Purchase equipment

If you need to replace existing equipment, or purchase additional equipment, it can be helpful to identify an **experienced local procurement officer**. Before purchasing new equipment, it is vital to consider the requirements of the clinicians and patients and practical factors such as the space available in different settings, the level of use they will have and the ages of the children using the equipment. Some common considerations include:

- whether a combined scale and stadiometer should be purchased, to improve the ease and efficiency of the measurement process
- a lightweight battery operated infant scale is more appropriate when bench space is limited
- for patients who are less than 2 years, scales should allow measurement in kg to within 100g
- fixed board infant length measures provide the most accurate measurement of a child's length, however they are not as portable as the roll-up type for bedside use
- consider purchasing scales with a weight capacity of >150kg and a platform size for clients above a healthy weight with wide gait
- areas that require hoists should consider a weight capacity up to 200kg.

Appendix D provides a list of recommended paediatric measuring equipment.

Set-up measurement stations

Based on the findings of your equipment review, you can determine whether the existing measurement stations in your LHD are well set-up and located, or if they would be better re-configured. **Measurement station re-configuration or set-up will involve:**

- nominating a staff member from each clinical area to lead this work
- identifying the clinical work flow that best supports routine height/length and weight measurement in infants and children and timely entry of these measurements into the eMR
- placing appropriate equipment in the configuration that best supports this work flow
- providing the *8 for a healthy weight* resource and the colour body mass index (BMI)-for-age charts for boys and girls in a wall-mounted or readily accessible location.

It can be useful to include **resources for staff** in measurement stations. Guides to accurately measuring a child's height/length and weight and calculating weight status have been developed. **The Guide to accurately measuring the height of a child** and **Guide to accurately measuring the length of a child** can be downloaded from the Healthy Kids for Professionals website (<https://pro.healthykids.nsw.gov.au/resources/>).

You may also wish to display a **promotional poster** designed to make staff, parents/carers and children aware of the requirement to assess children's growth as part of normal clinical care. This poster can also be downloaded from the Healthy Kids for Professionals website.



Example of a well set up measurement station

Step 3: Educate and train staff



Free online training is available to help staff confidently perform growth assessments of children. This training has been developed in consultation with parents/carers and clinicians. It covers three key topics: how to assess a child's growth, how to advise parents/carers if a child is above a healthy weight and how to arrange referrals for a child above a healthy weight.

Assess

The first step in training needs to give staff information about how to accurately measure children's height/length and weight and to calculate weight status. This step needs to inform staff about:

- correctly using the equipment in the measurement station to measure height, length and weight
- correctly entering measurements into the eMR
- correctly calculating or identifying a child's BMI and determine the child's weight status:
 - below a healthy weight (below the 5th percentile)
 - healthy weight (5th to below the 85th percentile)
 - above a healthy weight (85th percentile to below the 95th percentile)
 - well above a healthy weight (95th percentile and above)

Advise

The second step in training needs to give staff information about how they can advise parents/carers about a child's weight status using sensitive, non-stigmatising and engaging language. Staff sometimes report anxiety about raising the issue of a child's weight and identify this as the most challenging aspect of service delivery. Training can give staff the confidence to discuss a child's weight status with families, and to provide brief advice, immediately after they have conducted the growth assessment.

Arrange

The third step in training needs to give staff information about existing referral pathways. This training needs to outline the services available to children above a healthy weight so that staff can refer children and their families for ongoing support, if required. There are a number of services children above a healthy weight can be referred to. Current services are described in Step 5. It is also important for staff to be aware of any local referral services in their LHD.



Free online training - Weight4KIDS

The topics described under 'Assess', 'Advise' and 'Arrange' are covered in the online **Weight4KIDS** education module. This free training can be completed on the Healthy Kids for Professionals website. It can also be completed on the HETI portal, which enables staff to obtain continuing professional development credit. Go to:

- **Weight4KIDS on HETI**
(<http://www.heti.nsw.gov.au/>)
for CPD credit
- **Weight4KIDS online learning modules**
(<https://pro.healthykids.nsw.gov.au/online-learning/>)

Staff in LHDs may also want to consider complementing online training with face-to-face training delivered by your local clinical champions.

