

## Appendix D

### Special Considerations for Length/Height Measurement

#### 1. Vertical Plane<sup>7</sup>

If the child cannot easily place their head, scapulae, buttocks, and heels in one vertical plane, (i.e. a child above a healthy weight) a minimum of two contact points (the back of the head and buttocks, or the heels and buttocks) should be in contact with the wall or vertical surface of the measuring device with the trunk vertical and balanced over the waist. Record the points of contact.<sup>7</sup>

#### 2. Measuring a Child with Leg Length Asymmetry<sup>7</sup>

If the child has leg length asymmetry, the child should stand on the longer leg with the shorter leg supported by a block or wedge of suitable height until the pelvis is level and both knees are fully extended. When measuring length, keep the legs together and measure to the heel of the longest leg. Record the presence of leg length asymmetry.

#### 3. Measuring a Child Wearing a Cultural headpiece

- a) Sikh children aged up to 11 years often have topknots rather than turbans. In children with topknots, the measuring arm of the stadiometer can be placed to one side of the topknot to obtain a reading.
- b) If the head covering does not fit close to the head, such as a turban, choose an alternative means of measuring height, such as upper arm length.
- c) Record the method used to obtain height measurement

#### 4. Measuring height in children with physical disabilities

If measurement of standing height of a child with a disability is not possible, the following methods are recommended:

- a) In children without contractures but who are non ambulatory, use full body recumbent (supine) length. The child should be positioned on an infantometer or a recumbent length board made for this purpose. A tape measure should not be used to measure length of infants or children due to poor reliability.<sup>7</sup> Measure to the nearest 0.1cm, **subtract 0.7cm** to convert to height and immediately record.<sup>6</sup>
- b) If recumbent length is measured in a child with spasticity, contractures, and/or other musculoskeletal abnormalities, measure the side of the body that is unaffected or less affected and that can be extended the fullest. Record the side measured and the presence of spasticity, joint contractures, and/or other musculoskeletal abnormalities.
- c) If the child has severe contractures, spasticity or scoliosis or is too heavy to be lifted from wheelchair, upper arm length may be used to track growth in height over time. Refer to **5. Upper Arm Length (UAL)** method below. This measurement should be taken by a trained individual to help minimize error.

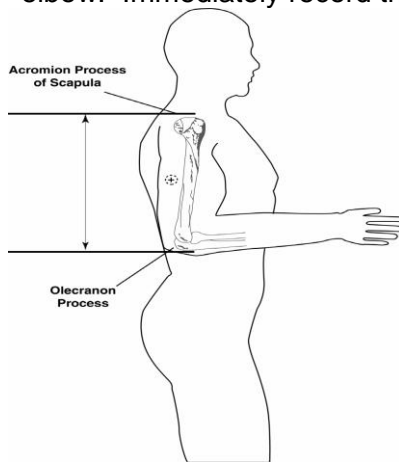
## 5. Upper Arm Length (UAL):

- a) Upper arm length can be used to estimate height in children who have significant lower leg involvement or have their knee, hip or ankle at a 90 degree angle and therefore cannot be measured in a recumbent position.
- b) The child should face away from the measurer.
- c) The right arm should be bent at a 90 degree angle at the elbow with the right palm facing up.
- d) Mark the measurement site: Locate the end of the spine of the right scapula by following the scapula out to the arm until it makes a sharp V-turn to the front of the body. Using the cosmetic pencil, make a horizontal line on the uppermost edge of the posterior border of the spine extending from the acromion process.



Marking spine extending  
from acromion process  
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- e) Hold the zero end of the measuring tape at this mark and extend the tape down the posterior surface of the arm to the tip of the olecranon process, the bony part of the mid-elbow. Immediately record the length to the nearest 0.1 cm.



Correct tape placement for UAL  
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- f) In order to plot the child on a growth chart, use the following equation to convert upper arm length to height:  $(\text{standing ht}) = (4.35 \times \text{UAL in cm}) + 21.8$ .

\*If other proxy measurements of height are desired (knee height, tibia length, crown to rump, etc., these should be performed by a trained clinician.