

Healthcare professional/ carer guide - How to complete MUST alternative measurements – Ulna length

- Ulna length is an estimation of height. It is **not** an accurate measure of height
- **Ulna length** should be used only when:
 - It is not possible to measure height or to obtain height by recall **OR**
 - Recalled height does not match patients appearance

① To measure ulna length – Complete this once, on admission

- Ensure the patients **left arm** is bare from palm to elbow
- Ask the patient to **cross their left arm across their chest** (as in this picture)
- **Measure** between the point of the elbow (olecranon process) and the midpoint of the prominent bone of the wrist (styloid process)
- **Record** ulna length on MUST chart



Women		
Ulna length (cm)	Under 65 years	65 years & over
	Approximate height (metres)	
32.0 →	1.84	1.84
31.5 →	1.83	1.83
31.0 →	1.81	1.81
30.5 →	1.80	1.79
30.0 →	1.79	1.78
29.5 →	1.77	1.76
29.0 →	1.76	1.75
28.5 →	1.75	1.73
28.0 →	1.73	1.71
27.5 →	1.72	1.70
27.0 →	1.70	1.68
26.5 →	1.69	1.66
26.0 →	1.68	1.65
25.5 →	1.66	1.63
25.0 →	1.65	1.61
24.5 →	1.63	1.60
24.0 →	1.62	1.58
23.5 →	1.61	1.56
23.0 →	1.59	1.55
22.5 →	1.58	1.53
22.0 →	1.56	1.52
21.5 →	1.55	1.50
21.0 →	1.54	1.48
20.5 →	1.52	1.47
20.0 →	1.51	1.45
19.5 →	1.50	1.44
19.0 →	1.48	1.42
18.5 →	1.47	1.40

Men		
Ulna length (cm)	Under 65 years	65 years & over
	Approximate height (metres)	
32.0 →	1.94	1.87
31.5 →	1.93	1.86
31.0 →	1.91	1.84
30.5 →	1.89	1.82
30.0 →	1.87	1.81
29.5 →	1.85	1.79
29.0 →	1.84	1.78
28.5 →	1.82	1.76
28.0 →	1.80	1.75
27.5 →	1.78	1.73
27.0 →	1.76	1.71
26.5 →	1.75	1.70
26.0 →	1.73	1.68
25.5 →	1.71	1.67
25.0 →	1.69	1.65
24.5 →	1.67	1.63
24.0 →	1.66	1.62
23.5 →	1.64	1.60
23.0 →	1.62	1.59
22.5 →	1.60	1.57
22.0 →	1.58	1.56
21.5 →	1.57	1.54
21.0 →	1.55	1.52
20.5 →	1.53	1.51
20.0 →	1.51	1.49
19.5 →	1.49	1.48
19.0 →	1.48	1.46
18.5 →	1.46	1.45

② To find estimated height from ulna length – Complete this once, on admission

Follow a. b. c. below and USE THESE TABLES

(there are separate tables for women and men)

- Find the patients **ulna length** on the left hand side of the table
- Follow the **arrow** to the right of the patients ulna length (being sure not to cross any black lines) and find the estimated height for the patients age
- Record** estimated height on MUST chart

For example If a woman aged 72 has an ulna length of 26cm, her approximate height will be 1.65m

* **Can't use left arm?** Use right arm instead and record this on MUST chart

* **Estimated height from ulna length does not seem to match the patients' appearance?** Ulna length measurement should be repeated by another trained staff member. If ulna length still does not match patients' appearance, use patients appearance and height conversion chart to decide their approximate height and record this process on MUST chart

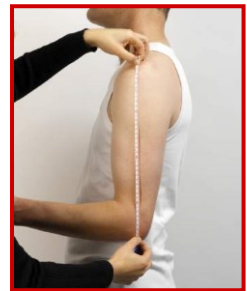
Healthcare professional/ carer guide - How to complete MUST alternative measurements – Mid upper arm circumference (MUAC)

- Mid upper arm circumference (MUAC) is an estimation of BMI. It is **not** an accurate measure of BMI
- **MUAC** should only be used when:
 - It is not possible to weigh a patient **OR**
 - A patient has oedema and therefore their weight will not be accurate

- **MUAC needs 2 separate measurements** to be taken:
 - ① Mid-point of upper arm
 - ② Mid upper arm circumference

① To measure mid-point of upper arm – Complete this once, the first time MUAC needs to be measured only

- Ensure the patients **left arm** is bare from top of shoulder to elbow
- Ask the patient to **bend their arm** at the elbow at a 90 degree angle, with the upper arm held against their body (as in this picture)
- Measure** the distance between the bony protrusion at the top of the shoulder (acromion) and the point of the elbow (olecranon process) (as in this picture)
- Halve this figure** to give the mid-point of the upper arm
- Record** this measurement on MUST chart **NB** *this measurement is **NOT** mid upper arm circumference (MUAC)*



② To measure mid upper arm circumference (MUAC) – Measure MUAC at least once per month and try to ensure that the same staff member measures MUAC each time

- Ensure the patients **left arm** is bare from top of shoulder to elbow
 - Ask the patient to **let their arm hang loose** by their side (as in this picture)
 - Measure** down from the bony protrusion on the shoulder to the **mid-point measurement** (obtained above) and with a pen, mark this point on the patients arm
 - Pass the tape measure behind the patients arm and **measure** around the upper arm at the pen mark, making sure that the tape measure is level, and snug but not tight (as in this picture)
 - Record** MUAC measurement on MUST chart instead of, or as well as, weight
- **MUAC of less than 23.5cm** indicates BMI is likely to be less than 20 (underweight)
 - **MUAC of more than 23.5cm** indicates BMI is likely to be more than 20 (normal weight)
- NB MUAC will not generate a BMI score**



For example If you are unable to weigh a patient, and their MUAC is 22cm then they are likely to have a BMI of less than 20 and therefore may need to be treated as **medium** or **high** risk of malnutrition

- **If MUAC decreases over time** this can indicate that the patient is losing weight and therefore may need to be treated as a higher risk of malnutrition
- **If MUAC increases over time** this can indicate that the patient is gaining weight and therefore may need to be treated as a lower risk of malnutrition

* **Can't measure left arm?** Measure right arm and record on MUST chart that mid-point measurement is for **right** arm

* **Patient has oedema in upper arms?** MUAC will not be accurate therefore do not measure and use subjective data (see Healthcare professional/ carer guide – How to complete MUST) instead

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