Free downloadable resources

In addition to the resources already described, the following print-ready resources can be accessed online for free:

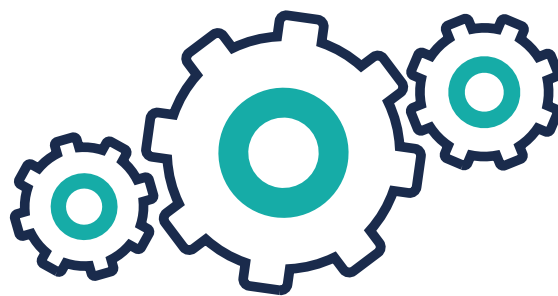
- Clinical **flow chart** for weight assessment and management of children above a healthy weight
- Colour-coded **BMI-for-age percentile charts** for **boys** and **girls** (CDC 2000). These charts have been further developed by clinicians with sensitive language tested with children and families, and can be used to raise the issue of weight with families

Resources to help staff discuss a child's weight status with their family include:

- Conversation starters (<https://pro.healthykids.nsw.gov.au/conversation-starters/>)
- **'8 for a healthy weight'** resource (available in several languages) and the **"Healthy habits and healthy weight"** fact sheet to support staff in having conversations about healthy family lifestyles.

Step 4:

Pilot and roll-out routine growth assessment in children



Once staff have received necessary training, it can be useful to **pilot the implementation of growth assessments in one clinical area**, before rolling out on a larger scale.

To conduct a pilot, consider:

- identifying an area where you can partner with a **strong clinical champion** who will help you gain the support of the staff and managers within the area
- using this pilot to identify and address any **local barriers**
- further refining the **clinical workflow** if needed, based on the results of the pilot

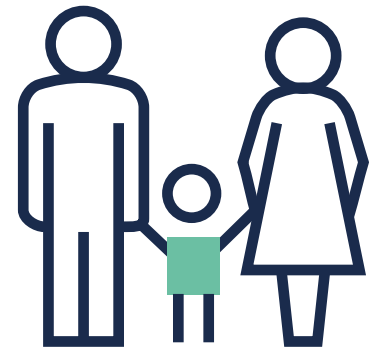
Use data to provide feedback on performance

The height/length and weight measurements staff enter into the eMR are extracted locally each quarter by the Ministry. The Ministry uses this to prepare quarterly performance reports for each LHD, to allow monitoring against the improvement measure target. These reports show how often children's growth is being recorded at a clinic/ward level. These reports can help staff **identify where high numbers of children are seen**, and where additional training, resources, or other support may be required to boost performance of routine growth assessments.

In addition to using data to monitor and provide feedback on local performance, improvement could be supported and sustained by:

- developing processes that capture **staff feedback**
- developing local processes to provide more **timely clinical feedback**

Step 5: Establish and strengthen referral pathways



Referring children above a healthy weight to support services may be necessary to help them achieve or maintain a healthy weight status. Currently a **range of referral services exist to support children above a healthy weight**. In all cases, children identified as above a healthy weight should be **referred back to the child's primary care provider** (general practitioner).

Other referral services can be considered, depending on the child's age and weight status.

Free statewide programs

NSW Health offers two free state-wide programs that accept referrals from clinicians or directly from children/families. They are:



Healthy • Active • Happy • Kids

- **Go4Fun**® (10 week community-based lifestyle program for **children aged 7-13 years**, and an **online version** for children who may have difficulty accessing a face-to-face program)



- **Get Healthy Information & Coaching Service** (a telephone-based coaching service for people aged **16 years and over**. This service may be particularly useful to refer parents/carers of children who are not old enough for the Go4Fun® program).

Secondary weight management clinics

Dedicated secondary weight management services receive **referrals from clinicians only**. There are a number of dedicated public secondary child weight management services in NSW:

- Hornsby Healthy Kids
- Westmead Dietitian services
- Sydney Local Health District Family-focused Healthy Lifestyle Service
- John Hunter Children's Hospital Weight Management Service
- Nepean Family Obesity Service

Referral forms and further information available at <https://pro.healthykids.nsw.gov.au/arrange/>

In addition, many LHDs have general dietitian services who will accept referrals of children who are above a healthy weight.

Tertiary weight management clinics

Tertiary weight management services receive **referrals from paediatricians only**. There is one service in NSW:

- Sydney Children's Hospital Network Weight Management Clinic

Further information about these services can be found on the Healthy Kids for Professionals website (<https://pro.healthykids.nsw.gov.au/arrange/>).

LHDs may also need to consider whether there is a need to establish or expand a local secondary weight management service for children above a healthy weight. If this is identified as a need, the guide: *Developing a case for funding secondary paediatric weight management services* is available to assist you.



NOTE:

Make it routine to provide information about the child's weight status to the child's primary care provider. The primary care provider can facilitate continuity of care for children above a healthy weight. Referrals can be made to primary care clinicians and vice-versa if there is a public secondary weight management service in your LHD. **Consider routine identification of child's weight status in discharge letters** and taking measures to strengthen relationships with your local primary care clinicians and organisations, such as primary health networks.

Appendix A LHD Checklist: Implementing Routine Growth Assessment of Children

Step 1: Engage stakeholders

Senior managers and your LHD's Executive

Clinical champions from medical, nursing, allied health and general practice

Step 2: Set-up measurement stations

Review existing equipment, location and configuration

Purchase new equipment if required

Review and streamline child measurement clinical work flow

Set-up well-configured measurement stations in all settings that see children

Step 3: Educate and train all staff who care for children

Train staff to accurately and confidently 'assess', 'advise' and 'arrange'

Use the free Weight4KIDS online learning modules

Identify and prioritise training for staff who see a lot of children

Use local clinical champions to deliver additional face-to-face training

Step 4: Pilot and roll-out routine growth assessment in children

This includes routine height/length and weight measurement, weight status assessment, electronic recording of measurements, discussing a child's weight status with parents/carers and referral where appropriate

Pilot in a specific area, and refine the approach based on the pilot experience before rolling out further

Use service measure data to monitor and provide feedback on local performance

Develop local processes to improve and sustain performance over time

Step 5: Understand and strengthen referral pathways

Implement routine referral to Go4Fun® (7-13 years) and Get Healthy Information & Coaching Service (16 years and over) and embed into the eMR

Consider your LHD's capacity to develop or expand a secondary child weight management service

Develop and strengthen links with primary care

Consider routine inclusion of children's weight status in discharge letters

Appendix B:

Example Terms of Reference for a local steering committee

1. TITLE

Premier's Priority to Reduce Childhood Obesity implementation group.

2. PURPOSE

To oversee implementation of routine height/length and weight assessment and clinical service delivery in the

3. OBJECTIVES

- Provide expert clinical and strategic advice and guidance.
- Assist in resolving issues and barriers to implementation, such as resourcing and equipment issues.
- Provide expert advice, guidance and manage risk.
- Ensure alignment to related child health policies and guidelines.
- Promote the importance of initiatives to all staff.
- Mandate policies to ensure staff complete online training related to routine height/length and weight measurement, and managing children who have been identified as being above a healthy weight.
- Support the development of referral pathways and the development of new paediatric weight management services.
- Monitor implementation and performance with the service measure, and provide feedback and measurement data to managers and staff.
- Seek advice and support from other stakeholders, such as the NSW Ministry of Health and other LHDs, as required.

4. MEMBERSHIP

Chief Executive
General Manager/s
Site Manager
Director, Operations
Director, Nursing and Midwifery
Director, Clinical Governance
Director, Allied Health (Dietetics)
Director, Health Promotion
Head Paediatrician
Nurse Manager, Child and Family Health
Project Officer, Clinical service delivery for childhood overweight and obesity (new position)

5. QUORUM REQUIREMENTS

The quorum is 50% + one

6. MEETING FREQUENCY

Monthly

7. CHAIR/SECRETARIAT

Chief Executive and Director, Clinical Operations

8. REVIEW ANNUALLY

Date endorsed:

Appendix C:

Example equipment review for an inpatient setting

To support weight and height/length assessment, the district is conducting a review to determine the current availability of weighing scales and height equipment within our facilities and services.

We want to ensure that any gaps in equipment required to meet the policy requirements are identified.

Facility name (e.g. hospital)

Name of clinical unit

Date the audit is being completed

Name of the person completing this

Job title of the person completing this

DEMOGRAPHICS

1. Age (Please mark all that apply)

0-1 years 2-17 years ≥ 18 years

2. Describe the average mobility of your patients

We are asking this question to understand your equipment needs (Please mark all that apply)

Independent

Independent with aid (requires assistance from 1 person)

Independent with aid (requires assistance from 2 people)

Wheelchair

Other, please describe:

SCALES (for measuring weight)

3. Do you have scales for measuring weight?

Yes, go to Q5 and if there is more than one set of scales, please use additional columns

No, go to Q4

4. How do you measure weight? (Please mark all that apply then go to Q17)

We don't measure weight

We find a set of scales elsewhere and/or take patient to scales elsewhere

Ask patient their recent weight

Health professional estimates weight

Other, please describe:

5. For each set of scales please complete the following

Please indicate the type of scales

Scale 1	Scale 2	Scale 3	Scale 4
Infant scales	Infant scales	Infant scales	Infant scales
Floor	Floor	Floor	Floor
Chair	Chair	Chair	Chair
Hoist	Hoist	Hoist	Hoist
Other, please describe	Other, please describe	Other, please describe	Other, please describe

6. Please list the MAKE and MODEL of the scales

e.g. Make: Seca, Soehnie, Wedderburn / Model: WM302

Scale 1	Scale 2	Scale 3	Scale 4
---------	---------	---------	---------

7. Are the scales appropriate for the patients using them?

e.g. if you see babies, are there infant scales or do you have chair scales if you see frail patients or those with limited mobility

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No
If no, please explain why not	If no, please explain why not	If no, please explain why not	If no, please explain why not

8. If the scales are used for patients ≥ 2 years, do the scales allow measurement in kg to within 100g?

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No
N/A	N/A	N/A	N/A

9. If the scales are used for patients 0-2 years, do the scales allow measurement in kg to within 10g?

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No
N/A	N/A	N/A	N/A

10. What is the MAXIMUM weight these scales can go to in kilograms?

Scale 1	Scale 2	Scale 3	Scale 4
---------	---------	---------	---------

11. Is the maximum weight clearly labelled?

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No

12. When was the last time these scales were calibrated?

If you don't know, leave this blank

Scale 1	Scale 2	Scale 3	Scale 4
---------	---------	---------	---------

13. Is the calibration date clearly labelled?

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No

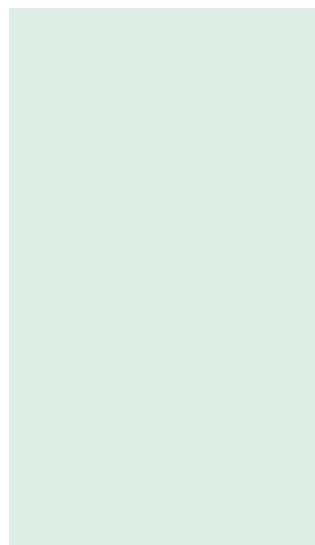
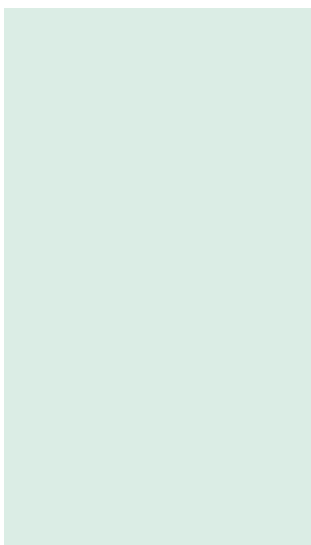
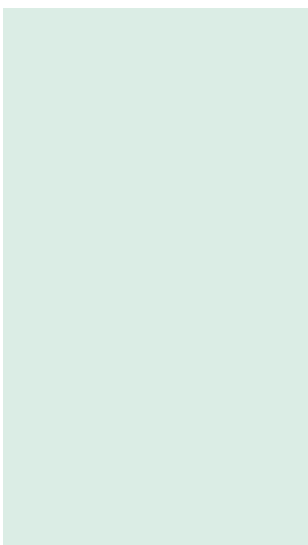
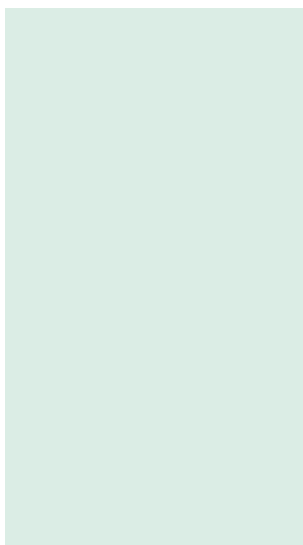
14. Are these scales in an accessible location?

Scale 1	Scale 2	Scale 3	Scale 4
Yes	Yes	Yes	Yes
No	No	No	No
If no, please explain why not	If no, please explain why not	If no, please explain why not	If no, please explain why not

15. Please indicate the location of the scales (open area, own room, room with privacy)

Scale 1	Scale 2	Scale 3	Scale 4
---------	---------	---------	---------

16. Please insert a photo of the scales, if possible

Scale 1	Scale 2	Scale 3	Scale 4
			

STADIOMETER/S

(equipment for measuring height and length)

17. Do you have access to a stadiometer/s (height or length measuring equipment)?

Yes, go to Q19 and if there is more than one stadiometer, please use additional columns

No, go to Q18

18. How do you measure height?

Please mark all that apply. **(You have then completed the equipment review).**

We don't measure height

We find a stadiometer elsewhere and/or take patient to a stadiometer elsewhere

Ask patient their recent height

Health professional estimates height

Other, please describe:

19. For each stadiometer please complete the following

Please indicate the type of stadiometer

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
Mounted on wall	Mounted on wall	Mounted on wall	Mounted on wall
Free standing	Free standing	Free standing	Free standing
Part of the scales	Part of the scales	Part of the scales	Part of the scales
Supine (for length)	Supine (for length)	Supine (for length)	Supine (for length)
Other, please describe	Other, please describe	Other, please describe	Other, please describe

20. Please list the MAKE and MODEL of the stadiometer

e.g. Make: Seca, Wedderburn / Model: WS220S

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
---------------	---------------	---------------	---------------

21. Is the stadiometer appropriate for the patients using it?

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
Yes	Yes	Yes	Yes
No	No	No	No
If no, please explain why not	If no, please explain why not	If no, please explain why not	If no, please explain why not

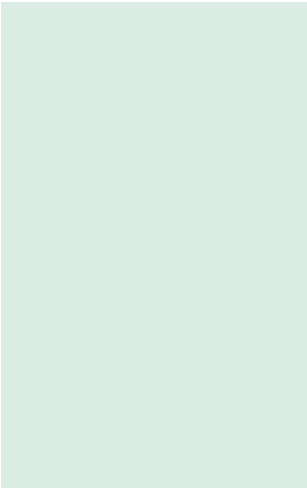
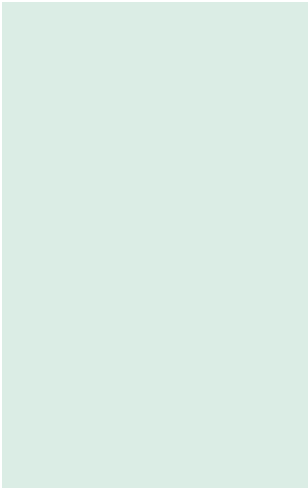
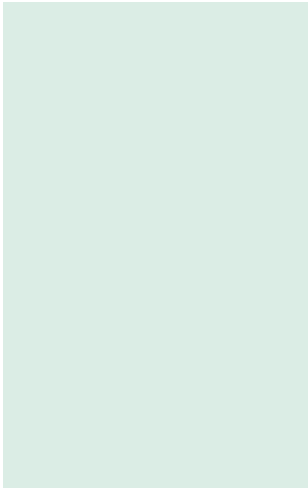
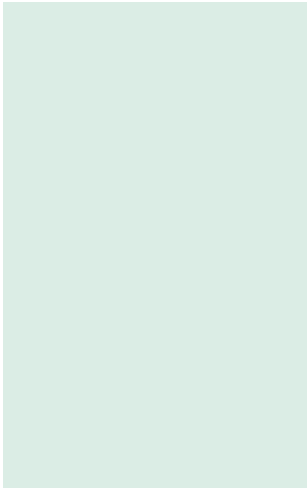
22. Does the stadiometer allow measurement in cm to within 0.1cm?

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
Yes	Yes	Yes	Yes
No	No	No	No

23. Is the stadiometer assembled and/or mounted correctly?

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
Yes	Yes	Yes	Yes
No	No	No	No

24. Please insert a photo of the stadiometer, if possible

Stadiometer 1	Stadiometer 2	Stadiometer 3	Stadiometer 4
			

WORK FLOW

25. Are the scales and stadiometer located in close proximity (within 2 metres)?

Work flow 1	Work flow 2	Work flow 3	Work flow 4
Yes	Yes	Yes	Yes
No	No	No	No
If no, please explain why not	If no, please explain why not	If no, please explain why not	If no, please explain why not

26. Does the location of the scales and stadiometer promote efficient work flow?

i.e. is it easy to obtain measures

Work flow 1	Work flow 2	Work flow 3	Work flow 4
Yes	Yes	Yes	Yes
No	No	No	No
If no, please explain why not	If no, please explain why not	If no, please explain why not	If no, please explain why not





Additional comments:

Thank you for completing the equipment review





Appendix D:

List of recommended paediatric measuring equipment

The equipment list in this document was compiled by Sydney Children's Hospital Network. As local facilities may vary, this document should only be used as a guide. No comments on specific products or the omission of others represent the views of either the Sydney Children's Hospital Network nor the NSW Ministry of Health.

Standing scales with incorporated stadiometer			
Seca 284	Seca 286	Seca 703s	Wedderburn WM205H
\$2,500	\$3,400	\$1,500	\$1,500
Capacity			
300kg/30-220cm	300kg/60-210cm	300kg/230cm	250kg/110-200cm or 90-165cm
			
+ Pros			
<ul style="list-style-type: none"> • Low profile platform • Levelling feet adjusters with locks 	<ul style="list-style-type: none"> • Low profile platform • Levelling feet adjusters with locks 	<ul style="list-style-type: none"> • Stable 	<ul style="list-style-type: none"> • Head piece sturdy • Auto weight-lock function on stable weight
✗ Cons			
<ul style="list-style-type: none"> • Have to press hold button when measuring height • Difficult holding head and pressing button to record reading • Battery life of head piece on high use • Head piece powers on separately to base • Adjustment clip on back of head unit may become fragile in high use areas • Need to press hold button to lock weight • Head piece loosens and requires Allen (hex) key adjustment • Power adaptor may be prone to break (must use SECA) 	<ul style="list-style-type: none"> • Ultrasonic stadiometer unable to measure stretched height • Cost 	<ul style="list-style-type: none"> • Height stick not mounted at correct height • Head piece is stiff to adjust • No digital input of height measure • Head piece faces backward • Platform size is small which may be unsuitable in obesity clinics • Need to press hold button to lock weight • Location of measurement point is not clear on device which can lead to 5cm discrepancy in reading. 	<ul style="list-style-type: none"> • Standard power adaptor too short - request longer if purchasing • Preferred model by staff in four clinical areas who participated in a pilot project at Children's Hospital Westmead
Paediatric use implications			
<ul style="list-style-type: none"> • Tempered glass platform may be slip hazard in paediatric areas • Possibility of glass platform breaking 	<ul style="list-style-type: none"> • Child compliance with auto measure 	<ul style="list-style-type: none"> • Head piece may be prone to break 	<ul style="list-style-type: none"> • May need additional stadiometer available in areas that cross over from shorter to taller children • Can purchase height rod in one of two positions : 90-165cm or 110 -200cm





Flat weight scales			
WM206 (Wedderburn)	TIWB110AZS (Wedderburn)	Seca 876	Seca 813
\$	\$545	\$580	\$350
250kg	270g	250kg	200kg
Capacity			
Power and AA batteries	Power and AA batteries	AA batteries	AA batteries
5kg/338mm (W) x 328mm (D) x 70mm (H)	5.1kg/336mm (W) x 300mm (D) x 80mm (H)	4.2kg/321mm (W) x 356mm (D) x 60mm (H)	2.6kg/ 433mm (W) x 373mm (D) x 47mm (H)
			

Infant scales with length measure		Infant scales	
Seca 374	Seca 334	Seca 727	Wedderburn WM101
\$810	\$675	\$1,800	\$810
Capacity			
20kg	20kg	20kg	15kg
			


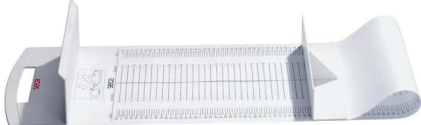

+ Pros			
<ul style="list-style-type: none"> • Head and foot locator 	<ul style="list-style-type: none"> • Head and foot locator • Measurement dependant on placement location of infant on tray 	<ul style="list-style-type: none"> • Measurement is <i>not</i> dependant on placement of infant on tray • Accurate for finer measures and long lasting • Portable 	<ul style="list-style-type: none"> • Robust metal

✗ Cons			
<ul style="list-style-type: none"> • Battery adaptors may be prone to break and batteries can be difficult to replace • Plastic back mount on infant measure may warp and be prone to break over time • Load cell on scale may fail over time (2-3 years) in high use areas 	<ul style="list-style-type: none"> • Battery adaptors may be prone to break and batteries can be difficult to replace • Plastic back mount on infant measure may warp and be prone to break over time • Load cell on scale may fail over time (2-3 years) in high use areas 	<ul style="list-style-type: none"> • More expensive than other models 	<ul style="list-style-type: none"> • Auto weight-lock function on stable weight

Paediatric use implications			
<ul style="list-style-type: none"> • Short life span 	<ul style="list-style-type: none"> • Short life span 	<ul style="list-style-type: none"> • Not portable • Adhesive length measuring tape cannot be used to accurately measure length (a head and foot locator is needed) 	<ul style="list-style-type: none"> • Feet are the balances, if damaged measurements are inaccurate • Rough tray surface may cause cleaning issues (cannot use alcohol wipes on tray) • Measurements may be different on power to battery

Chair scales		Wheelchair scales	
Seca 954	Wedderburn WM401	Seca 676	Wedderburn WM501
\$2,500	\$1,400	\$4,100	\$2,100
Capacity			
300kg	250kg	360kg	300kg
			
+ Pros			
<ul style="list-style-type: none"> • Front wheels fixed • Wheel locks • Arms fold for patient transfer 	<ul style="list-style-type: none"> • All wheels rotate • Wheel locks • Arms fold for patient transfer • Auto weight-lock function on stable weight 	<ul style="list-style-type: none"> • Handrail and transport castors • Can weigh sitting or standing plus in wheelchair 	<ul style="list-style-type: none"> • Hand rail weighing either standing, with a walker, in wheel chairs or on a stationary chair • Collapsible hand rail, two lift handles and wheels at the rear of weigh platform for storage • Auto weight-lock function on stable weight • Weight hold and last weight recall function
✗ Cons			
<ul style="list-style-type: none"> • Fixed front wheels – may cause problems manoeuvring • Weight function may fail over time (approx. 2 years) 		<ul style="list-style-type: none"> • May require repairs after approx. 2 years use • Not portable 	<ul style="list-style-type: none"> • Not portable

Stadiometers					
Holtain	Seca 216	Seca 222	WS220 (portable)	Seca 213 (portable)	Seca 217 (portable)
Approx. \$4000	\$280	\$300	\$315	\$250	\$470
Capacity					
60-210 cm	230cm	230 cm	200cm (model WS222S up to 230cm)	20-205cm	20-205cm
					
+ Pros					
<ul style="list-style-type: none"> Accurate Stable Reliable for stretched height 	<ul style="list-style-type: none"> Wall mounted 	<ul style="list-style-type: none"> Wall mounted Heel positioner 	<ul style="list-style-type: none"> Portable (weighs 4kg) 	<ul style="list-style-type: none"> Portable (weighs 2.4kg) 	<ul style="list-style-type: none"> Portable (weighs 3.8kg) Seca 876 scale adapts to base
✗ Cons					
<ul style="list-style-type: none"> Counter reader is prone to breaks and can be expensive to replace Poor availability of parts in Australia Cost 	<ul style="list-style-type: none"> No heel locator 		<ul style="list-style-type: none"> May be less stable than wall mounted device 	<ul style="list-style-type: none"> Not tested 	<ul style="list-style-type: none"> Not tested

Infant measures		
Seca 416	Seca 210 Mat	Wedderburn WM601 Mat
\$740	\$125	\$145
		
+ Pros		
<ul style="list-style-type: none"> 330-1000mm, 1mm graduations Mechanical read (indicator window on the foot slider for each measurement read) Automatic brake locks length measurement (useful if infant is restless) Head and foot locator 	<ul style="list-style-type: none"> 100-990mm, 5mm graduations Can be rolled up for easy storage and transportation Easy to clean Head and foot positioner 	<ul style="list-style-type: none"> 100-990mm 5mm graduations Can be rolled up for easy storage and transportation Easy to clean Head and foot positioner
✗ Cons		
<ul style="list-style-type: none"> Plastic Need permanent surface for storage 		

